Appendix E

New Monitoring Well Completions

Lidstone and Associates, Inc.
Engineering, Geology, & Water Resource Consulting

ANC Tailings Pond No. 1 Project
Monitor Well Drilling History

Owner: Wyoming Department of Environmental Quality (WDEQ)
Engineer: Lidstone and Associates, Inc. (LA)
Contractor: Inberg Miller Engineers (IME)

Date, Day	Site Activities
7/30/15, Thursday	Drilled, completed, and developed PW-10. The Wind River Formation had a field conductivity of 4.20 mS/cm, and a chloride concentration of 241 mg/L. Developed PW13 and PW14.
7/29/15, Wednesday	Finished drilling, completed, and developed PW2. The Cody Shale had a field conductivity of 5.33 mS/cm, and a chloride concentration of 452 mg/L. Developed PW3. The Cody Shale at this location had a field conductivity of 4.35 mS/cm, and a chloride concentration of 57 mg/L.
7/28/15, Tuesday	Developed PW5. The Wind River Formation at this site had a field conductivity of 3.77 mS/cm, and a chloride concentration of 86 mg/L. Drilled and completed PW3. Encountered water in the Cody Shale. Began drilling PW2.
7/27/15, Monday	Drilled and completed PW 5.
7/23/15, Thursday	Completed and developed PW9. The Wind River had a field conductivity of 2.21 mS/cm, and a chloride concentration of 64 mg/L.
7/22/15, Wednesday	Finished drilling and completed PW14. The Wind River had a field conductivity of 4.46 mS/cm and a chloride concentration of 587 mg/L. Drilled PW9.
7/21/15, Tuesday	Completed PW13B. Initiated but could not finish development. Partially drilled PW14. The alluvium was dry at PW14, but the Wind River Formation is water bearing.
7/20/15, Monday	Drilled and abandoned at test hole at PW13A. The alluvium was dry, but water was encountered in the Wind River Formation. The Wind River had an electrical conductivity of 1,175 uS/cm, and a chloride concentration of 19 mg/L. Drilled and partially completed PW13B. Again, the alluvium was dry, but water was obtained from the Wind River Formation. At this location, the Wind River had an electrical conductivity of 1,305 uS/cm, and a chloride concentration of 22 mg/L.
7/19/15, Sunday	Finished drilling, completed, and developed PW12. The alluvium at PW12 had a field conductivity of 4.74 mS/cm and a chloride concentration of 199 mg/L.
7/18/15, Saturday	Drilled, completed, and developed PW1. The alluvium at PW1 had a field conductivity of 6.08 mS/cm and a chloride concentration of 154 mg/L. Began drilling at the PW12 drill site and will finish tomorrow.
7/17/15, Friday	Drilled, completed, and developed PW15 and PW7. The alluvium at PW15 was dry. The alluvium at PW7 had a field conductivity of 9.58 mS/cm and a chloride concentration of 113 mg/L.
7/16/15, Thursday	Completed and developed PW8. The alluvium at PW8 had a conductivity of 5.66 mS/cm and a chloride concentration of 192 mg/L. Drilled, completed, and developed PW4. The alluvium at PW4 exhibited an electrical conductivity of 2.95 mS/cm and a chloride concentration of 76 mg/L.
7/15/15, Wednesday	Drilled and completed PW6 to a depth of 19 feet. Completed development on PW6. The alluvium at PW6 had a conductivity of 2.58 mS/cm, and a chloride concentration of 66 mg/L. Drilled and partially completed PW8. An afternoon thunderstorm delayed well completion and development on PW8 until Thursday.
7/14/15, Tuesday	IME and LA collaborated to complete the drilling of test holes adjacent to MW-2, MW-5, and MW-11. The test holes had the following

ANC Tailings Pond No. 1 Project
Monitor Well Drilling History

Owner: Wyoming Department of Environmental Quality (WDEQ)
Engineer: Lidstone and Associates, Inc. (LA)
Contractor: Inberg Miller Engineers (IME)

Date, Day	Site Activities
	conductivity/chloride concentrations: MW-2 – 8.65 mS/cm/478 mg/L; MW-5 – 4.14 mS/cm/217 mg/L; and MW-11 – 2.19 mS/cm/101 mg/L. Test holes were drilled at these locations to identify geologic conditions that were not previously reported for these wells.
7/13/15, Monday	IME and LA arrived onsite, visited all the drilling locations to confirm access, built the gate to access PW 5 and PW6, and started drilling the test hole adjacent to MW-2.

Z:\project\WYDEQ104\TASK ORDER 1\Final Report\Appendix E\ANC 2015 Drilling History 7-14-15.docx/

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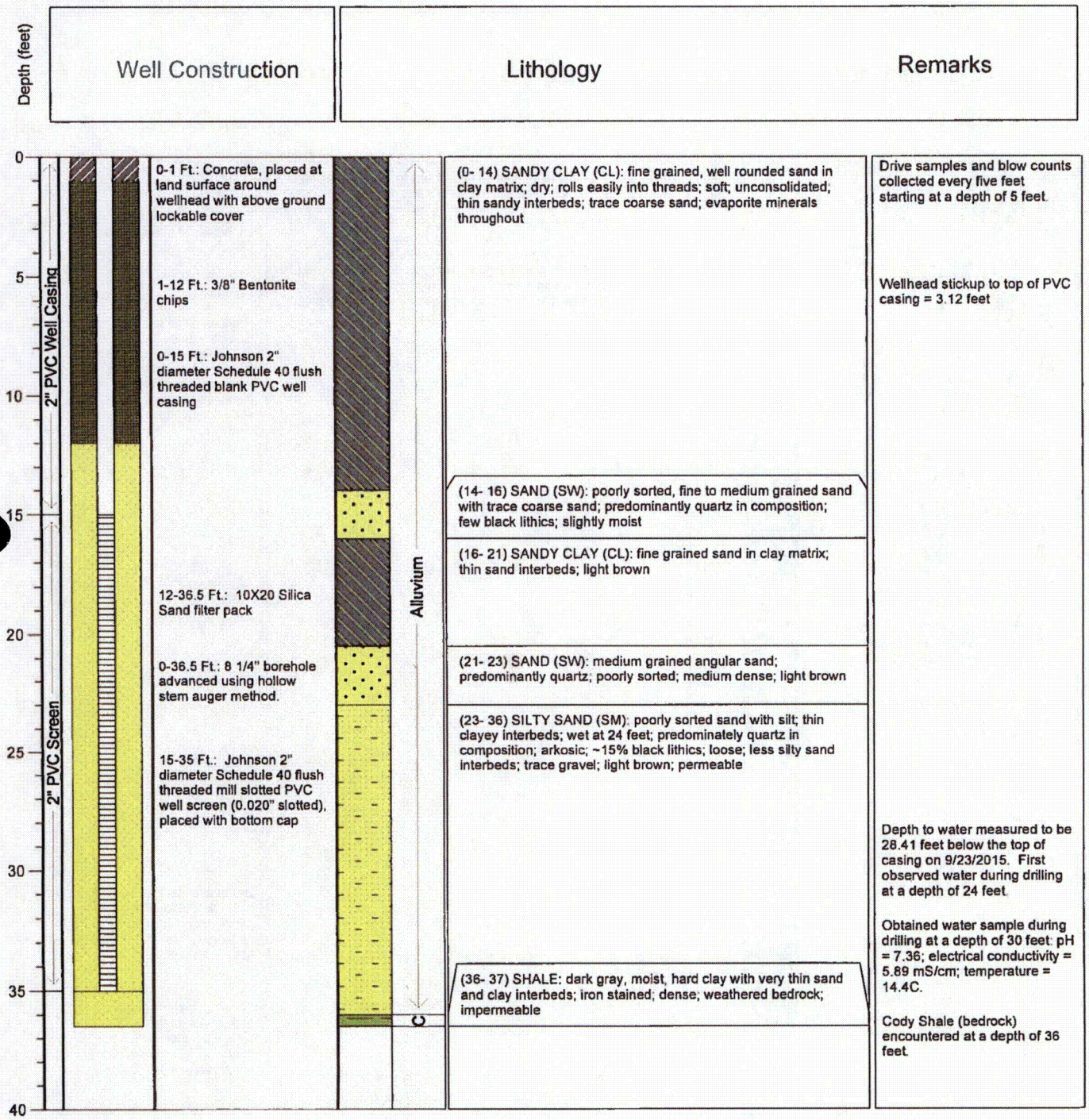
Project: ANC Tailings
Location: T33N, R90W, Sec. 17 NENW
Drilled by: Inberg Miller Engineers
Date started: July 18, 2015
Date completed: July 18, 2015

Well Name: MW-18
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy/C. Cannan
Total depth: 35 Ft.
Elev.: 6,155 Ft.



Notes: This figure presents the completion details for the MW-18 monitoring well. The well lies in Willow Springs Draw north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.5 hours. LA recorded an average pumping discharge of 1.2 gallons per minute during development. Final water quality parameters upon completion of development included the following: pH = 7.30, temperature = 10.4C, and electrical conductivity = 6.08 mS/cm.

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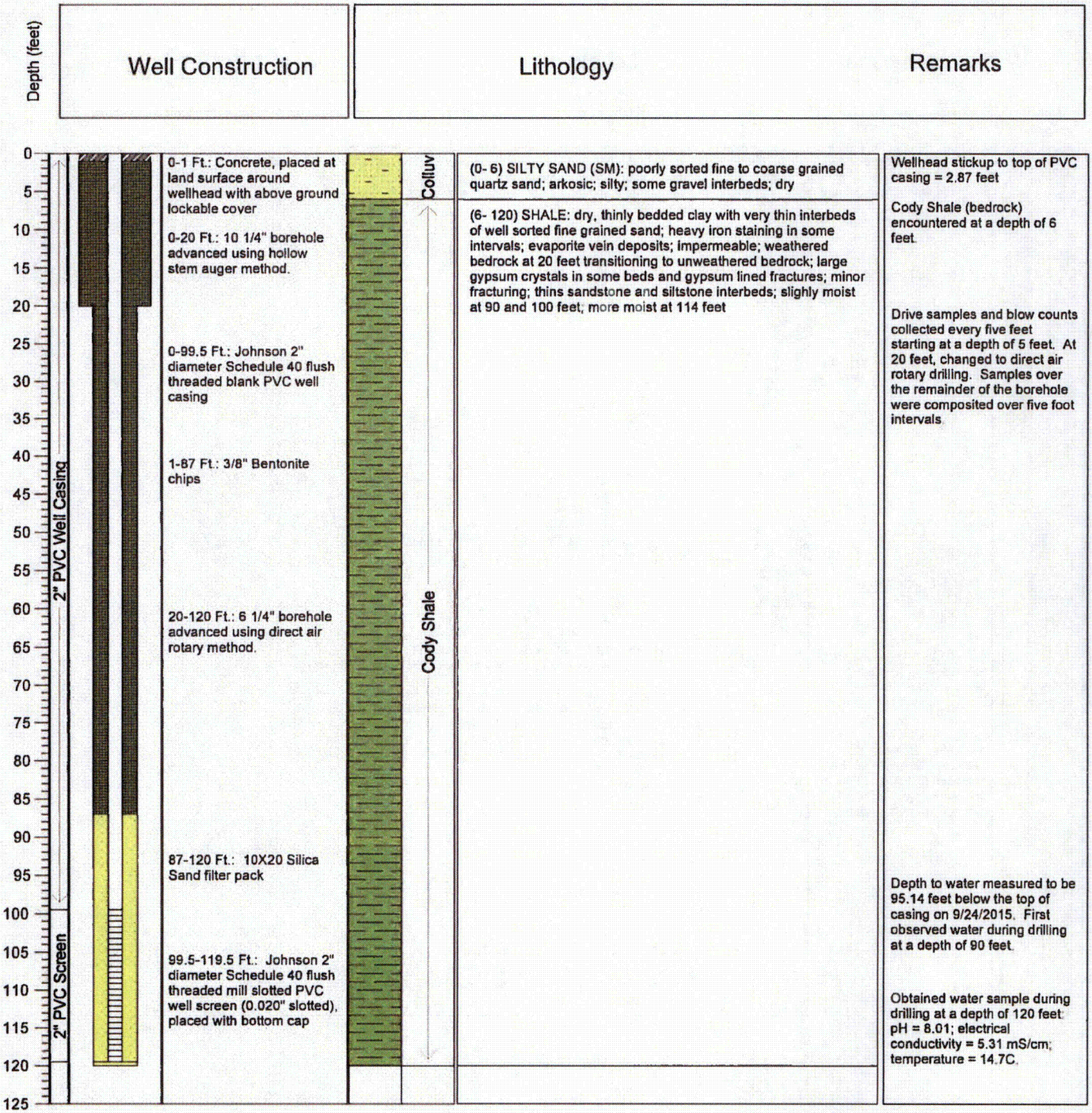
Project: ANC Tailings
Location: T33N, R90W, Sec. 17 SENE
Drilled by: Inberg Miller Engineers
Date started: July 28, 2015
Date completed: July 29, 2015

Well Name: MW-19
Drilling Method: Hollow Stem Auger/Rotary
Logged by: M. Stacy/C. Cannan
Total depth: 119.5 Ft.
Elev.: 6,250 Ft.



Notes: This figure presents the completion details for the MW-19 monitoring well. The well lies northeast of Willow Springs Draw north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and both hollow stem auger and direct air rotary methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and bailing techniques. The well screens were developed for approximately 1.5 hours. LA recorded an average pumping discharge of 0.1gallons per minute during development. Final water quality parameters following development included the following: pH = 8.09, temperature = 12.9C, and electrical conductivity = 5.33 mS/cm.

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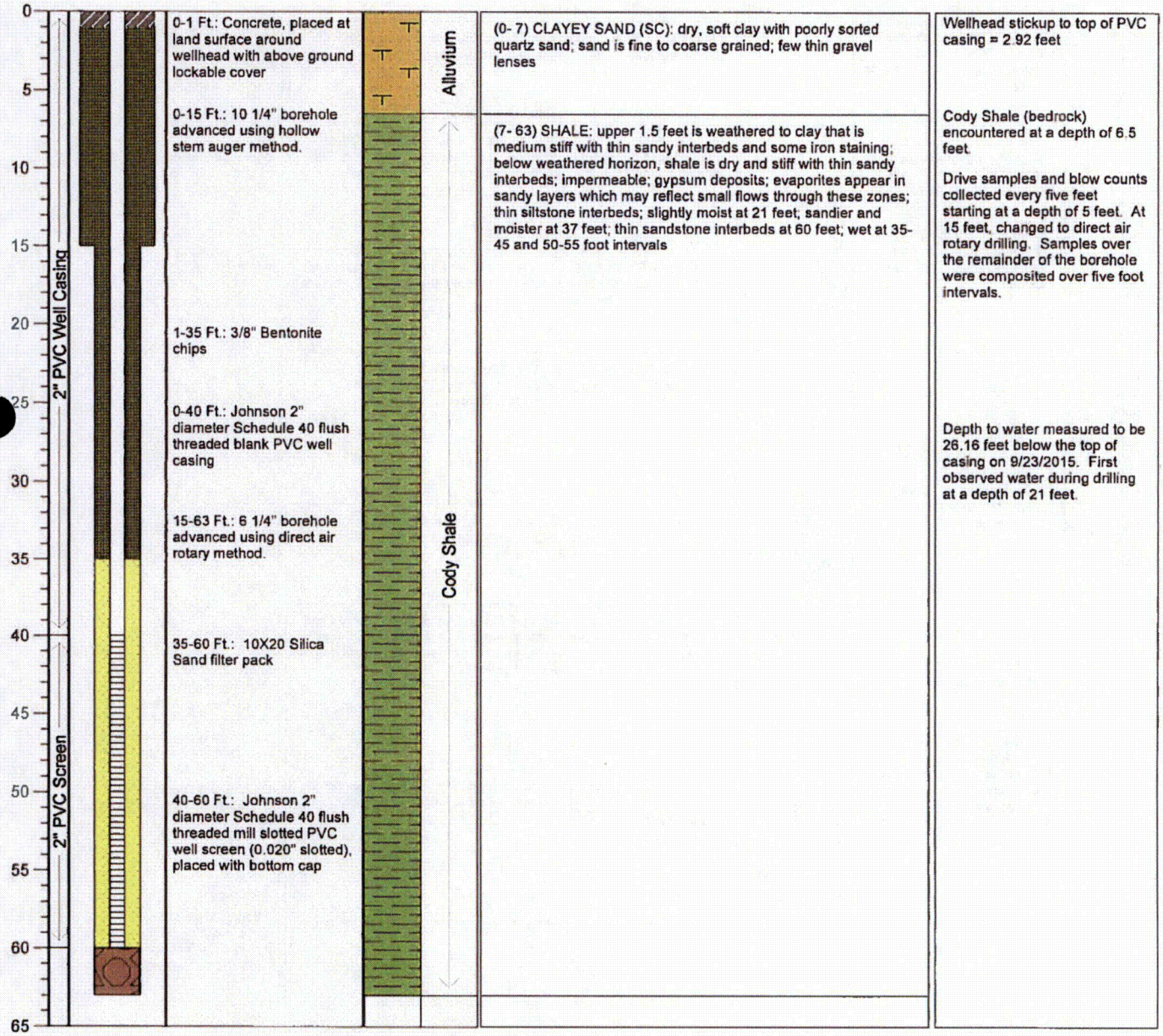
Project: ANC Tailings
Location: T33N, R90W, Sec. 17 NESW
Drilled by: Inberg Miller Engineers
Date started: July 28, 2015
Date completed: July 28, 2015

Well Name: MW-20
Drilling Method: Hollow Stem Auger/Rotary
Logged by: M. Stacy/C. Cannan
Total depth: 60 Ft.
Elev.: 6,199 Ft.



Notes: This figure presents the completion details for the MW-20 monitoring well. The well lies southwest of Willow Springs Draw north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and both hollow stem auger and direct air rotary methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hour. LA recorded an average pumping discharge of 0.4gallons per minute during development. Final water quality parameters following development included: pH = 8.07, temperature = 12.6C, and electrical conductivity = 4.35 mS/cm.

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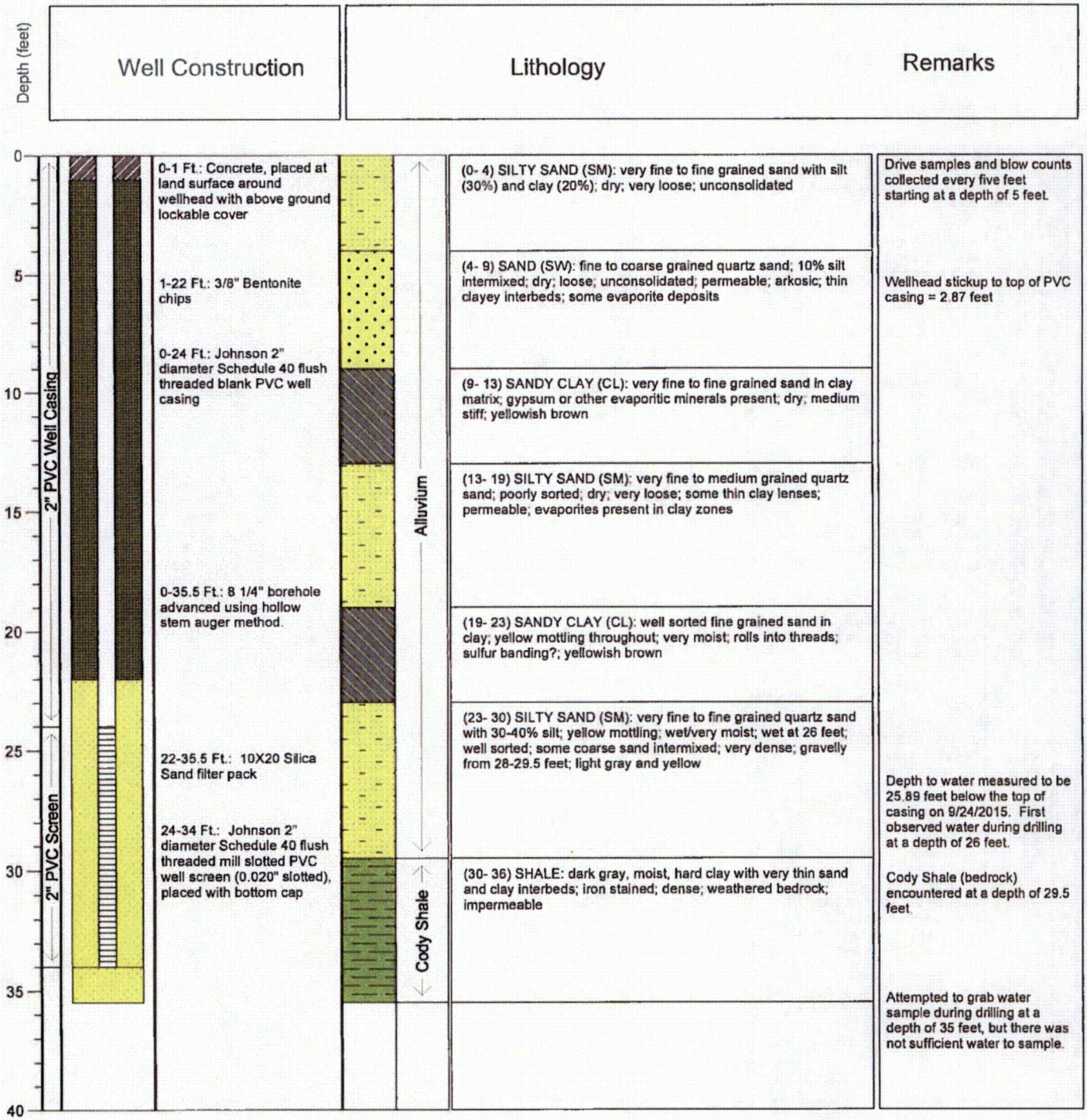
Project: ANC Tailings
Location: T33N, R90W, Sec. 17 SESE
Drilled by: Inberg Miller Engineers
Date started: July 16, 2015
Date completed: July 16, 2015

Well Name: MW-21
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy
Total depth: 34 Ft.
Elev.: 6,219 Ft.



Notes: This figure presents the completion details for the MW-21 monitoring well. The well lies in Willow Springs Draw north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hour. LA recorded an average pumping discharge of 0.3 gallons per minute during development. Final water quality parameters upon completion of development included the following: pH = 6.96, temperature = 20.8C, and electrical conductivity = 2.95 mS/cm.

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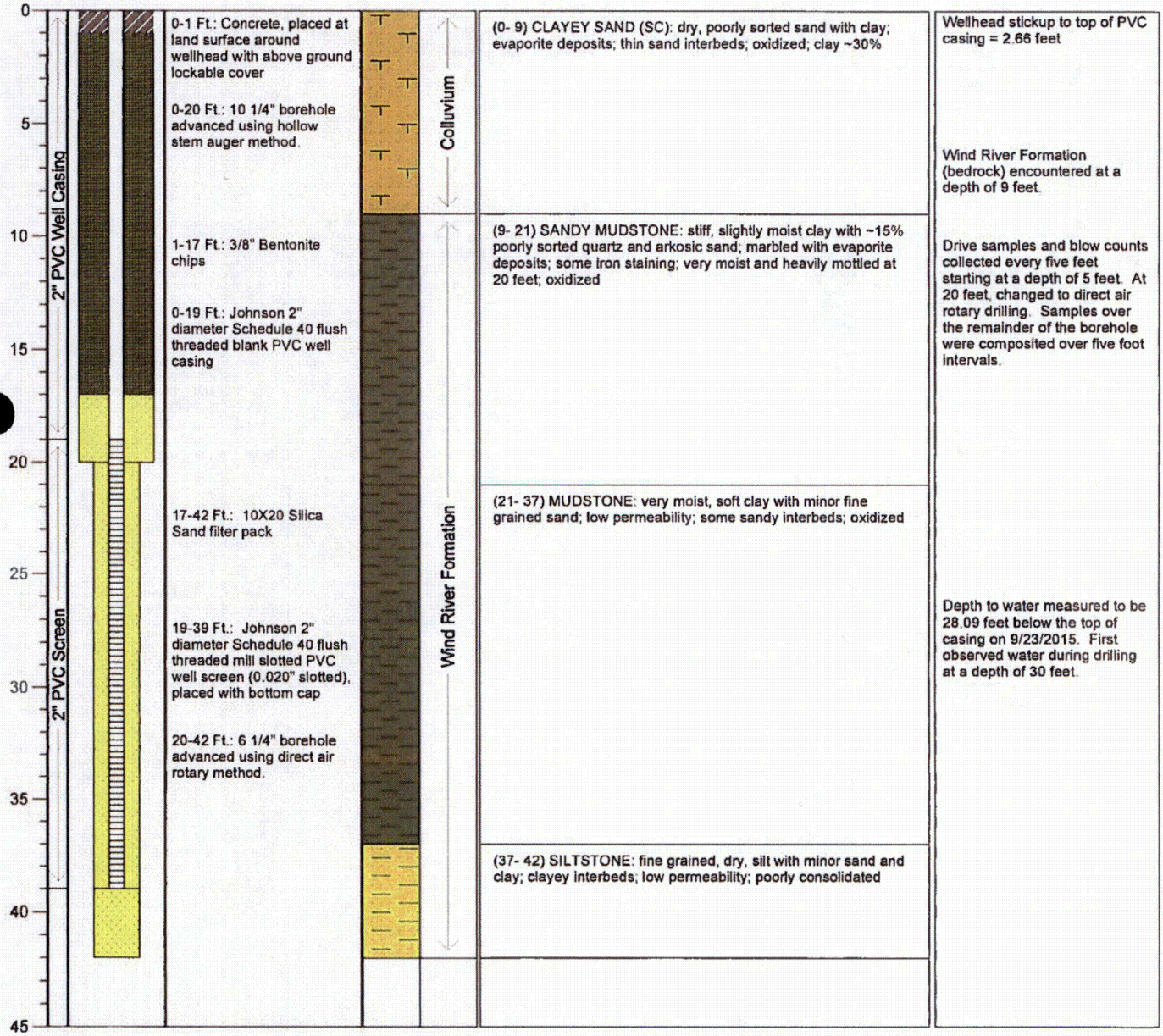
Project: ANC Tailings
Location: T33N, R90W, Sec. 21 NESW
Drilled by: Inberg Miller Engineers
Date started: July 27, 2015
Date completed: July 27, 2015

Well Name: MW-22
Drilling Method: Hollow Stem Auger/Rotary
Logged by: M. Stacy/C. Cannan
Total depth: 39 Ft.
Elev.: 6,332 Ft.



Notes: This figure presents the completion details for the MW-22 monitoring well. The well lies northeast of Willow Springs Reservoir north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and both hollow stem auger and direct air rotary methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hour. LA recorded an average pumping discharge of 0.3 gallons per minute during development. Final water quality parameters thereafter included: pH = 8.33, temperature = 13.9C, and electrical conductivity = 3.77 mS/cm.

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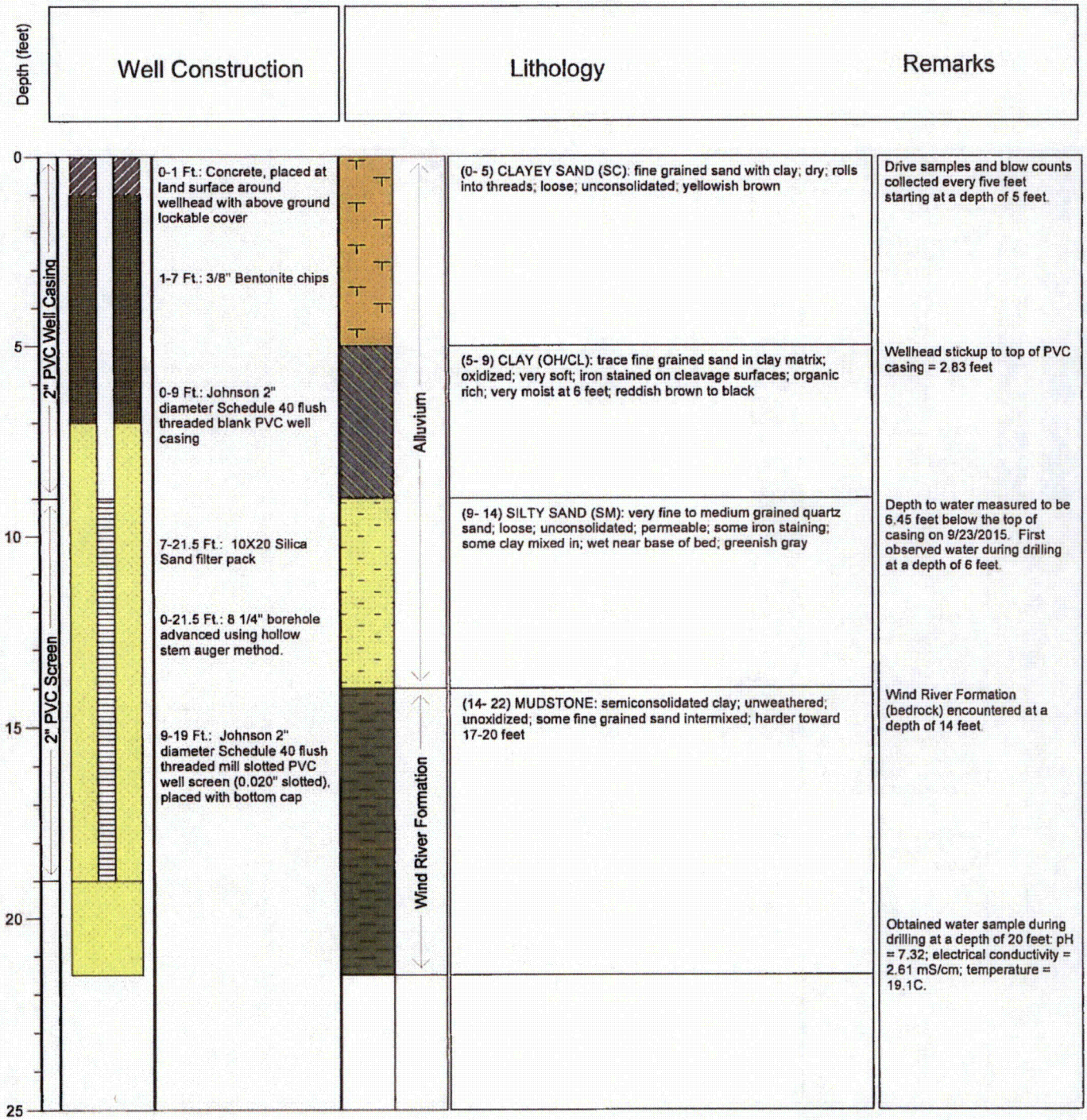
Project: ANC Tailings
Location: T33N, R90W, Sec. 21 NESW
Drilled by: Inberg Miller Engineers
Date started: July 15, 2015
Date completed: July 15, 2015

Well Name: MW-23
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy
Total depth: 19 Ft.
Elev.: 6,309 Ft.



Notes: This figure presents the completion details for the MW-23 monitoring well. The well lies in Willow Springs Draw just above Willow Springs Reservoir north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hour. LA recorded an average pumping discharge of 1.3 gallons per minute during development. Final water quality parameters thereafter included: pH = 7.26, temperature = 11.0C, and electrical conductivity = 2.57 mS/cm.

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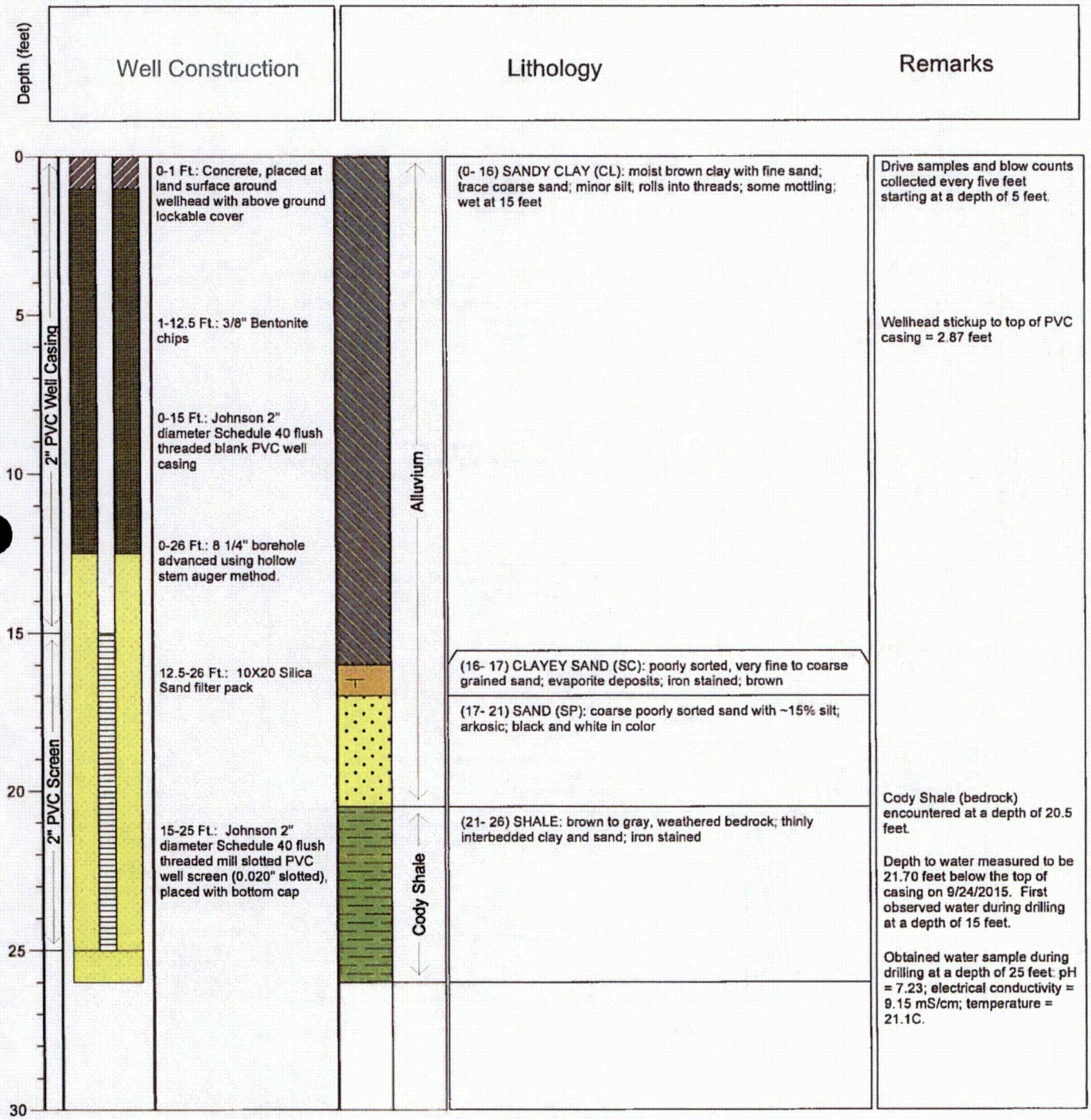
Project: ANC Tailings
Location: T33N, R90W, Sec. 17 NESE
Drilled by: Inberg Miller Engineers
Date started: July 17, 2015
Date completed: July 17, 2015

Well Name: MW-24
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy/C. Cannan
Total depth: 25 Ft.
Elev.: 6,215 Ft.



Notes: This figure presents the completion details for the MW-24 monitoring well. The well lies northeast of Willow Springs Draw north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hour. LA recorded an average pumping discharge of 0.3 gallons per minute during development. Final water quality parameters upon completion of development included the following: pH = 7.24, temp = 12.7C, and electrical conductivity = 9.58 mS/cm.

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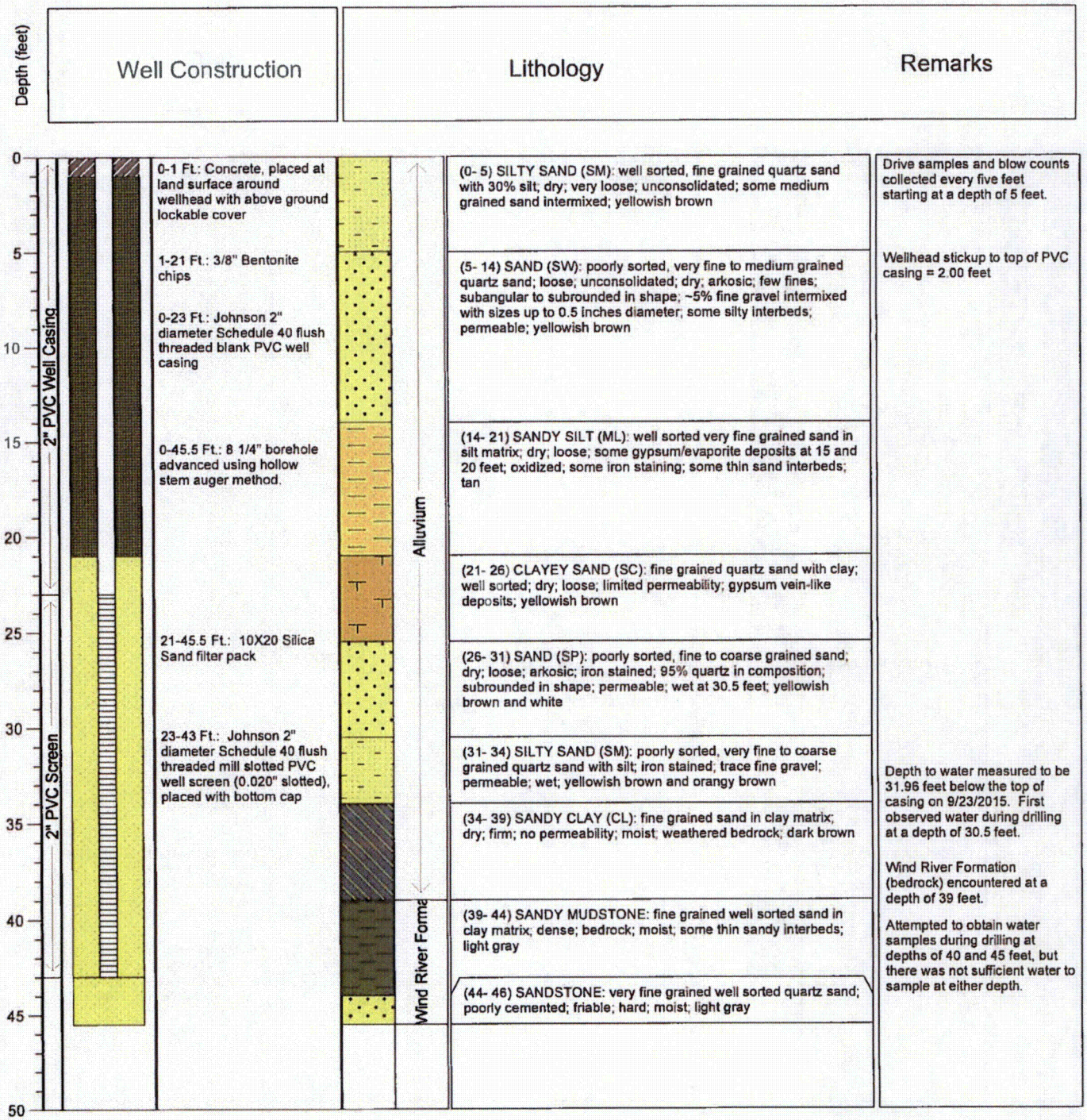
Project: ANC Tailings
Location: T33N, R90W, Sec. 20 NWNE
Drilled by: Inberg Miller Engineers
Date started: July 15, 2015
Date completed: July 15, 2015

Well Name: MW-25
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy
Total depth: 43 Ft.
Elev.: 6,247 Ft.



Notes: This figure presents the completion details for the MW-25 monitoring well. The well lies in Willow Springs Draw north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hour. LA recorded an average pumping discharge of 0.6 gallons per minute during development. Final water quality parameters following development included the following: pH = 7.38, temperature = 13.3C, and electrical conductivity = 5.66 mS/cm.

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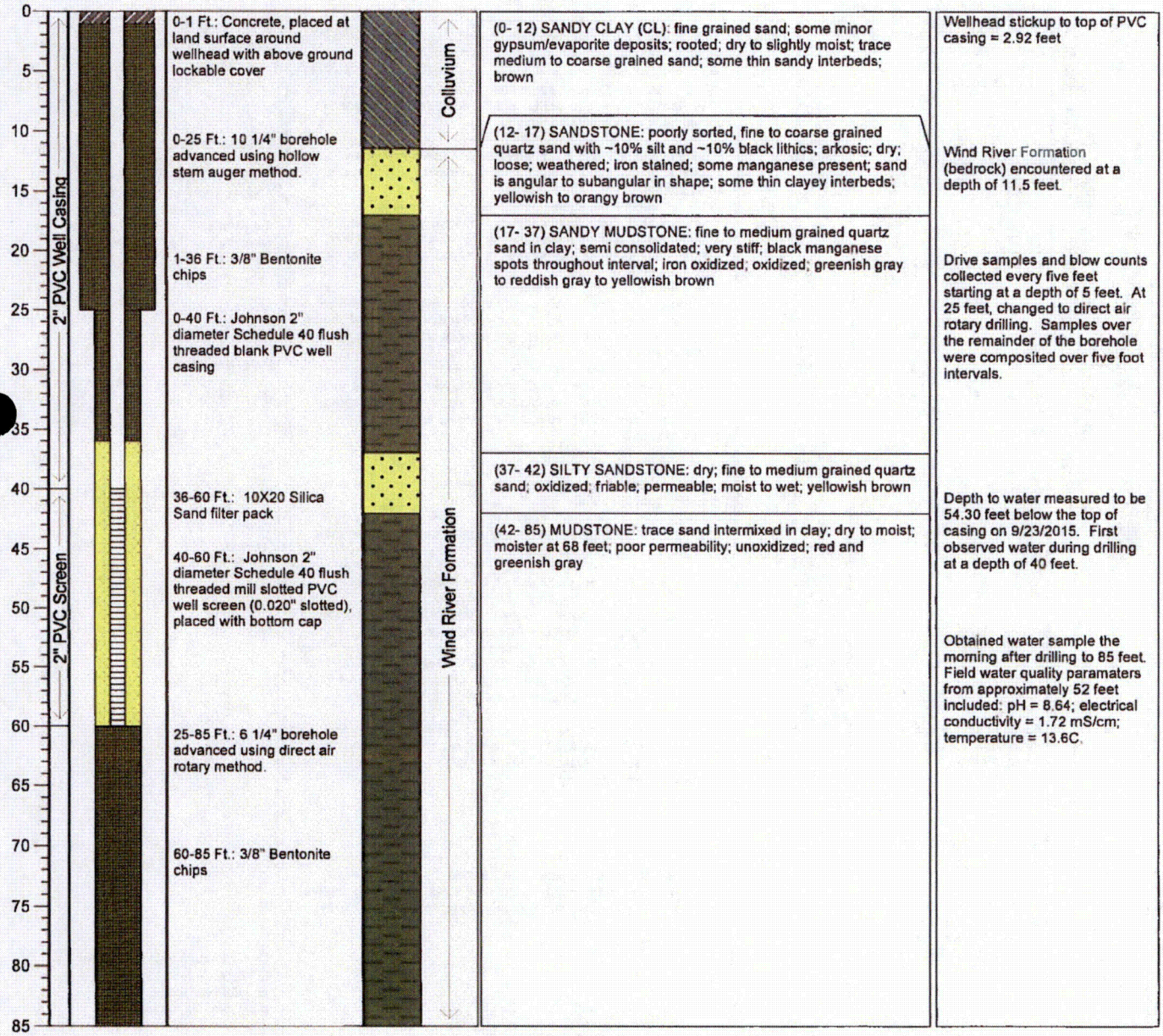
Project: ANC Tailings
Location: T33N, R90W, Sec. 20 NWSE
Drilled by: Inberg Miller Engineers
Date started: July 22, 2015
Date completed: July 23, 2015

Well Name: MW-26
Drilling Method: Hollow Stem Auger/Rotary
Logged by: M. Stacy
Total depth: 60 Ft.
Elev.: 6,334 Ft.



Notes: This figure presents the completion details for the MW-26 monitoring well. The well lies southwest of Willow Springs Draw north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and both hollow stem auger and direct air rotary methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hour. LA recorded an average pumping discharge of 0.4 gallons per minute during development. Final water quality parameters after development included: pH = 9.08, temperature = 13.1C, and electrical conductivity = 2.21 mS/cm.

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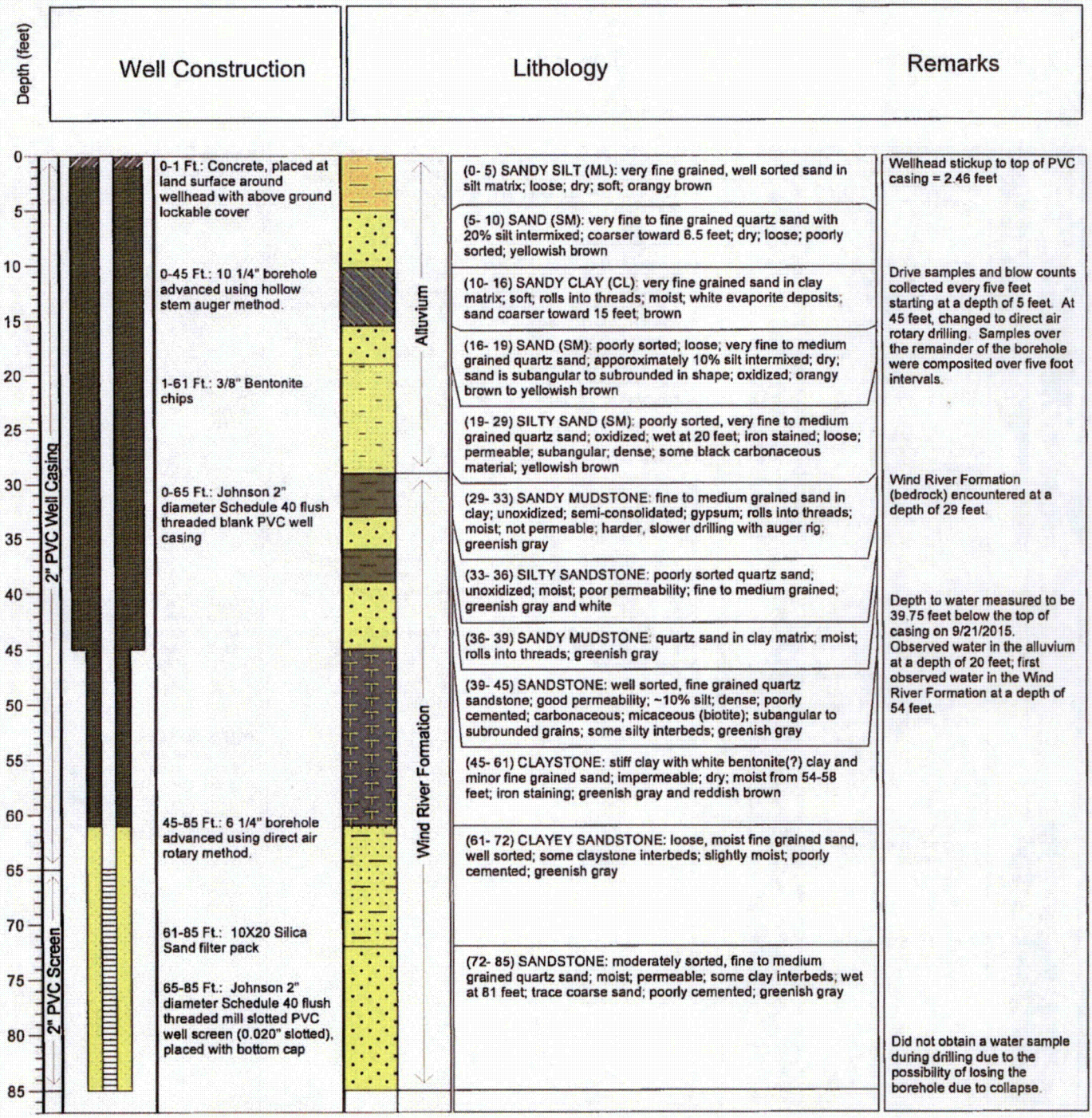
Project: ANC Tailings
Location: T33N, R90W, Sec. 28 NWNW
Drilled by: Inberg Miller Engineers
Date started: July 30, 2015
Date completed: July 30, 2015

Well Name: MW-27
Drilling Method: Hollow Stem Auger/Rotary
Logged by: M. Stacy/C. Cannan
Total depth: 85 Ft.
Elev.: 6,372 Ft.



Notes: This figure presents the completion details for the MW-27 monitoring well. The well lies immediately north of Tailings Pond 1 next to MW-2. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and both hollow stem auger and direct air rotary methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.25 hours. LA recorded an average pumping discharge of 1.2 gallons per minute during development. Final water quality parameters after development included: pH = 6.70, temperature = 12.0C, and electrical conductivity = 4.20 mS/cm.

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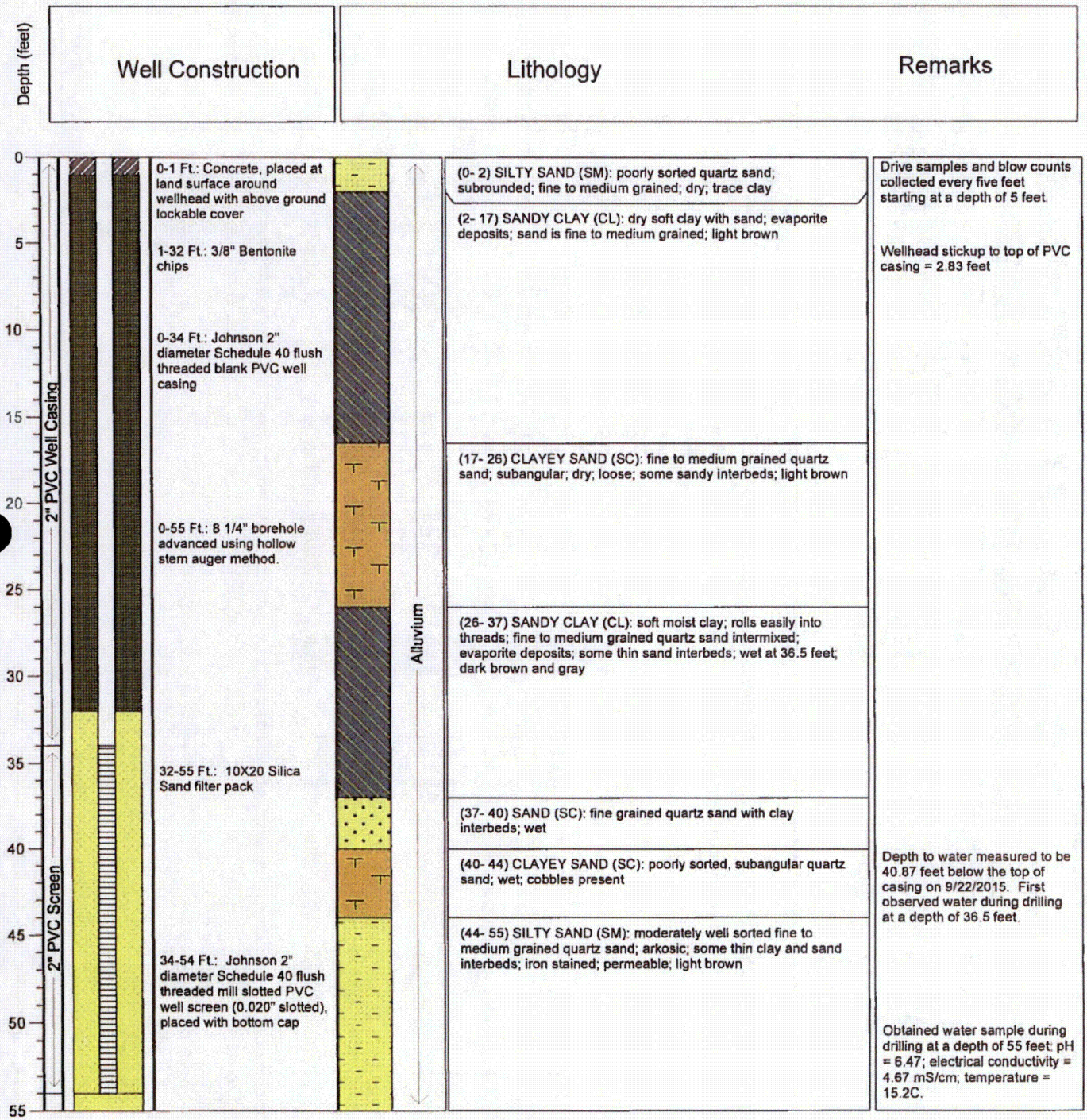
Project: ANC Tailings
Location: T33N, R90W, Sec. 28 SENW
Drilled by: Inberg Miller Engineers
Date started: July 18, 2015
Date completed: July 19, 2015

Well Name: MW-28
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy/C. Cannan
Total depth: 54 Ft.
Elev.: 6,425 Ft.



Notes: This figure presents the completion details for the MW-28 monitoring well. The well lies in Willow Springs Draw immediately north of Tailings Pond 2. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hours. LA recorded an average pumping discharge of 1.0 gallons per minute during development. Final water quality parameters after development included: pH = 6.45, temperature = 11.3C, and electrical conductivity = 4.74 mS/cm.

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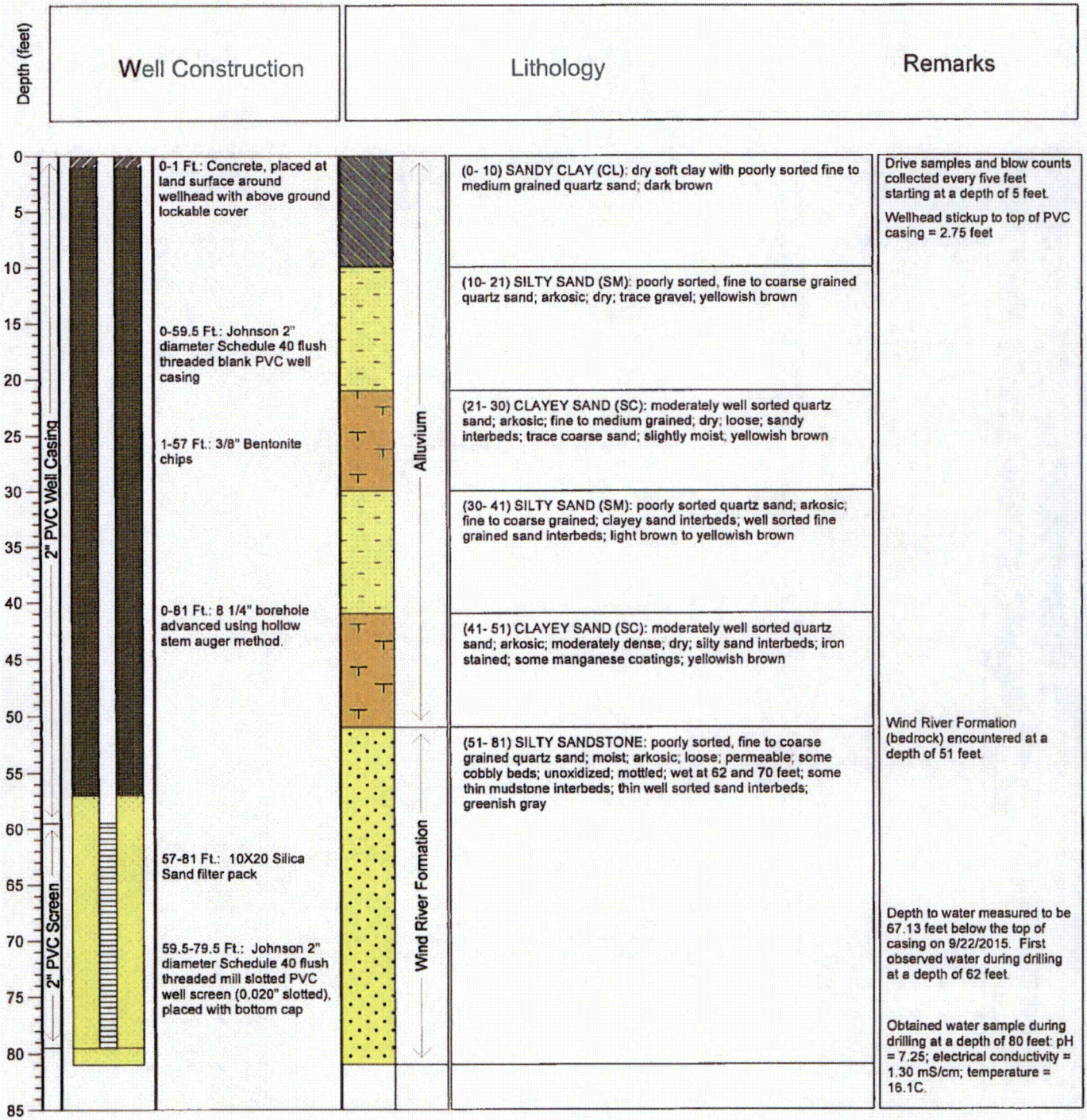
Project: ANC Tailings
Location: T33N, R90W, Sec. 33 SWNE
Drilled by: Inberg Miller Engineers
Date started: July 20, 2015
Date completed: July 21, 2015

Well Name: MW-29
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy/C. Cannan
Total depth: 79.5 Ft.
Elev.: 6,507 Ft.



Notes: This figure presents the completion details for the MW-29 monitoring well. The well lies in Willow Springs Draw south of Tailings Pond 2. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.5 hours. LA recorded an average pumping discharge of 1.4 gallons per minute during development. Final water quality parameters following development included: pH = 7.32, temperature = 10.5C, and electrical conductivity = 1.27 mS/cm.

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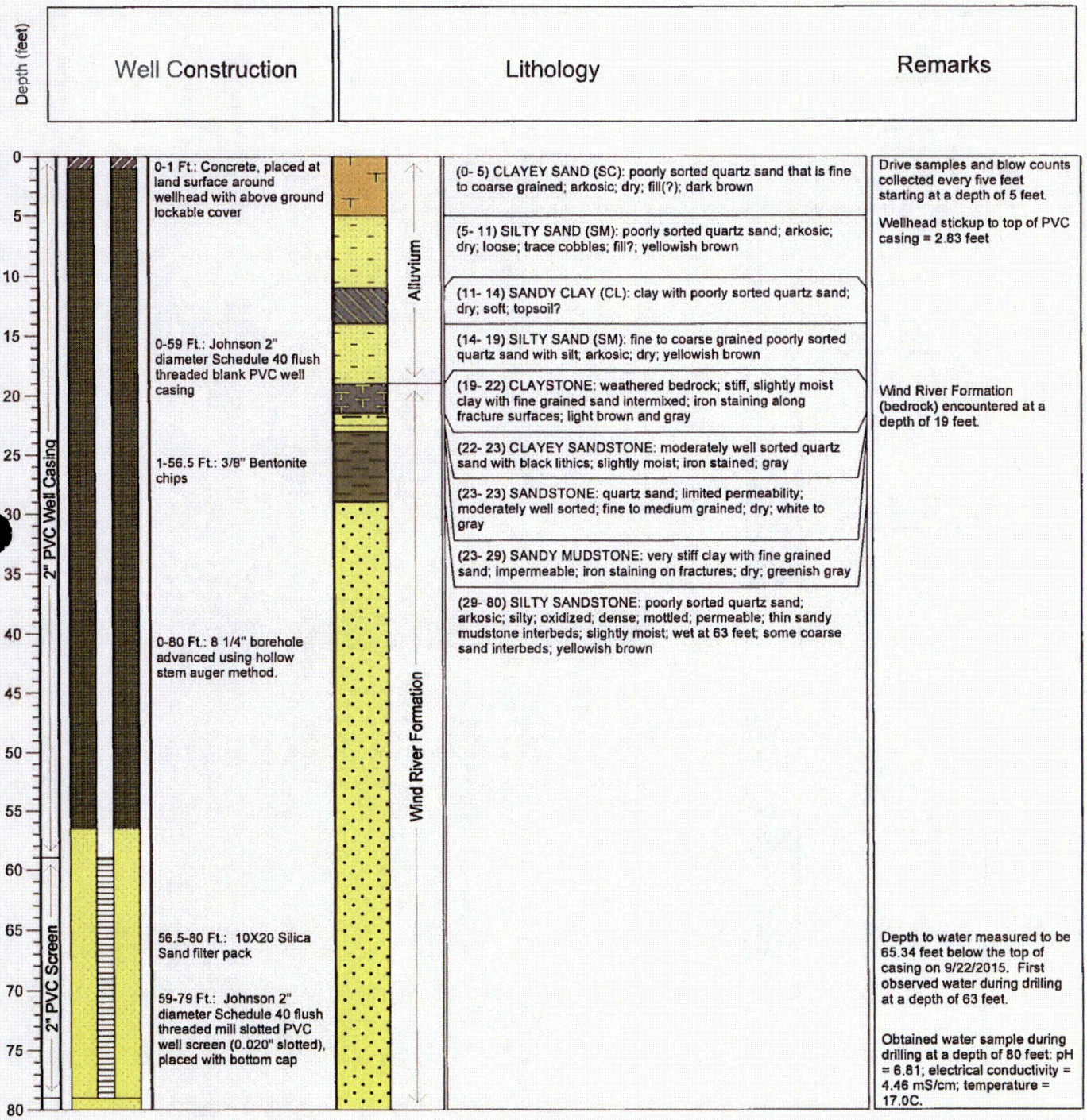
Project: ANC Tailings
Location: T33N, R90W, Sec. 28 NWSW
Drilled by: Inberg Miller Engineers
Date started: July 21, 2015
Date completed: July 22, 2015

Well Name: MW-30
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy/C. Cannan
Total depth: 79 Ft.
Elev.: 6,464 Ft.



Notes: This figure presents the completion details for the MW-30 monitoring well. The well lies immediately south and upgradient of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers developed the well by swabbing with a surge block, and pumping and surging techniques. The well screens were developed for approximately 1.0 hour. LA recorded an average pumping discharge of 1.3 gallons per minute during development. Final water quality parameters after development included: pH = 7.06, temperature = 10.9C, and electrical conductivity = 4.84 mS/cm.

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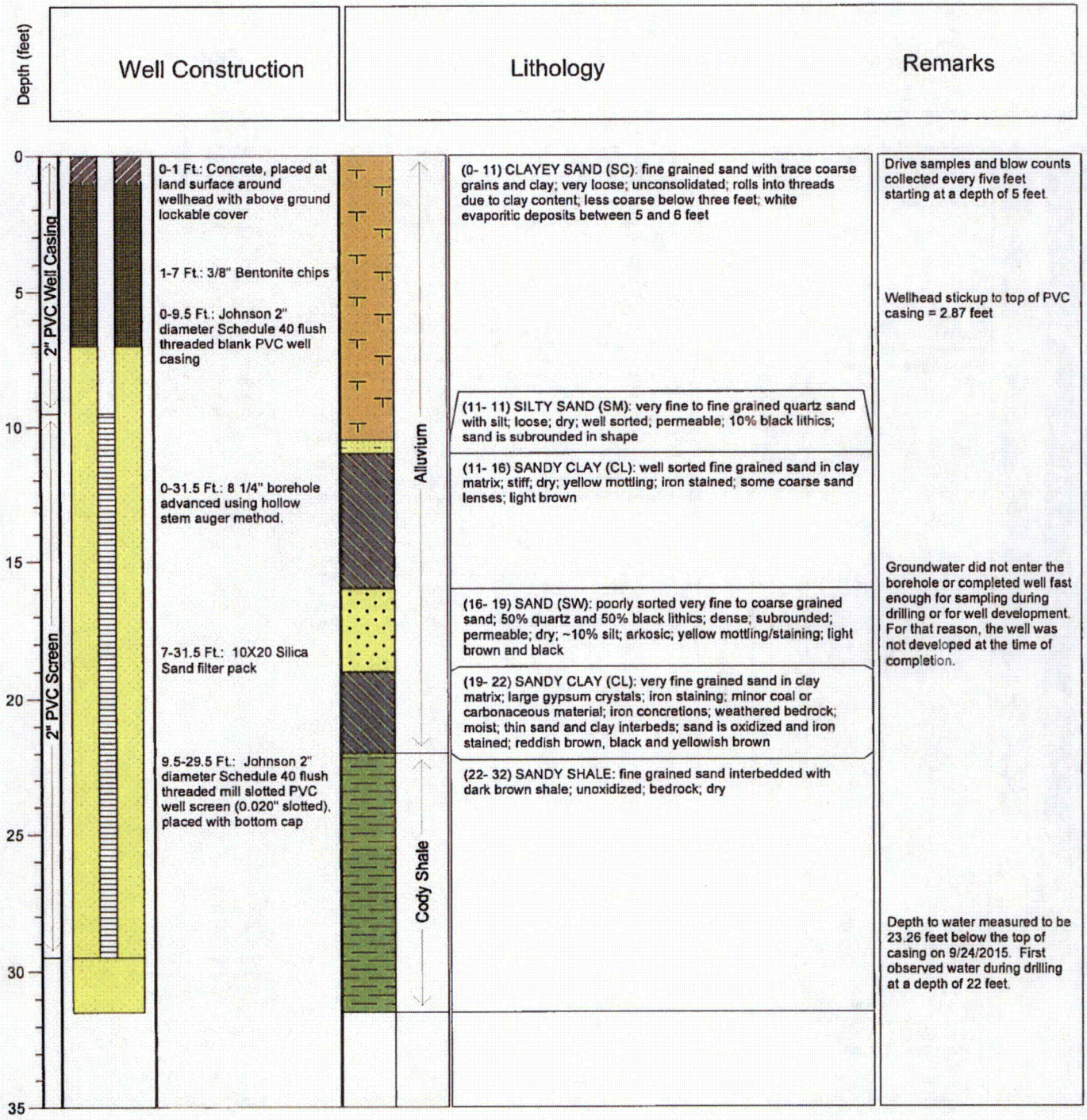
Project: ANC Tailings
Location: T33N, R90W, Sec. 16 NWSW
Drilled by: Inberg Miller Engineers
Date started: July 17, 2015
Date completed: July 17, 2015

Well Name: MW-31
Drilling Method: Hollow Stem Auger
Logged by: M. Stacy
Total depth: 29.5 Ft.
Elev.: 6,226 Ft.



Notes: This figure presents the completion details for the MW-31 monitoring well. The well lies northeast of Willow Springs Draw north of Tailings Pond 1. Inberg Miller Engineers drilled the well utilizing a CME 85 rig and hollow stem auger methods. Following two inch diameter flush threaded PVC casing and screen installation, Inberg Miller Engineers did not develop the well because it was dry at the time of completion. LA initially developed the well in August 2015. Final water quality parameters from that event included the following: pH = 7.60, temperature = 15.2C, and electrical conductivity = 6.14 mS/cm.

Appendix F

Laboratory Water Quality Reports

August 2015

Ground Water Field Sampling Sheet

Project: WYDEQ104 | Date: 8/5/15

Client: ANC | Technicians: JG, AEM

Well No.: PW-1/MW-18 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~32

Static Water Level from MP: 27.91 = 9.59' | Well Volume (WV): 1.57 gal

Total Well Depth from MP: 37.50 | Total to Evacuate (WVx3): 4.70

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
9:50	0.25	7.40	16.4	5.70	28.05	clear, little cloudy
9:55	0.32	7.46	12.7	5.98	"	flow rate higher?
10:00	0.31	7.41	12.2	5.99	"	20 oz. in 30 sec
10:05	0.28	7.40	12.5	5.99	"	180 oz in 30 sec slowing? clear
10:10	0.25	7.40	12.6	6.01	"	
☆☆	☆	Sampled @ 10:12 ☆☆			☆	
		Pump OFF @		10:29		
	H_2O level (ft)					H_2O Level Recovery Data
10:29	27.74					Collected w/ Pump in
10:34	27.95	- contents of hose fell back into				Well
10:39	27.94	well when pump shut off				
10:44	27.94	- raised static above original				
10:49	27.94					
10:54	27.94	- pulled out pump @			10:56	
10:59	27.935	- static remained @ 27.94'				
11:04	27.935					
11:09	27.93					
11:14	27.93					
11:19	27.93					
11:24	27.93					
11:29	27.93					

SAMPLE Name: JOHN GOHN Date: 8/5/15 Time: 10:12

Total Minutes Pumped: 39
Total Gallons Pumped: 11.8
Sample Handling:
Type of Analysis: Guideline 8
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ 104 | Date: 8/4/15
Client: ANC | Technicians: JW, HEM
Well No.: PW-2 / MW-19 | Casing Type/Dia.: 2" PVC
Measuring Point (MP): T.O.C. | Pump Depth: ~110'
Static Water Level from MP: ~~95.04'~~ 95.10' | Well Volume (WV): 4.46 gal
Total Well Depth from MP: 122.42' 27.32 | Total to Evacuate (WVx3): 13.38 gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
11:30	0.25				97.92	94.6' w/pump set
11:40	"	7.76	15.1	5.34	99.10	very cloudy, Gray
11:45	0.156	7.71	16.0	5.45	99.12	slowed pump
11:50	0.125	7.72	15.0	5.45	99.90	
11:55					100.45	
12:00	0.094	7.71	16.5	5.43	100.72	6 oz. in 30 sec
12:05	0.078	7.71	16.9	5.47		5 oz. in 30 sec
12:15	1.03	~~pump off~~		turned pump	up to dry	~ 6 gallons pumped so far
~~12:20~~	~~1.03~~					
12:20	1.03	7.76	12.8	5.40		tape not reading - jammed
12:22	RATE SLOWED - GOT DIRTY					
12:25	- Pumped Dry			- turned off pump	AND removed	- put tape in to Recover
12:30	→			→	111.25	
12:32					110.50	
12:35		13:15	103.07		109.38	
12:40		13:20	102.60		108.10	
12:45		13:25	102.22		107.05	
12:50		13:30	101.88		106.05	
12:55					105.35	
13:00	→			→	104.75	
13:05					104.18	
13:10					103.57	

SAMPLE Name: JOHN GOW Date: 8/4/15 Time:

Total Minutes Pumped
Total Gallons Pumped
Sample Handling
Type of Analysis: Guideline 8
Method: Bailer / (Pump) / Grab
Bailed/Pumped Dry?: Yes (No)

Comments / Notes:
~1.32 pm static = 96.25 - pump set @ ~112' 95.57 w/pump set - 4.25 GALLONS IN CASING

TIME	GPM	pH	Temp	COND	DRAWDOWN	Comments
~~7:53~~ 7:58	0.28	7.74	14.5	5.37		cloudy, DARK, GREENISH water
7:58	0.25	7.79	14.1	5.34		
☆	☆	☆	Sampled @ 8:00 pm		☆	☆ ☆
			Pump off @ 8:10 pm			

Ground Water Field Sampling Sheet

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Project: WYDEQ104
Date: 8/5/15
Client: ANC
Technicians: JVG, AEM
Well No.: PW-3/MW-20
Casing Type/Dia.: 2" PVC
Measuring Point (MP): T.O.C.
Pump Depth: ~42' → 48'
Static Water Level from MP: 26.175
Well Volume (WV): 5.96 gal
Total Well Depth from MP: 62.69' = 36.515'
Total to Evacuate (WVx3): 17.88 gal

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
11:48	0.375	7.88	18.6	4.08	35.40	24.51 static w/pump set
11:53	0.141	7.86	16.4	4.10	36.05	slowed pump
11:58	0.141	7.84	18.0	4.09	37.25	
12:03	0.109	7.84	19.3	4.09	37.92	flow slowing
12:10	0.078				37.55	turned up slightly
12:13	0.25	7.83	19.5	4.07	37.95	lowered pump to ~48'
12:20	0.125					
12:25	0.125	7.81	18.0	4.17	40.56'	
12:29		7.77	18.6	4.16	40.70'	7.3 gallons
12:31	0.078	7.78	19.4	4.17	40.70'	
12:36	0.094	7.75	20.0	4.16	40.50'	7.93 gallons
12:41	0.086	7.70	20.2	4.18	40.30'	8.36 gallons
12:51	0.125	7.63	18.3	4.20	42.30'	9.61 "
1:01	0.140	7.65	16.9	4.12	42.65'	19 oz/min 11 Gal total
1:11	0.094	7.58	18.7	4.24	42.25'	11.94
1:21	0.102	7.63	19.2	4.22	41.87'	12.96
1:31	0.102	7.60	19.6	4.23	41.72'	14 GAL
1:41	0.102	7.56	20.2	4.25	41.46'	begin filling 1 Gal jugs - 15 GAL
1:51	0.102	7.53	20.0	4.27	42.05'	16 GAL
2:01	0.094	7.55	20.5	4.23	41.42'	17 GAL
2:11	0.094	7.53	18.9	4.23	41.30'	3x casing vol
~~AAA~~	Sampled @ 2:15		WELL	OFF @ 2:35		

SAMPLE Name: JOHN GOIN Date: 8/5/15 Time:

Total Minutes Pumped: 167
Total Gallons Pumped: ~20 gallons
Sample Handling:
Type of Analysis: Guideline 8
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

started sampling @ 1:45 parameters stabilized after 2.5 casing vol's

Ground Water Field Sampling Sheet

Project: WyDEQ 104 | Date: 8/4/15

Client: ANC | Technicians: JVG, AEM

Well No.: PW-4 / MW-21 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~31'

Static Water Level from MP: 25.67 | Well Volume (WV): 1.89 gal

Total Well Depth from MP: 37.25 = 11.58' | Total to Evacuate (WVx3): 5.67 gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
4:30	0.45	7.03	15.8	2.97	26.95	25.28 w/ pump set
4:33	0.31				27.62	slowed pump
4:36	0.31	7.20	13.5	3.11	28.30	cloudy, milky
4:41	0.25	7.04	13.5	3.04	28.90	slowed pump AGAIN
4:46	0.14	6.64	13.8	2.98	29.52	slowed pump AGAIN
4:55	0.14	6.73	14.6	2.99	29.31	
5:00	"	6.53	15.3	2.94	29.27	
5:05	"	6.35	15.2	2.89	29.37	water getting warm in hose
5:10	"	6.30	15.1	2.89	29.42	
☆	☆☆☆	sampled	@ 5:15	☆☆☆		
		Pump	OFF @	5:40 –	pulled out pump and put level tape in well	

Time	H2O level (ft)		Time	H2O level (ft)		
5:41	28.69		6:26	26.50		
5:46	28.19		6:31	26.45		
5:50	27.67		6:36	26.38		
5:56	27.38		6:41	26.35		
6:01	27.16					
6:06	26.97					
6:11	26.81					
~~6:16~~ 6:19	26:63	← taken @ 6:19				
6:21	N/A	← skipped				

SAMPLE Name: DUP GW-1 | Date: 8/4/15 | Time: 5:15 pm

Total Minutes Pumped: 70 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 12.6 | Type of Analysis: GUIDELINE 8 | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

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Project: WYDEQ104
Client: ANC
Well No.: PW-5 / MW-22
Measuring Point (MP): T.O.C.
Static Water Level from MP: 27.71 = 14.36'
Total Well Depth from MP: 42.07'

Date: 8/5/15
Technicians: JVG, AEM
Casing Type/Dia.: 2" PVC
Pump Depth: ~34' → 38'
Well Volume (WV): 2.34 gal
Total to Evacuate (WVx3): 7.03 gal

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
7:06	0.28				29.10	27.35' w/ pump set
7:09	0.28				29.40	little milky
7:11	0.28	7.91	16.1	3.97	30.15	1.4 GAL
7:13	0.22				30.70	
7:15	0.22	8.04	14.3	3.93	31.10	1 casing volume - 2.28 gal
7:17	0.17				31.60	3.13 GALLONS
7:20	0.17	8.04	13.9	3.98	N/A	slowed pump to trickle - water level in pump
7:23	0.09				32.35	lowered pump to 38'
7:25	0.09				32.70'	3.58 GAL
7:29	0.09	8.05	15.1	4.07	33.17	3.94 GAL
7:33	0.08				33.48'	4.26 GAL
7:38	0.08	8.04	16.0	4.02	33.67'	4.66 GAL
7:45	0.08	8.01	17.0	4.04	33.90'	5.22 GAL
7:49	0.07	8.01	18.0	4.05	34.20'	5.5 GAL
7:59	0.05	8.00	18.4	4.05	34.75	6.2 GAL
8:09	0.05	8.01	16.2	4.04	35.6	6.7 GAL - STARTED SAMPLING
8:19	0.05	8.00		4.04	N/A	7.2 GAL - (3) CASINGS
8:29	0.04	8.02	16.8	4.03	N/A	1 GALLON FULL 7.6
8:39	0.03					
8:49	0.03	8.01	17.1		N/A	
8:59	0.03					2 GALLON full - 8.5 GAL
9:15	0.03	8.02	17.0	4.06	N/A	BOTTLES full - 9 GAL

SAMPLE Name: JOHN GOIN Date: 8/5/15 Time: 8:19 pm

Total Minutes Pumped: 134
Total Gallons Pumped: 9.1 GALLONS
Sample Handling:
Type of Analysis: Guideline 8
Method: Bailer / (Pump) / Grab
Bailed/Pumped Dry?: (Yes) / No

Comments / Notes:

BEGAN FILLING (1) GALLON JUGS @ 8:09 p.m.
Sampled @ 8:19 Filled Bottles @ 9:15
pumped Well Dry

9:20 pump off

Ground Water Field Sampling Sheet

Project: WYDEQ 104 | Date: 8/5/15

Client: ANC | Technicians: JVG, AEM

Well No.: PW-6 / MW-23 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~16'

Static Water Level from MP: 9.08' | Well Volume (WV): 2.21 GAL

Total Well Depth from MP: 22.63' = 13.55' | Total to Evacuate (WVx3): 6.63 GAL

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
5:19	0.56				10.77'	9.02 w/ pump set
5:20	"	7.08	16.9	2.52	10.80'	
5:23	"	7.42	12.1	2.57	11.10'	
5:25	0.56				11.30'	
5:28	"	7.28	10.9	2.59	11.51'	Running clear
5:30	0.56				11.62'	(3) casing vols
5:32	"	7.28	10.8	2.59	11.70'	
5:35					11.86'	
5:37		7.29	10.6	2.59	11.92'	
**	** SAMPLED @	5:38	**	**	12.12'	Pump off @ 5:49
						pumped down to begin
TIME	H_2O level (ft)		TIME	H_2O level (ft)		recovery to 13.5'
5:49	10.72'		6:25	9.72'		
5:50	10.82'		6:30	9.67		
5:51	10.68'		6:35	9.62'		level went down first
5:53	10.50'		6:40	9.59'		when hose emptied
5:55	10.35'		6:45	9.56'		into well 5:49 → 5:50
6:00	10.16'		6:50	9.53'		
6:05	10.03'					
6:10	9.92					
6:15	9.84					
6:20	9.76					

SAMPLE Name: JOHN GOIN Date: @ 8/5/15 Time:

Total Minutes Pumped: 30 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 16.9 gal | Type of Analysis: Guideline 8 | Bailed/Pumped Dry?: Yes (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WyDEQ 104 | Date: 8/4/15

Client: ANC | Technicians: JVG, AEM

Well No.: PW-7 / MW-24 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: 24' ~

Static Water Level from MP: 21.30' = 5.79' | Well Volume (WV): 0.944 gal

Total Well Depth from MP: 27.09' | Total to Evacuate (WVx3): 2.83 gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0:2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
1:50		Pump	ON			21.25 w/ pump set
1:52	0.5	7.38	16.0	8.95	tape cannot	READ b/c filling pump
1:57	0.48	7.40	13.1	9.28	"	"
2:01	0.45	slowed pump down slightly				
2:02	0.25	7.39	12.9	9.33		little milky
2:07	0.28	7.37	13.0	9.06		
2:12	0.28	7.36	12.7	9.06		cleared up
☆☆☆		SAMPLED	@ 2:15	☆☆☆		
		Pump	OFF @	2:30		

Time	H_2O Level (ft)
12:30	23.15
2:32	22.57
2:35	22.08
2:40	21.80
2:45	21.71
2:50	21.66
2:55	21.63
3:00	21.61
3:05	21.595
3.10	21.58
3:15	21.575
3:20	21.56

Note: Pump off at 12:30 – pulled out to insert level tape

Time	H_2O Level (ft)
3:25	21.55
3:30	21.545

SAMPLE Name: John Coin | Date: 8/4/15 | Time: 2:15 pm

Total Minutes Pumped: 40 | Sample Handling: | Method: Bailer / Pump / Grab

Total Gallons Pumped: 13.3 | Type of Analysis: Guideline 8 | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Stickup = 2' on 24"

Ground Water Field Sampling Sheet

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Project: WYDEQ 104 | Date: 8/5/15
Client: ANC | Technicians: JVG, AEM
Well No.: PW-8 / MW-25 | Casing Type/Dia.: 2" PVC
Measuring Point (MP): T.O.C. | Pump Depth: ~40'
Static Water Level from MP: 32.02 = 13.17' | Well Volume (WV): [illegible] gal 2.15 gal
Total Well Depth from MP: 45.19 | Total to Evacuate (WVx3): 6.45 gal

Volume factor: 2" 0.163 gal/ft; 4" 0.653 gal/ft; 5" 1.02 gal/ft; 6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
3:05	0.66				33.25	31.95 w/ pump set
3:08	0.66	7.62	16.4	3.77	33.85	
3:10	0.66				34.35	somewhat clear
3:12	0.66	7.54	13.5	4.45	34.80	
3:14	0.66	7.45	12.7	5.30	35.17	
3:15	0.66				35.35	s/lowed pump
3:16	0.44				35.20	Evacuated (3) casing Vol's
3:18	0.44	7.41	13.4	5.40	35.10	
3:21	"	7.41	13.4	5.66	34.95	
3:25	"	7.39	13.3	5.70	34.87	
3:30	0.44	7.39	13.2	5.71	34.79	
☆☆☆	sampled @ 3:30		☆	☆☆	34.62	pump OFF @ 3:45
						pumped down to begin Recovery
TIME	H2O level (ft)		TIME	H2O level (ft)		to 36.60'
3:46	34.60		4:26	32.06		
3:51	32.90		4:31	32.055		
3:56	32.26		4:36	32.055		
4:01	32.12		4:41	32.055		
4:06	32.085		4:46			
4:01	32.08					
4:16	32.065					
4:21	32.065					

SAMPLE Name: JOHN DOE Date: 8/5/15 Time: 3:30 pm

Total Minutes Pumped: 40 min
Total Gallons Pumped: ~20 gal
Sample Handling:
Type of Analysis: Guideline 8
Method: Bailer / (Pump) Grab
Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ104 | Date: 8/6/15

Client: ANC | Technicians: JVG, AEM

Well No.: PW-9 / MW-26 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~ 56

Static Water Level from MP: 45.21 = 17.50' | Well Volume (WV): 2.85 gal

Total Well Depth from MP: ~~62.71~~ 62.71' | Total to Evacuate (WVx3): 8.57 gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
2:02	0.22				46.85'	44.77' w/ pump set
2:04	0.22				47.36	clear
2:06	0.22	8.34	18.3	1669	48.0	slowed pump 0.9 GALLONS
2:08	0.13				48.45	GRAY, cloudy
2:12	0.13	8.42	17.1	1700	49.17	1.7 GAL dirty water
2:14	0.11	8.42	17.4	1760	49.38	1.9 GAL
2:18	0.08	8.43	18.1	1782	49.67	2.2 GAL
2:24	0.08				50.00	2.72 GAL (1) CASING VOL
2:35	0.09	8.28	17.1	1627	51.22	3.66 GAL
2:45	0.08	8.13	19.0	1548	51.72	4.44 GAL
2:57	0.08	8.08	20.1	1581	51.65	5.38 GAL
3:10	0.08	8.08	20.2	1545	51.72	6.42 GAL
3:17	0.19				51.90'	flow slows - turns up pump - 7.0 GAL
3:20	0.19	8.06	18.9	1541	52.15	cleared 7.6 GAL
3:24	0.17				N/A	slowed pump 8.3 GAL
3:26	0.16	8.07	17.9	1451	N/A	(3) CASING VOL'S 8.86 GAL
3:31	0.09	8.05	19.8	1465	52.75	
3:35	0.09	8.06	19.0	1460	52.75	9.4 GALLONS
☆☆☆	SAMPLED @		3:40	☆☆☆☆		
	PUMP OFF @		4:07			

SAMPLE Name: JOHN BOYD | Date: 8/6/15 | Time: 3:40

Total Minutes Pumped: 125 | Sample Handling: | Method: Bailer (Pump) / Grab

Total Gallons Pumped: ~12.3 | Type of Analysis: GUIDELINE 8 | Bailed/Pumped Dry?: Yes (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Samples @ 10:40 a.m.

Project: WYDEQ 104 | Date: 8/6/14

Client: ANC | Technicians: JVG, AEM

Well No.: PW-10 / MW-27 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~65'

Static Water Level from MP: 39.68 = 49.28' | Well Volume (WV): 7.72 Gal

Total Well Depth from MP: 86.96 | Total to Evacuate (WVx3): 23.15 Gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
9:22	0.375				44.60'	37.6 w/ pump set
9:25	0.28	7.00	14.3	3.44	46.95'	1.125 Gal
9:28	0.27				49.10	clear 3402/min ~1.93 Gal
9:30	0.27	7.05	13.3	3.42	49.90'	2.48 Gal
9:32	0.19				49.85'	2.86 Gal
9:35	0.19	7.05	13.9	3.41	49.90'	3.45 Gal
9:40	0.20	7.07	13.8	3.39	49.85	4.46 Gal Cloudy - milky
9:50	0.19	7.09	14.4	3.46	50.5'	6.34 Gal Gray - cloudy
9:53	0.375				52.20'	flow stopped - turned pump up
9:55	0.375				51.20'	flow slowed - erratic flow
10:00	0.53	7.04	12.8	3.46	52.15	9.76 Gal
10:04	0.375				54.6'	11.26 Gal
10:08	0.08				52.6'	11.34 Gal - turned pump up
10:07	0.47					12.7 Gal
10:09	0.08	7.04	13.5	3.52	54.10	12.8
10:10	0.5				55.15	13.3
10:14	0.5				56.65	15.3 (2) casings static
10:15	0.5	7.02	12.7	3.52	57.30'	15.8 - flow slows to trickle rising
10:20	0.56				54.90'	10:16-10:19 very slow - 16 Gal
10:25	"	6.93	13.7	3.26	58.10'	18.8 Gal 10:27 flow slowed - 19.8 Gal
10:35	0.56	6.91	12.9	3.76	55.20'	10:27-10:32 slow - 20.3 + 1.7 = 22.0 Gal
10:40	"	6.86	12.8	3.83	59.50'	Sampled @ 10:40 - pump off 10:57

SAMPLE Name: JOHN COIN Date: 8/6/14 Time: 10:40

Total Minutes Pumped: 95 | Sample Handling: | Method: Bailer (Pump) Grab

Total Gallons Pumped: ~31 GALLONS | Type of Analysis: Guideline 8 | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes: pumped down to begin recovery

TIME	H_2O level	TIME	H_2O level	TIME	H_2O level
~~10:59~~	~~58.50'~~	11:10	45.80'	11:36	40 35
11:00	56.20	11:15	43.25'	11:40	N/A sorry!
11:01	54.25'	11:20	41.95'	11:45	40.1'
11:02	53.30'	11:25	41.12'	11:50	N/A
11:03	51.80'	11:30	40.68'	11:55	39.99
11:05	49.60				

Ground Water Field Sampling Sheet

Project: WYDEQ104 | Date: 8/6/15

Client: ANC | Technicians: JUG, AEM

Well No.: PW-12/MW-28 | Casing Type/Dia.: 2"

Measuring Point (MP): T.O.C. | Pump Depth: ~48'

Static Water Level from MP: 40.78 = 15.65 | Well Volume (WV): 2.55 GAL

Total Well Depth from MP: 56.43' | Total to Evacuate (WVx3): 7.66 GAL

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Engineering, Geology, & Water Resource Consulting
4025 Automation Way, Bldg. 1
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
4:40	0.75					40.8 w/ pump set
4:41	~~0.884~~				41.15	
4:44		6.54	13.5	4.53	"	3 GALLONS (1) CASING
4:46	1.125				41.22	INCREASE FLOW RATE - 4.5 GAL
4:48	"	6.63	11.4	4.53		6.75 GAL
4:50	"	6.57	10.8	4.53	41.27	9 GAL (3) CASING VOLS
4:54	1.125	6.57	10.7	4.53	"	13.5 GAL LITTLE CLOUDY
4:58	"	6.54	10.7	4.50	"	
5:00		6.55	11.3	4.51	"	20.25 GALLONS
5:02		6.55	10.6	4.52	"	22.5 GALLONS
☆ ☆ ☆		SAMPLED	@ 5:03	☆ ☆	☆	
		PUMP	OFF @	5:08		PUMPED DOWN BEFORE RECOVERY
TIME	H_2O Level (ft)		TIME	H_2O Level (ft)		
5:15	40.70		5:45	40.805		PULLED PUMP OUT TO START RECOVERY
5:16	40.85		5:50	40.805		
5:17	40.85		5:55	40.805		
5:18	40.83		6:00	40.805		
5:20	40.825		6:05	40.805		
5:25	40.81		6:10	40.805		
5:30	40.81		6:15	40.805		
5:35	40.81					
5:40	40.805					

SAMPLE Name: JOHN GOIN Date: 8/6/15 Time: 5:03

Total Minutes Pumped: 28 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 29.25 | Type of Analysis: GUIDELINE 8 | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ 104 | Date: 8/3/15

Client: ANC | Technicians: JVG, AEM

Well No.: PW-13 / MW-29 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C | Pump Depth: 75'

Static Water Level from MP: 67.13 - 14.99' | Well Volume (WV): 2.36 gal

Total Well Depth from MP: 81.62 | Total to Evacuate (WVx3): 7.09 gal

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4025 Automation Way, Bldg. L
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
6:25	0.47	7.36	12.6	1262	68.3	67.08 stabilized w/pump set
6:35	0.44	7.24	11.6	1248	68.25	milky
6:40	0.44	7.27	11.7	1231	68.30	clearing
6:45	0.44	7.25	11.5	1239	68.38	"
6:50	0.44	7.22	11.4	1250	68.36	
6:55	0.44	7.24	11.3	1239	68.38	
**	**	Sampled @	6:58	**	**	
	Pump OFF	@ 7:07	- LEFT IN WELL		68.38	
7:09					67.22	
7:14					67.19	
7:19					67.17	
7:24					67.16	
7:29					67.16'	
7:34					67.16'	
7:39					67.15'	
7:44					67.15'	
7:49					67.15	
7:54					67.15	
7:59					67.15	
8:04					67.15	
8:09					"	

SAMPLE Name: John Goff Date: 8/3/15 Time: 6:58 pm

Total Minutes Pumped: 42 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 18.8 | Type of Analysis: Gasoline 8 | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Lidstone and Associates, Inc.
Engineering Geology, & Water Resource Consulting
4025 Automation Way, Bldg. E
Fort Collins, CO 80525

Project: WYDEQ104
Date: 8/3/15
Client: ANC
Technicians: JVG, AEM
Well No.: PW-14/MW-30
Casing Type/Dia.: 2" PVC
Measuring Point (MP): T.O.C.
Pump Depth: 75'
Static Water Level from MP: 65.30 = 16.32'
Well Volume (WV): ~~[illegible]~~ 2.66 gal
Total Well Depth from MP: 81.62
Total to Evacuate (WVx3): 8 gal

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
4:25	0.91	7.22	12.5	4.33	66.0	started brown
4:35	0.875	7.22	11.5	4.37	66.05	
4:40	0.875	7.12	11.3	4.43	66.11	cleared
4:45	0.875	7.13	11.3	4.51	66.16	
☆☆☆		sampled @		4:50 ☆☆☆		
4:55	- Pump	OFF	- Left	in well	66.25	
5:00					65.51	
5:05					65.51	
5:10					65.47	
5:15					65.45	
5:20					65.42	
5:25					65.42	
5:30					65.40	
5:35					65.40	
5:40					65.395	
5:45					65.39	
5:50					65.38	
5:55					65.38	

SAMPLE Name: John Goir Date: 8/3/15 Time: 4:50 pm

Total Minutes Pumped: 30
Total Gallons Pumped: 18.4
Sample Handling:
Type of Analysis: Guideline 8
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WyDEQ104 | Date: 8/4/15

Client: ANC | Technicians: JVG, AEM

Well No.: PW-15/MW-31 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): TOC | Pump Depth: ~28 ft

Static Water Level from MP: 23.31 | Well Volume (WV): 1.51 gal

Total Well Depth from MP: ~~30~~ 32.58 | Total to Evacuate (WVx3): 4.53

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Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
3:50	0.6				23.39	23.09 w/ pump set
3:55	"				water level below pump	
3:56	0.56	7.40	14.0	4.97	"	
4:00	"	7.45	11.5	5.74	"	
4:04	pumped Dry		- pumped 7.8 Gallons - will			return
4:07		7.56	12.5	6.99		
[illegible]						
6:50 pm	static = 29.30'		= 3.28'	of water =	0.53 gallons in	well - pump @ 31'
7:00 pm	0.20					start pump very slow
7:08	0.19	7.60	15.2	6.14	N/A	set just off bottom of well
7:11	"		pumped	Dry - took ± 2 gallons		out
		Could	not	sample		
9:17				static =	31.08 when leaving	

SAMPLE Name: John Goin Date: 8/4/15 Time:

Total Minutes Pumped _____ | Sample Handling _____ | Method: Bailer / Pump / Grab

Total Gallons Pumped _____ | Type of Analysis _____ | Bailed/Pumped Dry?: (Yes) No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ104 | Date: 8/4/15

Client: ANC | Technicians: JVG, AEM

Well No.: TP 2-3 | Casing Type/Dia.: 5" PVC

Measuring Point (MP): T.O.C. (Arrow) | Pump Depth: ~130'

Static Water Level from MP: 107.37' | Well Volume (WV): 76 gal

Total Well Depth from MP: 181.91' .7453' | Total to Evacuate (WVx3): 227 gal

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Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
9:20	1.59	7.73	11.5	1904	107.78	107.38' w/ pump set
9:28	1.59	7.64	10.9	1700	107.82	clear
9:35	1.59	7.57	10.9	1795	107.82	"
9:40	1.59	7.49	11.0	1881	107.83	
9:45	1.50	7.38	10.9	1928	107.84	
9:50	1.56	7.42	10.8	1959	107.86	
9:55	1.50	7.40	10.8	1986	107.86	
10:00	1.50	7.40	10.8	2200	107.86	
10:05	1.31	7.40	10.9	2250	107.87	
10:10	1.31	7.38	10.9	2280	"	
10:15	1.31	7.38	10.8	2330	107.88	
10:20	"	7.38	10.8	2360	"	
10:25	"	7.34	10.9	2370	107.89	
**	** sampled @		10:28			
	pump off @		10:32			

SAMPLE Name: John Doe | Date: 8/4/15 | Time: 10:28

Total Minutes Pumped: 72 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 103.7 | Type of Analysis: Guideline 8 | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ 104 | Date: 8/6/14

Client: ANC | Technicians: JVO, AEM

Well No.: MW-12 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~37'

Static Water Level from MP: 32.11' = 10.19' | Well Volume (WV): 1.66 GAL

Total Well Depth from MP: 42.30' | Total to Evacuate (WVx3): 4.99 GAL

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4025 Automation Way, Bldg. E
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
1:02	0.3125				32.72	32.08' w/ pump set
1:05	"	6.83	20.0	3.65	32.70'	
1:07	"				32.70'	increase pumping rate 1.56 GPM
1:08	0.56	6.91	14.1	3.89	33.05	
1:11	0.50	6.83	12.9	3.91	33.05	3.5 Gallons
1:14	"	6.79	12.6	3.92	33.05	(3) casing vol's
1:15		6.78	12.5	3.93		running clear
***	Sampled @			1:18 pm	***	
1:29	Pump off					

SAMPLE Name: JOHN COIN Date: 8/6/15 Time:

Total Minutes Pumped: 27 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 12.5 | Type of Analysis: Guideline 8 | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

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Page of

161504

Client Name	Project Identification	Sampler (Signature/Attestation of Authenticity)	Telephone #
ANC- LIDSTONE		John Goin	970-690-2925

Report Address	Contact Name
4025 Automation Way, BLDG E Fort Collins Co 80525	John Goin
	Email: jvg@lidstone.com
Invoice Address	Phone: 970-690-2925
	Purchase Order # / Quote #

ANALYSES / PARAMETERS

ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	ANALYSES / PARAMETERS	REMARKS
1	S1508037-001	8/3/15	19:00	PW-13/MW-29	WT	7	2005 Guideline 8 plus Berylium And Thorium 230	
2	002	8/3/15	16:50	PW-14/MW-30	WT	7		
3								
4								
5								
6								
7								
8							Do not ~~[illegible]~~ Analyze for SAR, Nitrate, Alkalinity Uranium will be Analyzed for Dissolved	
9								
10								
11								
12								
13								
14								

LAB COMMENTS	Relinquished By (Signature/Printed)	DATE	TIME	Received By (Signature/Printed)	DATE	TIME
3.5	John Goin	8/3	22:00	Kathy [illegible]	8.4.15	12:21

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

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 9/1/2015

CLIENT: Lidstone & Associates Inc
Project: ANC
Lab Order: S1508037

CASE NARRATIVE

Report ID: S1508037001

Samples PW-13, and PW-14 were received on August 4, 2015.

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.

Qualifiers by sample

S1508036-002 - Cations by ICP (Method 200.7)/Potassium - Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 8/18/2015
Report ID S1508037001

ProjectName: ANC
Lab ID: S1508037-001
ClientSample ID: PW-13 /MW-29
COC: 161504

WorkOrder: S1508037
CollectionDate: 8/3/2015 7:00:00 PM
DateReceived: 8/4/2015 12:21:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	220	mg/L		5	SM 2320B	08/11/2015 1445	LJK
Alkalinity, Bicarbonate as HCO3	ND	mg/L		5	SM 2320B	08/11/2015 1445	LJK
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/11/2015 1445	LJK
Chloride	2	mg/L		1	EPA 300.0	08/05/2015 017	AB
Fluoride	0.3	mg/L		0.1	EPA 300.0	08/05/2015 017	AB
Nitrate+Nitrite as N	ND	mg/L		0.1	EPA 300.0	08/05/2015 017	AB
Sulfate	443	mg/L		1	EPA 300.0	08/05/2015 044	AB
Calcium	191	mg/L		1	EPA 200.7	08/05/2015 1051	DG
Magnesium	20	mg/L		1	EPA 200.7	08/05/2015 1051	DG
Potassium	12	mg/L		1	EPA 200.7	08/05/2015 1051	DG
Sodium	32	mg/L		1	EPA 200.7	08/05/2015 1051	DG
Nitrogen, Ammonia (As N)	0.1	mg/L		0.1	EPA 350.1	08/05/2015 1354	AMB
Silica as SiO2	27	mg/L		1	EPA 200.7	08/05/2015 1051	DG
General Parameters							
pH	8.3	s.u.		0.1	SM 4500 H B	08/11/2015 1445	LJK
Electrical Conductivity	1140	µmhos/cm		5	SM 2510B	08/11/2015 1445	LJK
Total Dissolved Solids (180)	940	mg/L		10	SM 2540	08/04/2015 1455	TS
Sodium Adsorption Ratio	0.6			0.1	Calculation	08/25/2015 1445	WN
Data Quality							
Cation Sum	12.83	meq/L		0.01	SM 1030E	08/25/2015 1445	WN
Anion Sum	13.68	meq/L		0.01	SM 1030E	08/25/2015 1445	WN
Cation-Anion Balance (± 5%)	3.20	%		0.01	SM 1030E	08/25/2015 1445	WN
Solids, Total Dissolved (Calc)	860	mg/L		10	SM 1030E	08/25/2015 1445	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.09	dec. %		0.01	Calculation	08/25/2015 1450	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 8/18/2015
Report ID S1508037001

ProjectName: ANC
Lab ID: S1508037-001
ClientSample ID: PW-13 /MW-29
COC: 161504

WorkOrder: S1508037
CollectionDate: 8/3/2015 7:00:00 PM
DateReceived: 8/4/2015 12:21:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/05/2015 1051	DG
Arsenic	ND	mg/L		0.001	EPA 200.8	08/05/2015 023	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/05/2015 023	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/05/2015 1051	DG
Boron	ND	mg/L		0.1	EPA 200.7	08/05/2015 1051	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/05/2015 023	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/05/2015 1051	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/05/2015 023	MS
Iron	0.62	mg/L		0.05	EPA 200.7	08/05/2015 1051	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/05/2015 023	MS
Manganese	0.37	mg/L		0.02	EPA 200.7	08/05/2015 1051	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/07/2015 1000	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/05/2015 023	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/05/2015 1051	DG
Selenium	ND	mg/L		0.001	EPA 200.8	08/05/2015 023	MS
Uranium	0.0114	mg/L		0.0003	EPA 200.8	08/05/2015 023	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/05/2015 023	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/05/2015 1051	DG
Metals - Total							
Iron	1.25	mg/L		0.05	EPA 200.7	08/05/2015 1454	DG
Manganese	0.41	mg/L		0.02	EPA 200.7	08/05/2015 1454	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- 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 or is less than LCL
- O Outside the Range of Dilutions
- X Matrix Effect
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 8/18/2015
Report ID S1508037001

ProjectName: ANC
Lab ID: S1508037-001
ClientSample ID: PW-13 /MW-29
COC: 161504

WorkOrder: S1508037
CollectionDate: 8/3/2015 7:00:00 PM
DateReceived: 8/4/2015 12:21:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	17.3	pCi/L		2	SM 7110B	08/13/2015 1615	MB
Gross Alpha Precision (±)	3.0	pCi/L			SM 7110B	08/13/2015 1615	MB
Gross Beta	18.4	pCi/L		3	SM 7110B	08/13/2015 1615	MB
Gross Beta Precision (±)	3.3	pCi/L			SM 7110B	08/13/2015 1615	MB
Radium 226	3.2	pCi/L		0.2	SM 7500 Ra-B	08/11/2015 1755	MB
Radium 226 Precision (±)	0.2	pCi/L			SM 7500 Ra-B	08/11/2015 1755	MB
Radium 228	1.9	pCi/L		1	Ga-Tech	08/12/2015 2124	MB
Radium 228 Precision (±)	1.1	pCi/L			Ga-Tech	08/12/2015 2124	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/11/2015 1701	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/11/2015 1701	MB
Thorium 229 Tracer (30-120)	100	%			ACW10	08/11/2015 1701	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

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 or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 8/18/2015
Report ID S1508037001

ProjectName: ANC
Lab ID: S1508037-002
ClientSample ID: PW-14/MW-30
COC: 161504

WorkOrder: S1508037
CollectionDate: 8/3/2015 4:50:00 PM
DateReceived: 8/4/2015 12:21:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	371	mg/L		5	SM 2320B	08/11/2015 1454	LJK
Alkalinity, Bicarbonate as HCO3	ND	mg/L		5	SM 2320B	08/11/2015 1454	LJK
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/11/2015 1454	LJK
Chloride	364	mg/L		1	EPA 300.0	08/05/2015 058	AB
Fluoride	0.5	mg/L		0.1	EPA 300.0	08/05/2015 031	AB
Nitrate+Nitrite as N	41.9	mg/L		0.1	EPA 300.0	08/05/2015 058	AB
Sulfate	1350	mg/L		1	EPA 300.0	08/05/2015 058	AB
Calcium	406	mg/L		1	EPA 200.7	08/05/2015 1053	DG
Magnesium	35	mg/L		1	EPA 200.7	08/05/2015 1053	DG
Potassium	16	mg/L		1	EPA 200.7	08/05/2015 1053	DG
Sodium	473	mg/L		1	EPA 200.7	08/05/2015 1053	DG
Nitrogen, Ammonia (As N)	0.3	mg/L		0.1	EPA 350.1	08/05/2015 1355	AMB
Silica as SiO2	29	mg/L		1	EPA 200.7	08/05/2015 1053	DG
General Parameters							
pH	8.1	s.u.		0.1	SM 4500 H B	08/11/2015 1454	LJK
Electrical Conductivity	3390	µmhos/cm		5	SM 2510B	08/11/2015 1454	LJK
Total Dissolved Solids (180)	3350	mg/L		10	SM 2540	08/04/2015 1457	TS
Sodium Adsorption Ratio	6.0			0.1	Calculation	08/25/2015 1445	WN
Data Quality							
Cation Sum	44.12	meq/L		0.01	SM 1030E	08/25/2015 1445	WN
Anion Sum	48.70	meq/L		0.01	SM 1030E	08/25/2015 1445	WN
Cation-Anion Balance (± 5%)	4.94	%		0.01	SM 1030E	08/25/2015 1445	WN
Solids, Total Dissolved (Calc)	3080	mg/L		10	SM 1030E	08/25/2015 1445	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.09	dec. %		0.01	Calculation	08/25/2015 1450	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- 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 or is less than LCL
- O Outside the Range of Dilutions
- X Matrix Effect
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 8/18/2015
Report ID S1508037001

ProjectName: ANC
Lab ID: S1508037-002
ClientSample ID: PW-14 /MW-30
COC: 161504

WorkOrder: S1508037
CollectionDate: 8/3/2015 4:50:00 PM
DateReceived: 8/4/2015 12:21:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/05/2015 1053	DG
Arsenic	ND	mg/L		0.001	EPA 200.8	08/05/2015 028	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/05/2015 028	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/05/2015 1053	DG
Boron	0.3	mg/L		0.1	EPA 200.7	08/05/2015 1053	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/05/2015 028	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/05/2015 1053	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/05/2015 028	MS
Iron	ND	mg/L		0.05	EPA 200.7	08/05/2015 1053	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/05/2015 028	MS
Manganese	0.13	mg/L		0.02	EPA 200.7	08/05/2015 1053	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/07/2015 1002	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/05/2015 028	MS
Nickel	0.01	mg/L		0.01	EPA 200.7	08/05/2015 1053	DG
Selenium	0.109	mg/L		0.001	EPA 200.8	08/05/2015 028	MS
Uranium	0.840	mg/L		0.0003	EPA 200.8	08/05/2015 028	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/05/2015 028	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/05/2015 1053	DG
Metals - Total							
Iron	0.12	mg/L		0.05	EPA 200.7	08/05/2015 1456	DG
Manganese	0.20	mg/L		0.02	EPA 200.7	08/05/2015 1456	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

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 or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 8/18/2015
Report ID S1508037001

ProjectName: ANC
Lab ID: S1508037-002
ClientSample ID: PW-14 /MW-30
COC: 161504

WorkOrder: S1508037
CollectionDate: 8/3/2015 4:50:00 PM
DateReceived: 8/4/2015 12:21:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	282	pCi/L		2	SM 7110B	08/13/2015 1615	MB
Gross Alpha Precision (±)	25.9	pCi/L			SM 7110B	08/13/2015 1615	MB
Gross Beta	118	pCi/L		3	SM 7110B	08/13/2015 1615	MB
Gross Beta Precision (±)	16.9	pCi/L			SM 7110B	08/13/2015 1615	MB
Radium 226	4.1	pCi/L		0.2	SM 7500 Ra-B	08/11/2015 1357	MB
Radium 226 Precision (±)	0.3	pCi/L			SM 7500 Ra-B	08/11/2015 1357	MB
Radium 228	2.2	pCi/L		1	Ga-Tech	08/12/2015 1823	MB
Radium 228 Precision (±)	1.1	pCi/L			Ga-Tech	08/12/2015 1823	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/11/2015 1701	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/11/2015 1701	MB
Thorium 229 Tracer (30-120)	100	%			ACW10	08/11/2015 1701	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC

Date: 9/1/2015
Report ID: S1508037001

Alkalinity Sample Type **MBLK** Units: mg/L

MB-R125280 (08/11/15 14:45)	RunNo: 125280						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Alkalinity, Total (As CaCO3)	ND	5					

Alkalinity Sample Type **LCS** Units: mg/L

LCS (08/11/15 14:45)	RunNo: 125280						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Alkalinity, Total (As CaCO3)	602	5	595		101	90 - 110	

Alkalinity Sample Type **DUP** Units: mg/L

S1508070-004A (08/05/15 18:29)	RunNo: 124547						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Alkalinity, Bicarbonate as HCO3	1030	5	1030	0.00530		20	
Alkalinity, Carbonate as CO3	ND	5	ND			20	
Alkalinity, Hydroxide as OH	ND	5	ND			20	
Alkalinity, Total (As CaCO3)	845	5	845	0.00530		20	

Conductivity Sample Type **MBLK** Units: µmhos/cm

MB-R125280 (08/11/15 14:45)	RunNo: 125280						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Electrical Conductivity	ND	5					

Conductivity Sample Type **LCS** Units: µmhos/cm

LCS (08/11/15 14:45)	RunNo: 125280						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Electrical Conductivity	1030	5	1060		97.3	90 - 110	

Conductivity Sample Type **DUP** Units: µmhos/cm

S1508070-009A (08/05/15 19:45)	RunNo: 124547						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Electrical Conductivity	4960	5	4950	0.202		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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC

Date: 9/1/2015
Report ID: S1508037001

Dissolved Mercury by EPA 245.1 - Water Sample Type **MBLK** Units: mg/L

LRB (08/07/15 10:56)	RunNo: 124629						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	ND	0.001					

Dissolved Mercury by EPA 245.1 - Water Sample Type **LCS** Units: mg/L

LCS (08/07/15 09:43)	RunNo: 124629						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.002	0.001	0.002		90.0	85 - 115	

Dissolved Mercury by EPA 245.1 - Water Sample Type **MS** Units: mg/L

S1508036-002C (08/07/15 09:50)	RunNo: 124629						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.002	0.001	0.00197	ND	89.1	70 - 130	

Dissolved Mercury by EPA 245.1 - Water Sample Type **MSD** Units: mg/L

S1508036-002C (08/07/15 09:52)	RunNo: 124629						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Mercury	0.002	0.001	0.002	1.01	88.2	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC

Date: 9/1/2015
Report ID: S1508037001

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/05/15 09:02) RunNo: 124539

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	ND	0.1					
Beryllium	ND	0.01					
Boron	ND	0.1					
Chromium	ND	0.01					
Iron	ND	0.05					
Manganese	ND	0.02					
Nickel	ND	0.01					
Zinc	ND	0.01					

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **LCS** Units: mg/L

DISS LCS Q (08/05/15 09:04) RunNo: 124539

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	1.0	0.1	1		96.5	85 - 115	
Beryllium	1.02	0.01	1		102	85 - 115	
Boron	1.0	0.1	1		99.9	85 - 115	
Chromium	0.97	0.01	1		96.9	85 - 115	
Iron	0.96	0.05	1		96.0	85 - 115	
Manganese	1.02	0.02	1		102	85 - 115	
Nickel	1.00	0.01	1		100	85 - 115	
Zinc	0.97	0.01	1		97.3	85 - 115	

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MS** Units: mg/L

S1508022-001BS (08/19/15 16:36) RunNo: 125060

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	0.3	0.1	0.25	ND	104	70 - 130	
Beryllium	0.28	0.01	0.25	ND	112	70 - 130	
Boron	0.3	0.1	0.25	ND	101	70 - 130	
Chromium	0.26	0.01	0.25	ND	105	70 - 130	
Iron	0.26	0.05	0.25	ND	104	70 - 130	
Manganese	0.26	0.02	0.25	ND	103	70 - 130	
Nickel	0.26	0.01	0.25	ND	104	70 - 130	
Zinc	0.26	0.01	0.25	ND	105	70 - 130	

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MSD** Units: mg/L

S1508032-001CMSD (08/19/15 16:23) RunNo: 125060

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Aluminum	0.3	0.1	0.3	9.58	109	20	
Beryllium	0.29	0.01	0.27	9.65	118	20	
Boron	0.63	0.03	0.60	5.64	106	20	
Chromium	0.27	0.01	0.25	8.76	110	20	
Iron	0.33	0.05	0.30	7.47	106	20	
Manganese	0.83	0.02	0.81	2.24	90.7	20	
Nickel	0.27	0.01	0.25	8.41	108	20	
Zinc	0.27	0.01	0.25	7.77	109	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC
Date: 9/1/2015
Report ID: S1508037001

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MBLK** Units: mg/L

MBLK (08/04/15 13:59) RunNo: 124500

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	ND	0.005					
Barium	ND	0.1					
Cadmium	ND	0.001					
Copper	ND	0.01					
Lead	ND	0.02					
Molybdenum	ND	0.02					
Selenium	ND	0.001					
Uranium	ND	0.0003					
Vanadium	ND	0.02					

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **LCS** Units: mg/L

LCS (08/04/15 13:53) RunNo: 124500

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	0.101	0.005	0.1		101	85 - 115	
Barium	0.1	0.1	0.1		103	85 - 115	
Cadmium	0.099	0.001	0.1		99.1	85 - 115	
Copper	0.10	0.01	0.1		103	85 - 115	
Lead	0.10	0.02	0.1		101	85 - 115	
Molybdenum	0.10	0.02	0.1		101	85 - 115	
Selenium	0.103	0.001	0.1		103	85 - 115	
Uranium	0.105	0.0003	0.1		105	85 - 115	
Vanadium	0.10	0.02	0.1		99.5	85 - 115	

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MS** Units: mg/L

S1508036-002CS (08/04/15 23:56) RunNo: 124500

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	1.12	0.005	1.1	ND	102	70 - 130	
Barium	1.2	0.5	1.1	ND	102	70 - 130	
Cadmium	1.09	0.002	1.1	ND	98.7	70 - 130	
Copper	1.10	0.01	1.1	ND	100	70 - 130	
Lead	1.09	0.02	1.1	ND	99.4	70 - 130	
Molybdenum	1.10	0.02	1.1	ND	99.7	70 - 130	
Selenium	1.14	0.005	1.1	ND	104	70 - 130	
Uranium	1.14	0.001	1.1	0.003	104	70 - 130	
Vanadium	1.12	0.02	1.1	ND	102	70 - 130	

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MSD** Units: mg/L

S1508036-002CMSD (08/05/15 00:01) RunNo: 124500

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Arsenic	1.11	0.005	1.12	1.03	101	20	
Barium	1.2	0.5	1.2	2.96	98.4	20	
Cadmium	1.05	0.002	1.09	3.50	95.3	20	
Copper	1.10	0.01	1.10	0.0236	100	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC

Date: 9/1/2015
Report ID: S1508037001

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MSD** Units: mg/L

S1508036-002CMSD (08/05/15 00:01) RunNo: 124500						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Lead	1.07	0.02	1.09	2.00	97.4	20	
Molybdenum	1.10	0.02	1.10	0.0533	99.7	20	
Selenium	1.22	0.005	1.14	6.58	111	20	
Uranium	1.12	0.001	1.14	2.11	102	20	
Vanadium	1.09	0.02	1.12	2.97	98.9	20	

Gross Alpha, Beta by SM 7110B Sample Type **MBLK** Units: pCi/L

MB-338 (08/13/15 16:15) RunNo: 124987 PrepDate: 08/05/15 0:00 BatchID: R124987						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	ND	2					
Gross Beta (Dissolved)	ND	3					

Gross Alpha, Beta by SM 7110B Sample Type **LCS** Units: pCi/L

LCS-338 (08/13/15 16:15) RunNo: 124987 PrepDate: 08/05/15 0:00 BatchID: R124987						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	71	2	72.6		98.0	59.5 - 130	
Gross Beta (Dissolved)	128	3	118		108	80 - 122	

Gross Alpha, Beta by SM 7110B Sample Type **MS** Units: pCi/L

S1507477-001G MS (08/13/15 16:15) RunNo: 124987 PrepDate: 08/05/15 0:00 BatchID: R124987						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	84	2	72.6	11	101	50 - 150	
Gross Beta (Dissolved)	152	3	118	10	120	61.4 - 150	

Gross Alpha, Beta by SM 7110B Sample Type **DUP** Units: pCi/L

S1507477-002G DUP (08/13/15 16:15) RunNo: 124987 PrepDate: 08/05/15 0:00 BatchID: R124987						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Gross Alpha (Dissolved)	153	2	ND				
Gross Beta (Dissolved)	63	3	ND				

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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC

Date: 9/1/2015
Report ID: S1508037001

Anions by ION Chromatography Sample Type **MBLK** Units: mg/L

BLK (08/04/15 10:28)	RunNo: 124480						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	ND	1					
Fluoride	ND	0.1					
Nitrate+Nitrite as N	ND	0.05					
Sulfate	ND	1					

Anions by ION Chromatography Sample Type **LCS** Units: mg/L

DIONEX (08/04/15 10:41)	RunNo: 124480						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	30	1	30		99.4	90 - 110	
Sulfate	144	1	150		95.9	90 - 110	

DIONEX (08/04/15 10:55)	RunNo: 124480						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Fluoride	19.4	0.1	20		96.8	90 - 110	
Nitrate+Nitrite as N	49.2	0.1	53		92.7	90 - 110	

Anions by ION Chromatography Sample Type **MS** Units: mg/L

S1508037-002ASPK (08/05/15 01:25)	RunNo: 124480						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	629	1	236	364	112	80 - 120	
Fluoride	123	0.1	118	ND	104	80 - 120	
Nitrate+Nitrite as N	298	0.1	236	41.9	108	80 - 120	
Sulfate	3320	1	1770	1350	111	80 - 120	

Anions by ION Chromatography Sample Type **MSD** Units: mg/L

S1508037-002ASPK (08/05/15 01:39)	RunNo: 124480						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Chloride	623	1	629	0.956	110	20	
Fluoride	122	0.1	123	0.869	103	20	
Nitrate+Nitrite as N	296	0.1	298	0.791	107		
Sulfate	3290	1	3320	0.984	109	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC

Date: 9/1/2015
Report ID: S1508037001

Cations by ICP (Method 200.7) Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/05/15 09:02)	RunNo: 124535						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	ND	1					
Magnesium	ND	1					
Potassium	ND	1					
Sodium	ND	1					

Cations by ICP (Method 200.7) Sample Type **LCS** Units: mg/L

CAT LCS IML3 (08/05/15 09:06)	RunNo: 124535						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	38	1	40		95.2	85 - 115	
Magnesium	41	1	40		103	85 - 115	
Potassium	38	1	40		94.3	85 - 115	
Sodium	41	1	40		101	85 - 115	

Cations by ICP (Method 200.7) Sample Type **MS** Units: mg/L

S1508036-002AS (08/05/15 10:33)	RunNo: 124535						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	156	1	25	132	96.6	70 - 130	
Magnesium	116	1	25	88	113	70 - 130	
Potassium	42	1	25	7	142	70 - 130	S
Sodium	85	1	25	53	128	70 - 130	

Cations by ICP (Method 200.7) Sample Type **DUP** Units: mg/L

S1508036-001AD (08/05/15 10:29)	RunNo: 124535						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Calcium	146	1	146	0.420		20	
Magnesium	92	1	92	0.243		20	
Potassium	8	1	8	0.267		20	
Sodium	53	1	52	0.345		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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC

Date: 9/1/2015
Report ID: S1508037001

Nitrogen, Ammonia (as N) Sample Type **MBLK** Units: mg/L

BLANK (08/05/15 13:46) RunNo: 124530

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	ND	0.1					

Nitrogen, Ammonia (as N) Sample Type **LCS** Units: mg/L

QC (08/05/15 13:48) RunNo: 124530

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	2.6	0.1	2.5		104	90 - 110	

Nitrogen, Ammonia (as N) Sample Type **MS** Units: mg/L

S1507499-002B (08/05/15 14:08) RunNo: 124530

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	5.2	0.1	2.5	2.8	95.0	90 - 110	

Nitrogen, Ammonia (as N) Sample Type **MSD** Units: mg/L

S1507499-002B (08/05/15 14:10) RunNo: 124530

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Nitrogen, Ammonia (As N)	5.4	0.1	5.2	3.60	103	20	

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-10598 (08/11/15 18:16) RunNo: 124859 PrepDate: 08/05/15 10:00 BatchID: 10598

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	ND	1					

Radium 228 by Ga/Tech Sample Type **LCS** Units: pCi/L

LCS-10598 (08/11/15 21:17) RunNo: 124859 PrepDate: 08/05/15 10:00 BatchID: 10598

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	35	1	39.2		89.6	60 - 120	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

MS-10598 (08/12/15 03:18) RunNo: 124859 PrepDate: 08/05/15 10:00 BatchID: 10598

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	35	1	39.2	ND	89.9	66.7 - 120	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

MSD-10598 (08/12/15 06:19) RunNo: 124859 PrepDate: 08/05/15 10:00 BatchID: 10598

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 228 (Dissolved)	36	1	35	2.48	92.2	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC

Date: 9/1/2015
Report ID: S1508037001

Radium 226 in Water - Dissolved Sample Type **MBLK** Units: pCi/L

MB-1494 (08/11/15 13:57)	RunNo: 124765	PrepDate: 08/05/15 0:00			BatchID: 10589		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	ND	0.2					

Radium 226 in Water - Dissolved Sample Type **LCS** Units: pCi/L

LCS-1494 (08/11/15 13:57)	RunNo: 124765	PrepDate: 08/05/15 0:00			BatchID: 10589		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	4.9	0.2	5.03		97.0	67.6 - 120	

Radium 226 in Water - Dissolved Sample Type **MS** Units: pCi/L

MS-1494 (08/11/15 13:57)	RunNo: 124765	PrepDate: 08/05/15 0:00			BatchID: 10589		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	4.6	0.2	5.03	ND	90.4	69.4 - 120	

Radium 226 in Water - Dissolved Sample Type **MSD** Units: pCi/L

MSD-1494 (08/11/15 13:57)	RunNo: 124765	PrepDate: 08/05/15 0:00			BatchID: 10589		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226 (Dissolved)	4.9	0.2	4.6	8.02	98.0	20	

Thorium 230 in Water - Dissolved Sample Type **MBLK** Units: pCi/L

MB-463 (08/11/15 17:01)	RunNo: 124767	PrepDate: 08/05/15 0:00			BatchID: R124767		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 230 (Dissolved)	ND	0.2					

Thorium 230 in Water - Dissolved Sample Type **LCS** Units: pCi/L

LCS-463 (08/11/15 17:01)	RunNo: 124767	PrepDate: 08/05/15 0:00			BatchID: R124767		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 230 (Dissolved)	13	0.2	12		100	64.6 - 147	

Thorium 230 in Water - Dissolved Sample Type **LCSD** Units: pCi/L

LCSD-463 (08/11/15 17:01)	RunNo: 124767	PrepDate: 08/05/15 0:00			BatchID: R124767		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Thorium 230 (Dissolved)	13	0.2	13	4.29	105	20	

Silica as SiO2 Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/05/15 09:02)	RunNo: 124541						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Silica as SiO2	ND	0.1					

Silica as SiO2 Sample Type **LCS** Units: mg/L

DISS LCS Q (08/05/15 09:04)	RunNo: 124541						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Silica as SiO2	2.1	0.1	2.14		100	85 - 115	

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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508037
Project: ANC
Date: 9/1/2015
Report ID: S1508037001

Solids By SM 2540 Sample Type **MBLK** Units: mg/L

DI (08/04/15 14:33) RunNo: 124569

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Dissolved Solids (180)	ND	10					

Solids By SM 2540 Sample Type **LCS** Units: mg/L

CONTROL (08/04/15 14:34) RunNo: 124569

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Dissolved Solids (180)	220	10	226		98.2	90 - 110	

Solids By SM 2540 Sample Type **DUP** Units: mg/L

S1508037-001A (08/04/15 14:56) RunNo: 124569

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Total Dissolved Solids (180)	950	10	940	1.05		20	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MBLK** Units: mg/L

MB-10566 (08/05/15 13:42) RunNo: 124551 PrepDate: 08/05/15 6:15 BatchID: 10566

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Iron	ND	0.05					
Manganese	ND	0.02					

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **LCS** Units: mg/L

LCS-10566 (08/05/15 13:44) RunNo: 124551 PrepDate: 08/05/15 6:15 BatchID: 10566

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Iron	0.50	0.05	0.5		99.9	85 - 115	
Manganese	0.20	0.02	0.2		99.3	85 - 115	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MS** Units: mg/L

S1508032-002DS (08/05/15 14:00) RunNo: 124551 PrepDate: 08/05/15 6:15 BatchID: 10566

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Iron	0.61	0.05	0.5	0.14	95.4	70 - 130	
Manganese	0.23	0.02	0.2	0.03	98.8	70 - 130	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MSD** Units: mg/L

S1508032-002DMSD (08/05/15 14:09) RunNo: 124551 PrepDate: 08/05/15 6:15 BatchID: 10566

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Iron	0.63	0.05	0.61	2.53	98.5	20	
Manganese	0.23	0.02	0.23	0.601	99.5	20	

pH Water Sample Type **LCS** Units: s.u.

LCS (08/11/15 14:45) RunNo: 125280

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
pH	8.8	0.1	8.6		102	90 - 110	

pH Water Sample Type **DUP** Units: s.u.

S1508052-001B (08/05/15 15:50) RunNo: 124547

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
pH	8.1	0.1	8.1	0.120		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 another 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	X	Matrix Effect

Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

Page ____ of ____

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

161502

Client Name	Project Identification	Sampler (Signature/Attestation of Authenticity)	Telephone #
ANC-Lidstone		John Goan	970 670 2925

Report Address	Contact Name	Invoice Address
4025 Automation Way Fort Collins CO 80525	Paul Hildenbrand Email PRH@lidstone.com Phone 970 223 4705	

Purchase Order # | Quote #

ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	ANALYSES / PARAMETERS	REMARKS
1	315080H-001	8/4/15	17:15	PW-4/MW-21	WT	7		5.6
2	002	8/4/15	20:00	PW-2/MW-19	WT	7	2005 Guideline 8	5.6
3	003	8/4/15	12:15	PW-7/MW-24	WT	7	plus Beryllium and	5.5
4	004	8/4/15	10:05	TP2-3	WT	7	Thorium 230	5.5
5								
6							Do not analyse for	
7							SAR, Nitrate,	
8							Alkylinity	
9								
10							Uranium will be	
11							analyzed for dissolved	
12								
13								
14								

LAB COMMENTS	Relinquished By (Signature/Printed)	DATE	TIME	Received By (Signature/Printed)	DATE	TIME
	Adam Marsh	8/4/15	22:20	Kathy Boyd	8.5.15	12:02

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

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 9/11/2015

CLIENT: Lidstone & Associates Inc
Project: ANC
Lab Order: S1508071

CASE NARRATIVE

Report ID: S1508071001

Samples PW-2, PW-4, PW-7, and TP2-3 were received on August 5, 2015.

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

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-001
ClientSample ID: PW-4 /MW-21
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 5:15:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	89	mg/L		5	SM 2320B	08/11/2015 1502	MRL
Alkalinity, Bicarbonate as HCO3	109	mg/L		5	SM 2320B	08/11/2015 1502	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/11/2015 1502	MRL
Chloride	49	mg/L		1	EPA 300.0	08/28/2015 922	AB
Fluoride	0.33	mg/L		0.05	EPA 300.0	08/05/2015 2217	AB
Nitrate+Nitrite as N	ND	mg/L		0.05	EPA 300.0	08/05/2015 2217	AB
Sulfate	1290	mg/L		1	EPA 300.0	08/28/2015 922	AB
Calcium	248	mg/L		1	EPA 200.7	08/28/2015 1301	DG
Magnesium	63	mg/L		1	EPA 200.7	08/28/2015 1301	DG
Potassium	35	mg/L		1	EPA 200.7	08/28/2015 1301	DG
Sodium	311	mg/L		1	EPA 200.7	08/28/2015 1301	DG
Nitrogen, Ammonia (As N)	0.2	mg/L		0.1	EPA 350.1	08/06/2015 1046	AMB
Silica as SiO2	15	mg/L		1	EPA 200.7	08/06/2015 1538	DG
General Parameters							
pH	7.4	s.u.		0.1	SM 4500 H B	08/07/2015 2036	MRL
Electrical Conductivity	2400	µmhos/cm		5	SM 2510B	08/07/2015 2036	MRL
Total Dissolved Solids (180)	2210	mg/L		10	SM 2540	08/05/2015 1511	TS
Data Quality							
Cation Sum	32.04	meq/L		0.01	SM 1030E	09/01/2015 911	WN
Anion Sum	30.07	meq/L		0.01	SM 1030E	09/01/2015 911	WN
Cation-Anion Balance (± 5%)	3.17	%		0.01	SM 1030E	09/01/2015 911	WN
Solids, Total Dissolved (Calc)	2070	mg/L		10	SM 1030E	09/01/2015 911	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.07	dec. %		0.01	Calculation	09/01/2015 914	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- 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 or is less than LCL
- O Outside the Range of Dilutions
- X Matrix Effect
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-001
ClientSample ID: PW-4 /MW-21
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 5:15:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/06/2015 1538	DG
Arsenic	ND	mg/L		0.001	EPA 200.8	08/05/2015 2004	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/05/2015 2004	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/06/2015 1538	DG
Boron	1.5	mg/L		0.1	EPA 200.7	08/06/2015 1538	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/05/2015 2004	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/06/2015 1538	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/05/2015 2004	MS
Iron	ND	mg/L		0.05	EPA 200.7	08/06/2015 1538	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/05/2015 2004	MS
Manganese	0.02	mg/L		0.02	EPA 200.7	08/06/2015 1538	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/07/2015 1109	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/05/2015 2004	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/06/2015 1538	DG
Selenium	0.054	mg/L		0.001	EPA 200.8	08/05/2015 2004	MS
Uranium	0.0497	mg/L		0.0003	EPA 200.8	08/05/2015 2004	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/05/2015 2004	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/06/2015 1538	DG
Metals - Total							
Iron	2.47	mg/L		0.05	EPA 200.7	08/06/2015 1909	DG
Manganese	0.99	mg/L		0.02	EPA 200.7	08/06/2015 1909	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-001
ClientSample ID: PW-4 /MW-21
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 5:15:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	43.2	pCi/L		2	SM 7110B	08/21/2015 858	MB
Gross Alpha Precision (±)	12.2	pCi/L			SM 7110B	08/21/2015 858	MB
Gross Beta	30.1	pCi/L		3	SM 7110B	08/21/2015 858	MB
Gross Beta Precision (±)	14.2	pCi/L			SM 7110B	08/21/2015 858	MB
Radium 226	0.7	pCi/L		0.2	SM 7500 Ra-B	08/20/2015 1106	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/20/2015 1106	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/28/2015 654	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/28/2015 654	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 845	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 845	MB
Thorium 229 Tracer (30-120)	78	%			ACW10	08/24/2015 845	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-002
ClientSample ID: PW-2/MW-19
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 8:00:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	1220	mg/L		5	SM 2320B	08/11/2015 1513	MRL
Alkalinity, Bicarbonate as HCO3	1410	mg/L		5	SM 2320B	08/11/2015 1513	MRL
Alkalinity, Carbonate as CO3	38	mg/L		5	SM 2320B	08/11/2015 1513	MRL
Chloride	178	mg/L		1	EPA 300.0	08/06/2015 1346	AB
Fluoride	0.99	mg/L		0.05	EPA 300.0	08/05/2015 2230	AB
Nitrate+Nitrite as N	ND	mg/L		0.05	EPA 300.0	08/05/2015 2230	AB
Sulfate	1430	mg/L		1	EPA 300.0	08/06/2015 1346	AB
Calcium	38	mg/L		1	EPA 200.7	08/06/2015 1540	DG
Magnesium	19	mg/L		1	EPA 200.7	08/06/2015 1540	DG
Potassium	14	mg/L		1	EPA 200.7	08/06/2015 1540	DG
Sodium	1200	mg/L		1	EPA 200.7	08/06/2015 1540	DG
Nitrogen, Ammonia (As N)	1.4	mg/L		0.1	EPA 350.1	08/06/2015 1057	AMB
Silica as SiO2	8	mg/L		1	EPA 200.7	08/06/2015 1540	DG
General Parameters							
pH	8.4	s.u.		0.1	SM 4500 H B	08/07/2015 2041	MRL
Electrical Conductivity	4220	µmhos/cm		5	SM 2510B	08/07/2015 2041	MRL
Total Dissolved Solids (180)	3470	mg/L		10	SM 2540	08/05/2015 1512	TS
Data Quality							
Cation Sum	56.12	meq/L		0.01	SM 1030E	09/01/2015 911	WN
Anion Sum	59.29	meq/L		0.01	SM 1030E	09/01/2015 911	WN
Cation-Anion Balance (± 5%)	2.75	%		0.01	SM 1030E	09/01/2015 911	WN
Solids, Total Dissolved (Calc)	3620	mg/L		10	SM 1030E	09/01/2015 911	WN
Calculated TDS/TDS Ratio (0.80-1.20)	0.96	dec. %		0.01	Calculation	09/01/2015 914	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-002
ClientSample ID: PW-2/MW-19
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 8:00:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/06/2015 1540	DG
Arsenic	0.004	mg/L		0.001	EPA 200.8	08/05/2015 2010	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/05/2015 2010	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/06/2015 1540	DG
Boron	2.1	mg/L		0.1	EPA 200.7	08/06/2015 1540	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/05/2015 2010	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/06/2015 1540	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/05/2015 2010	MS
Iron	ND	mg/L		0.05	EPA 200.7	08/06/2015 1540	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/05/2015 2010	MS
Manganese	0.09	mg/L		0.02	EPA 200.7	08/06/2015 1540	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/07/2015 1111	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/05/2015 2010	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/06/2015 1540	DG
Selenium	0.001	mg/L		0.001	EPA 200.8	08/05/2015 2010	MS
Uranium	0.0015	mg/L		0.0003	EPA 200.8	08/05/2015 2010	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/05/2015 2010	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/06/2015 1540	DG
Metals - Total							
Iron	11.8	mg/L		0.05	EPA 200.7	08/06/2015 1911	DG
Manganese	0.22	mg/L		0.02	EPA 200.7	08/06/2015 1911	DG

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

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 or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-002
ClientSample ID: PW-2/MW-19
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 8:00:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	8.7	pCi/L		2	SM 7110B	09/10/2015 729	WN
Gross Alpha Precision (±)	6.2	pCi/L			SM 7110B	09/10/2015 729	WN
Gross Beta	24.7	pCi/L		3	SM 7110B	09/10/2015 729	WN
Gross Beta Precision (±)	13.7	pCi/L			SM 7110B	09/10/2015 729	WN
Radium 226	0.5	pCi/L		0.2	SM 7500 Ra-B	08/20/2015 1106	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/20/2015 1106	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/28/2015 955	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/28/2015 955	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 845	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 845	MB
Thorium 229 Tracer (30-120)	77	%			ACW10	08/24/2015 845	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-003
ClientSample ID: PW-7 /MW-24
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 12:15:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	451	mg/L		5	SM 2320B	08/11/2015 1522	MRL
Alkalinity, Bicarbonate as HCO3	550	mg/L		5	SM 2320B	08/11/2015 1522	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/11/2015 1522	MRL
Chloride	64	mg/L		1	EPA 300.0	08/28/2015 935	AB
Fluoride	2.19	mg/L		0.05	EPA 300.0	08/05/2015 2244	AB
Nitrate+Nitrite as N	ND	mg/L		0.05	EPA 300.0	08/05/2015 2244	AB
Sulfate	4820	mg/L		1	EPA 300.0	08/28/2015 935	AB
Calcium	419	mg/L		1	EPA 200.7	08/31/2015 1502	DG
Magnesium	399	mg/L		1	EPA 200.7	08/31/2015 1502	DG
Potassium	15	mg/L		1	EPA 200.7	08/31/2015 1502	DG
Sodium	1260	mg/L		1	EPA 200.7	08/31/2015 1502	DG
Nitrogen, Ammonia (As N)	0.3	mg/L		0.1	EPA 350.1	08/06/2015 1058	AMB
Silica as SiO2	29	mg/L		1	EPA 200.7	08/06/2015 1542	DG
General Parameters							
pH	8.1	s.u.		0.1	SM 4500 H B	08/07/2015 2046	MRL
Electrical Conductivity	6240	µmhos/cm		5	SM 2510B	08/07/2015 2046	MRL
Total Dissolved Solids (180)	8000	mg/L		10	SM 2540	08/05/2015 1513	TS
Data Quality							
Cation Sum	109.07	meq/L		0.01	SM 1030E	09/01/2015 911	WN
Anion Sum	111.31	meq/L		0.01	SM 1030E	09/01/2015 911	WN
Cation-Anion Balance (± 5%)	1.01	%		0.01	SM 1030E	09/01/2015 911	WN
Solids, Total Dissolved (Calc)	7250	mg/L		10	SM 1030E	09/01/2015 911	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.10	dec. %		0.01	Calculation	09/01/2015 914	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-003
ClientSample ID: PW-7 /MW-24
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 12:15:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/06/2015 1542	DG
Arsenic	ND	mg/L		0.001	EPA 200.8	08/05/2015 2015	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/05/2015 2015	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/06/2015 1542	DG
Boron	0.7	mg/L		0.1	EPA 200.7	08/06/2015 1542	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/05/2015 2015	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/06/2015 1542	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/05/2015 2015	MS
Iron	ND	mg/L		0.05	EPA 200.7	08/06/2015 1542	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/05/2015 2015	MS
Manganese	0.78	mg/L		0.02	EPA 200.7	08/06/2015 1542	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/07/2015 1113	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/05/2015 2015	MS
Nickel	0.04	mg/L		0.01	EPA 200.7	08/06/2015 1542	DG
Selenium	ND	mg/L		0.001	EPA 200.8	08/05/2015 2015	MS
Uranium	0.0032	mg/L		0.0003	EPA 200.8	08/05/2015 2015	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/05/2015 2015	MS
Zinc	0.01	mg/L		0.01	EPA 200.7	08/06/2015 1542	DG
Metals - Total							
Iron	0.68	mg/L		0.05	EPA 200.7	08/06/2015 1921	DG
Manganese	0.07	mg/L		0.02	EPA 200.7	08/06/2015 1921	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

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E	Value above quantitation range
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-003
ClientSample ID: PW-7/MW-24
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 12:15:00 PM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	5.5	pCi/L		2	SM 7110B	08/21/2015 858	MB
Gross Alpha Precision (±)	2.9	pCi/L			SM 7110B	08/21/2015 858	MB
Gross Beta	24.9	pCi/L		3	SM 7110B	08/21/2015 858	MB
Gross Beta Precision (±)	6.0	pCi/L			SM 7110B	08/21/2015 858	MB
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	08/20/2015 1106	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/20/2015 1106	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/28/2015 1256	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/28/2015 1256	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 845	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 845	MB
Thorium 229 Tracer (30-120)	84	%			ACW10	08/24/2015 845	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-004
ClientSample ID: TP2-3
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 10:05:00 AM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	155	mg/L		5	SM 2320B	08/11/2015 1531	MRL
Alkalinity, Bicarbonate as HCO3	189	mg/L		5	SM 2320B	08/11/2015 1531	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/11/2015 1531	MRL
Chloride	58	mg/L		1	EPA 300.0	08/05/2015 2257	AB
Fluoride	0.42	mg/L		0.05	EPA 300.0	08/05/2015 2257	AB
Nitrate+Nitrite as N	0.35	mg/L		0.05	EPA 300.0	08/05/2015 2257	AB
Sulfate	1050	mg/L		1	EPA 300.0	08/07/2015 1400	AB
Calcium	335	mg/L		1	EPA 200.7	08/06/2015 1545	DG
Magnesium	42	mg/L		1	EPA 200.7	08/06/2015 1545	DG
Potassium	23	mg/L		1	EPA 200.7	08/06/2015 1545	DG
Sodium	80	mg/L		1	EPA 200.7	08/06/2015 1545	DG
Nitrogen, Ammonia (As N)	8.9	mg/L		0.1	EPA 350.1	08/06/2015 1059	AMB
Silica as SiO2	11	mg/L		1	EPA 200.7	08/06/2015 1545	DG
General Parameters							
pH	8.1	s.u.		0.1	SM 4500 H B	08/07/2015 2051	MRL
Electrical Conductivity	1940	µmhos/cm		5	SM 2510B	08/07/2015 2051	MRL
Total Dissolved Solids (180)	1760	mg/L		10	SM 2540	08/05/2015 1514	TS
Data Quality							
Cation Sum	24.92	meq/L		0.01	SM 1030E	09/01/2015 911	WN
Anion Sum	26.57	meq/L		0.01	SM 1030E	09/01/2015 911	WN
Cation-Anion Balance (± 5%)	3.19	%		0.01	SM 1030E	09/01/2015 911	WN
Solids, Total Dissolved (Calc)	1690	mg/L		10	SM 1030E	09/01/2015 911	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.04	dec. %		0.01	Calculation	09/01/2015 914	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-004
ClientSample ID: TP2-3
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 10:05:00 AM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/06/2015 1545	DG
Arsenic	ND	mg/L		0.001	EPA 200.8	08/05/2015 2021	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/05/2015 2021	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/06/2015 1545	DG
Boron	ND	mg/L		0.1	EPA 200.7	08/06/2015 1545	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/05/2015 2021	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/06/2015 1545	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/05/2015 2021	MS
Iron	ND	mg/L		0.05	EPA 200.7	08/06/2015 1545	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/05/2015 2021	MS
Manganese	0.09	mg/L		0.02	EPA 200.7	08/06/2015 1545	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/07/2015 1115	AW
Molybdenum	0.07	mg/L		0.02	EPA 200.8	08/05/2015 2021	MS
Nickel	0.01	mg/L		0.01	EPA 200.7	08/06/2015 1545	DG
Selenium	0.010	mg/L		0.001	EPA 200.8	08/05/2015 2021	MS
Uranium	0.982	mg/L		0.0003	EPA 200.8	08/05/2015 2021	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/05/2015 2021	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/06/2015 1545	DG
Metals - Total							
Iron	ND	mg/L		0.05	EPA 200.7	08/06/2015 1923	DG
Manganese	0.10	mg/L		0.02	EPA 200.7	08/06/2015 1923	DG

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508071001

ProjectName: ANC
Lab ID: S1508071-004
ClientSample ID: TP2-3
COC: 161502

WorkOrder: S1508071
CollectionDate: 8/4/2015 10:05:00 AM
DateReceived: 8/5/2015 12:02:00 PM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	481	pCi/L		2	SM 7110B	09/10/2015 729	WN
Gross Alpha Precision (±)	29.4	pCi/L			SM 7110B	09/10/2015 729	WN
Gross Beta	316	pCi/L		3	SM 7110B	09/10/2015 729	WN
Gross Beta Precision (±)	22.5	pCi/L			SM 7110B	09/10/2015 729	WN
Radium 226	5.2	pCi/L		0.2	SM 7500 Ra-B	08/20/2015 1106	MB
Radium 226 Precision (±)	0.3	pCi/L			SM 7500 Ra-B	08/20/2015 1106	MB
Radium 228	7.5	pCi/L		1	Ga-Tech	08/28/2015 1557	MB
Radium 228 Precision (±)	1.3	pCi/L			Ga-Tech	08/28/2015 1557	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 845	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 845	MB
Thorium 229 Tracer (30-120)	97	%			ACW10	08/24/2015 845	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

- 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 or is less than LCL
- O Outside the Range of Dilutions
- X Matrix Effect
- C Calculated Value
- H *Holding times for preparation or analysis exceeded*
- L Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC

Date: 9/11/2015
Report ID: S1508071001

Alkalinity Sample Type **MBLK** Units: mg/L

BLANK (08/10/15 15:46) RunNo: 124703							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Alkalinity, Total (As CaCO3)	ND	5					

Alkalinity Sample Type **LCS** Units: mg/L

ATQC (08/10/15 15:35) RunNo: 124703							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Alkalinity, Total (As CaCO3)	602	5	595		101	90 - 110	

Alkalinity Sample Type **DUP** Units: mg/L

S1508070-005A (08/07/15 19:36) RunNo: 124664							
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Alkalinity, Bicarbonate as HCO3	1370	5	1380	0.829		20	
Alkalinity, Carbonate as CO3	ND	5	ND			20	
Alkalinity, Hydroxide as OH	ND	5	ND			20	
Alkalinity, Total (As CaCO3)	1120	5	1130	0.829		20	

Conductivity Sample Type **MBLK** Units: µmhos/cm

BLANK (08/10/15 15:46) RunNo: 124703							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Electrical Conductivity	ND	5					

Conductivity Sample Type **LCS** Units: µmhos/cm

ATQC (08/10/15 15:35) RunNo: 124703							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Electrical Conductivity	1030	5	1060		97.3	90 - 110	

Conductivity Sample Type **DUP** Units: µmhos/cm

S1508070-005A (08/07/15 19:36) RunNo: 124664							
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Electrical Conductivity	4250	5	4270	0.469		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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC

Date: 9/11/2015
Report ID: S1508071001

Dissolved Mercury by EPA 245.1 - Water Sample Type **MBLK** Units: mg/L

LRB (08/07/15 09:45) RunNo: 124629

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	ND	0.001					

Dissolved Mercury by EPA 245.1 - Water Sample Type **LCS** Units: mg/L

LCS (08/07/15 08:47) RunNo: 124629

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.002	0.001	0.002		89.1	85 - 115	

Dissolved Mercury by EPA 245.1 - Water Sample Type **MS** Units: mg/L

S1508070-007C (08/07/15 11:02) RunNo: 124629

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.002	0.001	0.00197	ND	97.3	70 - 130	

Dissolved Mercury by EPA 245.1 - Water Sample Type **MSD** Units: mg/L

S1508070-007C (08/07/15 11:04) RunNo: 124629

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Mercury	0.002	0.001	0.002	0.151	97.2	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC
Date: 9/11/2015
Report ID: S1508071001

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/06/15 13:25) RunNo: 124591

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	ND	0.1					
Beryllium	ND	0.01					
Boron	ND	0.1					
Chromium	ND	0.01					
Iron	ND	0.05					
Manganese	ND	0.02					
Nickel	ND	0.01					
Zinc	ND	0.01					

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **LCS** Units: mg/L

DISS LCS Q (08/06/15 13:27) RunNo: 124591

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	1.0	0.1	1		98.6	85 - 115	
Beryllium	0.99	0.01	1		98.6	85 - 115	
Boron	1.0	0.1	1		101	85 - 115	
Chromium	0.99	0.01	1		98.8	85 - 115	
Iron	0.98	0.05	1		98.1	85 - 115	
Manganese	1.01	0.02	1		101	85 - 115	
Nickel	1.01	0.01	1		101	85 - 115	
Zinc	0.96	0.01	1		96.3	85 - 115	

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MS** Units: mg/L

S1508083-008CS (08/06/15 17:23) RunNo: 124591

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	0.33	0.02	0.25	0.06	108	70 - 130	
Beryllium	0.286	0.002	0.25	ND	114	70 - 130	
Boron	0.94	0.03	0.25	0.70	94.2	70 - 130	
Chromium	0.28	0.01	0.25	ND	113	70 - 130	
Iron	0.30	0.02	0.25	0.02	109	70 - 130	
Manganese	0.28	0.01	0.25	ND	110	70 - 130	
Nickel	0.28	0.01	0.25	ND	112	70 - 130	
Zinc	0.28	0.01	0.25	ND	110	70 - 130	

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MSD** Units: mg/L

S1508083-008CSD (08/06/15 17:25) RunNo: 124591

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Aluminum	0.35	0.02	0.33	5.92	116	20	
Beryllium	0.308	0.002	0.286	7.41	123	20	
Boron	0.97	0.03	0.94	3.28	107	20	
Chromium	0.31	0.01	0.28	7.71	122	20	
Iron	0.32	0.02	0.30	6.16	117	20	
Manganese	0.30	0.01	0.28	7.11	118	20	
Nickel	0.30	0.01	0.28	7.27	120	20	
Zinc	0.30	0.01	0.28	7.15	118	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC

Date: 9/11/2015
Report ID: S1508071001

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MBLK** Units: mg/L

MBLK (08/05/15 14:14) RunNo: 124546

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	ND	0.005					
Barium	ND	0.1					
Cadmium	ND	0.001					
Copper	ND	0.01					
Lead	ND	0.02					
Molybdenum	ND	0.02					
Selenium	ND	0.001					
Uranium	ND	0.0003					
Vanadium	ND	0.02					

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **LCS** Units: mg/L

LCS (08/05/15 14:38) RunNo: 124546

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	0.101	0.005	0.1		101	85 - 115	
Barium	ND	0.1	0.1		95.4	85 - 115	
Cadmium	0.098	0.001	0.1		98.0	85 - 115	
Copper	0.10	0.01	0.1		98.2	85 - 115	
Lead	0.10	0.02	0.1		96.1	85 - 115	
Molybdenum	0.10	0.02	0.1		96.1	85 - 115	
Selenium	0.100	0.001	0.1		99.6	85 - 115	
Uranium	0.103	0.0003	0.1		103	85 - 115	
Vanadium	0.10	0.02	0.1		103	85 - 115	

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MS** Units: mg/L

S1508076-005DS (08/05/15 22:16) RunNo: 124546

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	1.05	0.005	1.1	ND	95.6	70 - 130	
Barium	1.1	0.5	1.1	ND	97.5	70 - 130	
Cadmium	1.05	0.002	1.1	ND	95.4	70 - 130	
Copper	1.02	0.01	1.1	ND	92.3	70 - 130	
Lead	1.07	0.02	1.1	ND	97.2	70 - 130	
Molybdenum	1.08	0.02	1.1	ND	98.2	70 - 130	
Selenium	0.860	0.005	1.1	0.064	72.4	70 - 130	
Uranium	1.08	0.001	1.1	ND	98.5	70 - 130	
Vanadium	1.12	0.02	1.1	ND	102	70 - 130	

S1508063-001CS (08/05/15 17:14) RunNo: 124546

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	1.12	0.003	1.1	ND	102	70 - 130	
Lead	1.1	0.2	1.1	ND	95.2	70 - 130	
Selenium	1.12	0.005	1.1	ND	101	70 - 130	

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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC
Date: 9/11/2015
Report ID: S1508071001

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MSD** Units: mg/L

S1508076-005DMSD (08/05/15 22:21)	RunNo: 124546						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Arsenic	1.08	0.005	1.05	2.54	98.1	20	
Barium	1.1	0.5	1.1	0.302	97.8	20	
Cadmium	1.05	0.002	1.05	0.0468	95.4	20	
Copper	1.03	0.01	1.02	0.886	93.2	20	
Lead	1.08	0.02	1.07	0.922	98.1	20	
Molybdenum	1.08	0.02	1.08	0.274	97.9	20	
Selenium	0.872	0.005	0.860	1.42	73.5	20	
Uranium	1.10	0.001	1.08	1.20	99.7	20	
Vanadium	1.08	0.02	1.12	3.40	98.3	20	

Gross Alpha, Beta by SM 7110B Sample Type **MBLK** Units: pCi/L

MB-339 (08/21/15 08:58)	RunNo: 125254	PrepDate: 08/18/15 0:00			BatchID: R125254		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	ND	2					
Gross Beta (Dissolved)	ND	3					

MB-343 (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	ND	2					
Gross Beta (Dissolved)	ND	3					

Gross Alpha, Beta by SM 7110B Sample Type **LCS** Units: pCi/L

LCS-339 (08/21/15 08:58)	RunNo: 125254	PrepDate: 08/18/15 0:00			BatchID: R125254		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	53	2	72.6		73.3	59.5 - 130	
Gross Beta (Dissolved)	125	3	118		105	80 - 122	

LCS-343 A (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	77	2	70		109	59.5 - 130	

LCS-343 B (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Beta (Dissolved)	145	3	126		116	84.2 - 125	

Gross Alpha, Beta by SM 7110B Sample Type **MS** Units: pCi/L

S1508155-001F MS (08/21/15 08:58)	RunNo: 125254	PrepDate: 08/18/15 0:00			BatchID: R125254		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	89	2	72.6	20	94.9	50 - 150	
Gross Beta (Dissolved)	154	3	118	8	124	61.4 - 150	

S1508462-001D MSA (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	158	2	140	3	111	50 - 150	

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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC
Date: 9/11/2015
Report ID: S1508071001

Gross Alpha, Beta by SM 7110B Sample Type **MS** Units: pCi/L

S1508462-001D MSB (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Beta (Dissolved)	288	3	251	73	85.9	66.1 - 145	

Gross Alpha, Beta by SM 7110B Sample Type **DUP** Units: pCi/L

S1508199-006H DUP (08/21/15 08:58)	RunNo: 125254	PrepDate: 08/18/15 0:00			BatchID: R125254		
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Gross Alpha (Dissolved)	11	2	11	5.95		20	
Gross Beta (Dissolved)	17	3	18	5.73		20	

S1508462-002D DUP (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Gross Alpha (Dissolved)	4	2	4	12.0		20	
Gross Beta (Dissolved)	14	3	17	19.9		20	

Anions by ION Chromatography Sample Type **MBLK** Units: mg/L

BLK (08/05/15 09:58)	RunNo: 124550						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	ND	1					
Fluoride	ND	0.1					
Nitrate+Nitrite as N	ND	0.05					
Sulfate	ND	1					

Anions by ION Chromatography Sample Type **LCS** Units: mg/L

DIONEX (08/05/15 10:12)	RunNo: 124550						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	30	1	30		99.7	90 - 110	
Fluoride	20.7	0.1	20		103	90 - 110	
Nitrate+Nitrite as N	52.2	0.05	53		98.5	90 - 110	
Sulfate	144	1	150		95.7	90 - 110	

DIONEX (08/05/15 10:25)	RunNo: 124550						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Fluoride	19.4	0.1	20		96.9	90 - 110	

Anions by ION Chromatography Sample Type **MS** Units: mg/L

S1508070-009ASPK (08/05/15 21:22)	RunNo: 124550						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	272	1	236	24	105	80 - 120	
Fluoride	120	0.05	118	ND	102	80 - 120	
Sulfate	4550	1	1770	2590	110	80 - 120	

Anions by ION Chromatography Sample Type **MSD** Units: mg/L

S1508070-009ASPK (08/05/15 21:36)	RunNo: 124550						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Chloride	271	1	272	0.292	105	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC

Date: 9/11/2015
Report ID: S1508071001

Anions by ION Chromatography Sample Type **MSD** Units: mg/L

S1508070-009ASPK (08/05/15 21:36) RunNo: 124550							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Fluoride	121	0.05	120	0.901	103	20	
Sulfate	4510	1	4550	0.784	108	20	

Cations by ICP (Method 200.7) Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/07/15 12:16) RunNo: 124648							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	ND	1					
Magnesium	ND	1					
Potassium	ND	1					
Sodium	ND	1					

Cations by ICP (Method 200.7) Sample Type **LCS** Units: mg/L

CAT LCS IML3 (08/31/15 14:37) RunNo: 125529							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	40	1	40		100	85 - 115	
Magnesium	41	1	40		102	85 - 115	
Potassium	41	1	40		103	85 - 115	
Sodium	41	1	40		103	85 - 115	

Cations by ICP (Method 200.7) Sample Type **MS** Units: mg/L

S1508090-004AS (08/07/15 13:35) RunNo: 124648							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	82	1	25	61	87.2	70 - 130	
Magnesium	36	1	25	11	98.7	70 - 130	
Potassium	31	1	25	3	109	70 - 130	
Sodium	60	1	25	37	91.9	70 - 130	

Cations by ICP (Method 200.7) Sample Type **MSD** Units: mg/L

S1508090-004ASD (08/07/15 13:37) RunNo: 124648							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Calcium	86	1	82	3.91	100	20	
Magnesium	39	1	36	10.2	114	20	
Potassium	34	1	31	11.4	123	20	
Sodium	64	1	60	5.87	106	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC
Date: 9/11/2015
Report ID: S1508071001

Nitrogen, Ammonia (as N) Sample Type **MBLK** Units: mg/L

BLANK (08/06/15 10:06) RunNo: 124749

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	ND	0.1					

Nitrogen, Ammonia (as N) Sample Type **LCS** Units: mg/L

QC (08/06/15 10:09) RunNo: 124749

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	2.4	0.1	2.5		95.8	90 - 110	

Nitrogen, Ammonia (as N) Sample Type **MS** Units: mg/L

S1507464-006B (08/06/15 10:29) RunNo: 124749

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	3.3	0.1	2.5	0.6	106	90 - 110	

Nitrogen, Ammonia (as N) Sample Type **MSD** Units: mg/L

S1507464-006B (08/06/15 10:30) RunNo: 124749

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Nitrogen, Ammonia (As N)	3.3	0.1	3.3	0.171	105	20	

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-10645 (08/27/15 15:49) RunNo: 125563 PrepDate: 08/26/15 9:33 BatchID: 10645

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	ND	1					

Radium 228 by Ga/Tech Sample Type **LCS** Units: pCi/L

LCS-10645 (08/27/15 18:50) RunNo: 125563 PrepDate: 08/26/15 9:33 BatchID: 10645

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	32	1	39.2		80.5	61.3 - 120	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

MS-10645 (08/28/15 00:52) RunNo: 125563 PrepDate: 08/18/15 9:00 BatchID: 10645

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	35	1	39.2	ND	88.0	64.3 - 120	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

MSD-10645 (08/28/15 03:53) RunNo: 125563 PrepDate: 08/18/15 9:00 BatchID: 10645

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 228 (Dissolved)	38	1	35	10.7	98.0	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC

Date: 9/11/2015
Report ID: S1508071001

Radium 226 in Water - Dissolved Sample Type **MBLK** Units: pCi/L

MB-1496 (08/20/15 09:01)	RunNo: 125102	PrepDate: 08/10/15 0:00			BatchID: 10563		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	ND	0.2					

Radium 226 in Water - Dissolved Sample Type **LCS** Units: pCi/L

LCS-1496 (08/20/15 09:01)	RunNo: 125102	PrepDate: 08/10/15 0:00			BatchID: 10563		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	4.5	0.2	5.03		89.2	72.5 - 120	

Radium 226 in Water - Dissolved Sample Type **MS** Units: pCi/L

MS-1496 (08/20/15 09:01)	RunNo: 125102	PrepDate: 08/10/15 0:00			BatchID: 10563		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	4.9	0.2	5.03	ND	97.1	69.6 - 120	

Radium 226 in Water - Dissolved Sample Type **MSD** Units: pCi/L

MSD-1496 (08/20/15 09:01)	RunNo: 125102	PrepDate: 08/10/15 0:00			BatchID: 10563		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226 (Dissolved)	4.2	0.2	4.9	15.8	82.9	20	

Thorium 230 in Water - Dissolved Sample Type **MBLK** Units: pCi/L

MB-464 (08/24/15 08:45)	RunNo: 125247	PrepDate: 08/18/15 0:00			BatchID: R125247		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 230 (Dissolved)	ND	0.2					

Thorium 230 in Water - Dissolved Sample Type **LCS** Units: pCi/L

LCS-464 (08/24/15 08:45)	RunNo: 125247	PrepDate: 08/18/15 0:00			BatchID: R125247		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 230 (Dissolved)	12	0.2	12		94.3	68 - 146	

Silica as SiO2 Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/06/15 13:25)	RunNo: 124593						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Silica as SiO2	ND	0.1					

Silica as SiO2 Sample Type **LCS** Units: mg/L

DISS LCS Q (08/06/15 13:27)	RunNo: 124593						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Silica as SiO2	2.1	0.1	2.14		98.2	85 - 115	

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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508071
Project: ANC

Date: 9/11/2015
Report ID: S1508071001

Solids By SM 2540 Sample Type **MBLK** Units: mg/L

DI (08/05/15 14:42)	RunNo: 124670						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Dissolved Solids (180)	ND	10					

Solids By SM 2540 Sample Type **LCS** Units: mg/L

CONTROL (08/05/15 14:43)	RunNo: 124670						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Dissolved Solids (180)	210	10	226		94.7	90 - 110	

Solids By SM 2540 Sample Type **DUP** Units: mg/L

S1508071-004A (08/05/15 15:15)	RunNo: 124670						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Total Dissolved Solids (180)	1770	10	1760	0.452		20	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MBLK** Units: mg/L

MB-10569 (08/06/15 17:43)	RunNo: 124594	PrepDate: 08/06/15 6:15			BatchID: 10569		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Iron	ND	0.05					
Manganese	ND	0.02					

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **LCS** Units: mg/L

LCS-10569 (08/06/15 17:46)	RunNo: 124594	PrepDate: 08/06/15 6:15			BatchID: 10569		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qu
Iron	0.49	0.05	0.5		98.6	85 - 115	
Manganese	0.19	0.02	0.2		97.0	85 - 115	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MS** Units: mg/L

S1508063-002DS (08/06/15 18:15)	RunNo: 124594	PrepDate: 08/06/15 6:15			BatchID: 10569		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Iron	2.45	0.05	0.5	1.97	94.7	70 - 130	
Manganese	0.24	0.02	0.2	0.05	96.6	70 - 130	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MSD** Units: mg/L

S1508063-002DMSD (08/06/15 18:17)	RunNo: 124594	PrepDate: 08/06/15 6:15			BatchID: 10569		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Iron	2.44	0.05	2.45	0.186	93.8	20	
Manganese	0.24	0.02	0.24	0.371	96.1	20	

pH Water Sample Type **LCS** Units: s.u.

ATQC (08/10/15 15:35)	RunNo: 124703						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
pH	8.8	0.1	8.6		102	90 - 110	

pH Water Sample Type **DUP** Units: s.u.

S1508070-005A (08/07/15 19:36)	RunNo: 124664						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
pH	7.6	0.1	7.6	0.00265		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 another 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	X	Matrix Effect

Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

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

Page of
162366

Client Name	Project Identification	Sampler (Signature/Attestation of Authenticity)	Telephone #
LIDSTONE & Assoc.	ANC	John Goin	970-690-2925

Report Address	Contact Name
4025 Automation Way, Bldg E Fort Collins, Co 80525	Paul Hildenbrand Email: PRH@lidstone.com Phone: 970-223-4705

Invoice Address: "

Purchase Order #:

Quote #:

ANALYSES / PARAMETERS: See Attached QUOTE

ALL Samples Are UNFILTERED

ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	REMARKS
1	S5G8125-001	8/5	10:12 Am	PW-1/MW-18L	H_2O	7	
2	-002	8/5	2:00 pm	PW-3/MW-20.	H_2O	7	
3	-003	8/5	8:19 pm	PW-5/MW-22	"	7	
4	-004	8/5	5:38 pm	PW-6/MW-23 2.3	"	7	
5	-005	8/5	3:30 pm	PW-8/MW-25.3	"	7	
6	-006	8/6	3:40 pm	PW-9/MW-26 7	"	7	
7	-007	8/6	10:40 Am	PW-10/MW-27	"	7	
8	-008	8/6	5:03 pm	PW-12/MW-28	"	7	
9							
10	-009	8/6	1:15 pm	MW-12 2.3	"	7	
11							
12							
13							
14							

cooler Temp

LAB COMMENTS	Relinquished By (Signature/Printed)	DATE	TIME	Received By (Signature/Printed)	DATE	TIME
	John Goin	8/6	8:10 pm	[signature]	8-7-15	11:49

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

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 9/11/2015

CLIENT: Lidstone & Associates Inc
Project: ANC
Lab Order: S1508125

CASE NARRATIVE

Report ID: S1508125001

Samples MW-12, PW-1, PW-10, PW-12, PW-3, PW-5, PW-6, PW-8, and PW-9 were received on August 7, 2015.

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

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-001
ClientSample ID: PW-1/MW-18
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 10:12:00 AM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	377	mg/L		5	SM 2320B	08/10/2015 2143	MRL
Alkalinity, Bicarbonate as HCO3	459	mg/L		5	SM 2320B	08/10/2015 2143	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/10/2015 2143	MRL
Chloride	208	mg/L		1	EPA 300.0	08/14/2015 020	AB
Fluoride	1.0	mg/L		0.1	EPA 300.0	08/12/2015 2145	AB
Nitrogen, Nitrate+Nitrite (as N)	ND	mg/L		0.1	EPA 353.2	08/18/2015 1246	AMB
Sulfate	2700	mg/L		1	EPA 300.0	08/18/2015 1152	AB
Calcium	414	mg/L		1	EPA 200.7	08/18/2015 1300	BJ
Magnesium	152	mg/L		1	EPA 200.7	08/18/2015 1300	BJ
Potassium	66	mg/L		1	EPA 200.7	08/18/2015 1300	BJ
Sodium	877	mg/L		1	EPA 200.7	08/18/2015 1300	BJ
Nitrogen, Ammonia (As N)	0.3	mg/L		0.1	EPA 350.1	08/13/2015 1259	AMB
Silica as SiO2	24.5	mg/L		0.1	EPA 200.7	08/10/2015 1552	DG
General Parameters							
pH	8.0	s.u.		0.1	SM 4500 H B	08/10/2015 2143	MRL
Electrical Conductivity	4300	µmhos/cm		5	SM 2510B	08/10/2015 2143	MRL
Total Dissolved Solids (180)	4750	mg/L		10	SM 2540	08/07/2015 1444	TS
Sodium Adsorption Ratio	9.4			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	73.03	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	69.61	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	2.39	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	4670	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.02	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-001
ClientSample ID: PW-1 /MW-18
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 10:12:00 AM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/10/2015 1552	DG
Arsenic	0.015	mg/L		0.001	EPA 200.8	08/07/2015 2218	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2218	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1552	DG
Boron	0.2	mg/L		0.1	EPA 200.7	08/10/2015 1552	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2218	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1552	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/07/2015 2218	MS
Iron	ND	mg/L		0.05	EPA 200.7	08/10/2015 1552	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2218	MS
Manganese	ND	mg/L		0.02	EPA 200.7	08/10/2015 1552	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1258	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/07/2015 2218	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/10/2015 1552	DG
Selenium	0.057	mg/L		0.001	EPA 200.8	08/07/2015 2218	MS
Uranium	1.13	mg/L		0.0003	EPA 200.8	08/07/2015 2218	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2218	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/10/2015 1552	DG
Metals - Total							
Iron	0.24	mg/L		0.05	EPA 200.7	08/28/2015 1803	DG
Manganese	0.02	mg/L		0.02	EPA 200.7	08/28/2015 1803	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL
ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-001
ClientSample ID: PW-1 /MW-18
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 10:12:00 AM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	269	pCi/L		2	SM 7110B	09/09/2015 1048	WN
Gross Alpha Precision (±)	25.6	pCi/L			SM 7110B	09/09/2015 1048	WN
Gross Beta	223	pCi/L		3	SM 7110B	09/09/2015 1048	WN
Gross Beta Precision (±)	20.9	pCi/L			SM 7110B	09/09/2015 1048	WN
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/28/2015 1858	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/28/2015 1858	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 846	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 846	MB
Thorium 229 Tracer (30-120)	58	%			ACW10	08/24/2015 846	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- 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 or is less than LCL
- O Outside the Range of Dilutions
- X Matrix Effect
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-002
ClientSample ID: PW-3/MW-20
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 2:00:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	618	mg/L		5	SM 2320B	08/10/2015 2157	MRL
Alkalinity, Bicarbonate as HCO3	734	mg/L		5	SM 2320B	08/10/2015 2157	MRL
Alkalinity, Carbonate as CO3	10	mg/L		5	SM 2320B	08/10/2015 2157	MRL
Chloride	19	mg/L		1	EPA 300.0	08/12/2015 2200	AB
Fluoride	0.5	mg/L		0.1	EPA 300.0	08/12/2015 2200	AB
Nitrogen, Nitrate+Nitrite (as N)	ND	mg/L		0.1	EPA 353.2	08/18/2015 1247	AMB
Sulfate	1530	mg/L		1	EPA 300.0	08/18/2015 1207	AB
Calcium	91	mg/L		1	EPA 200.7	08/18/2015 1309	BJ
Magnesium	50	mg/L		1	EPA 200.7	08/18/2015 1309	BJ
Potassium	18	mg/L		1	EPA 200.7	08/18/2015 1309	BJ
Sodium	794	mg/L		1	EPA 200.7	08/18/2015 1309	BJ
Nitrogen, Ammonia (As N)	1.1	mg/L		0.1	EPA 350.1	08/13/2015 1300	AMB
Silica as SiO2	3.9	mg/L		0.1	EPA 200.7	08/10/2015 1555	DG
General Parameters							
pH	8.3	s.u.		0.1	SM 4500 H B	08/10/2015 2157	MRL
Electrical Conductivity	3310	µmhos/cm		5	SM 2510B	08/10/2015 2157	MRL
Total Dissolved Solids (180)	2920	mg/L		10	SM 2540	08/07/2015 1445	TS
Sodium Adsorption Ratio	16.6			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	43.74	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	44.76	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	1.14	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	2880	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.01	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

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 or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-002
ClientSample ID: PW-3 /MW-20
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 2:00:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/10/2015 1555	DG
Arsenic	0.003	mg/L		0.001	EPA 200.8	08/07/2015 2224	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2224	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1555	DG
Boron	0.7	mg/L		0.1	EPA 200.7	08/10/2015 1555	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2224	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1555	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/07/2015 2224	MS
Iron	0.17	mg/L		0.05	EPA 200.7	08/10/2015 1555	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2224	MS
Manganese	0.11	mg/L		0.02	EPA 200.7	08/10/2015 1555	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1300	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/07/2015 2224	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/10/2015 1555	DG
Selenium	0.001	mg/L		0.001	EPA 200.8	08/07/2015 2224	MS
Uranium	0.0025	mg/L		0.0003	EPA 200.8	08/07/2015 2224	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2224	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/10/2015 1555	DG
Metals - Total							
Iron	1.71	mg/L		0.05	EPA 200.7	08/28/2015 1807	DG
Manganese	0.34	mg/L		0.02	EPA 200.7	08/28/2015 1807	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- 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 or is less than LCL
- O Outside the Range of Dilutions
- X Matrix Effect
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company:	Lidstone & Associates Inc 4025 Automation Way Bldg E Fort Collins, CO 80525	**Date Reported**	9/11/2015
		Report ID	S1508125001
ProjectName:	ANC	**WorkOrder:**	S1508125
Lab ID:	S1508125-002	**CollectionDate:**	8/5/2015 2:00:00 PM
ClientSample ID:	PW-3 /MW-20	**DateReceived:**	8/7/2015 11:49:00 AM
COC:	162366	**FieldSampler:**	JG
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	5.5	pCi/L		2	SM 7110B	08/21/2015 1532	MB
Gross Alpha Precision (±)	3.6	pCi/L			SM 7110B	08/21/2015 1532	MB
Gross Beta	19.6	pCi/L		3	SM 7110B	08/21/2015 1532	MB
Gross Beta Precision (±)	6.3	pCi/L			SM 7110B	08/21/2015 1532	MB
Radium 226	0.6	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/28/2015 2158	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/28/2015 2158	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 1323	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 1323	MB
Thorium 229 Tracer (30-120)	93	%			ACW10	08/24/2015 1323	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-003
ClientSample ID: PW-5 /MW-22
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 8:19:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	168	mg/L		5	SM 2320B	08/10/2015 2211	MRL
Alkalinity, Bicarbonate as HCO3	205	mg/L		5	SM 2320B	08/10/2015 2211	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/10/2015 2211	MRL
Chloride	61	mg/L		1	EPA 300.0	08/18/2015 1221	AB
Fluoride	0.9	mg/L		0.1	EPA 300.0	08/12/2015 2326	AB
Nitrogen, Nitrate+Nitrite (as N)	0.3	mg/L		0.1	EPA 353.2	08/18/2015 1249	AMB
Sulfate	1950	mg/L		1	EPA 300.0	08/18/2015 1221	AB
Calcium	347	mg/L		1	EPA 200.7	08/18/2015 1311	BJ
Magnesium	94	mg/L		1	EPA 200.7	08/18/2015 1311	BJ
Potassium	38	mg/L		1	EPA 200.7	08/18/2015 1311	BJ
Sodium	474	mg/L		1	EPA 200.7	08/18/2015 1311	BJ
Nitrogen, Ammonia (As N)	0.3	mg/L		0.1	EPA 350.1	08/13/2015 1301	AMB
Silica as SiO2	13.5	mg/L		0.1	EPA 200.7	08/10/2015 1557	DG
General Parameters							
pH	8.2	s.u.		0.1	SM 4500 H B	08/10/2015 2211	MRL
Electrical Conductivity	3040	µmhos/cm		5	SM 2510B	08/10/2015 2211	MRL
Total Dissolved Solids (180)	3180	mg/L		10	SM 2540	08/07/2015 1446	TS
Sodium Adsorption Ratio	5.8			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	46.67	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	45.66	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	1.10	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	3080	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.03	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-003
ClientSample ID: PW-5 /MW-22
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 8:19:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	1.2	mg/L		0.1	EPA 200.7	08/10/2015 1557	DG
Arsenic	0.004	mg/L		0.001	EPA 200.8	08/07/2015 2229	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2229	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1557	DG
Boron	0.1	mg/L		0.1	EPA 200.7	08/10/2015 1557	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2229	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1557	DG
Copper	0.02	mg/L		0.01	EPA 200.8	08/07/2015 2229	MS
Iron	1.82	mg/L		0.05	EPA 200.7	08/10/2015 1557	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2229	MS
Manganese	0.11	mg/L		0.02	EPA 200.7	08/10/2015 1557	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1302	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/07/2015 2229	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/10/2015 1557	DG
Selenium	0.068	mg/L		0.001	EPA 200.8	08/07/2015 2229	MS
Uranium	0.117	mg/L		0.0003	EPA 200.8	08/07/2015 2229	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2229	MS
Zinc	0.01	mg/L		0.01	EPA 200.7	08/10/2015 1557	DG
Metals - Total							
Iron	10.9	mg/L		0.05	EPA 200.7	08/28/2015 1821	DG
Manganese	0.27	mg/L		0.02	EPA 200.7	08/28/2015 1821	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

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 or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-003
ClientSample ID: PW-5 /MW-22
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 8:19:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	63.3	pCi/L		2	SM 7110B	08/21/2015 1532	MB
Gross Alpha Precision (±)	9.0	pCi/L			SM 7110B	08/21/2015 1532	MB
Gross Beta	47.3	pCi/L		3	SM 7110B	08/21/2015 1532	MB
Gross Beta Precision (±)	7.4	pCi/L			SM 7110B	08/21/2015 1532	MB
Radium 226	1.1	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/29/2015 059	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/29/2015 059	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 1323	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 1323	MB
Thorium 229 Tracer (30-120)	87	%			ACW10	08/24/2015 1323	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-004
ClientSample ID: PW-6/MW-23
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 5:38:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	287	mg/L		5	SM 2320B	08/10/2015 2224	MRL
Alkalinity, Bicarbonate as HCO3	350	mg/L		5	SM 2320B	08/10/2015 2224	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/10/2015 2224	MRL
Chloride	40	mg/L		1	EPA 300.0	08/14/2015 103	AB
Fluoride	0.8	mg/L		0.1	EPA 300.0	08/12/2015 2340	AB
Nitrogen, Nitrate+Nitrite (as N)	ND	mg/L		0.1	EPA 353.2	08/18/2015 1250	AMB
Sulfate	938	mg/L		1	EPA 300.0	08/14/2015 103	AB
Calcium	241	mg/L		1	EPA 200.7	08/10/2015 1602	DG
Magnesium	50	mg/L		1	EPA 200.7	08/10/2015 1602	DG
Potassium	25	mg/L		1	EPA 200.7	08/10/2015 1602	DG
Sodium	199	mg/L		1	EPA 200.7	08/10/2015 1602	DG
Nitrogen, Ammonia (As N)	0.4	mg/L		0.1	EPA 350.1	08/13/2015 1303	AMB
Silica as SiO2	35.1	mg/L		0.1	EPA 200.7	08/10/2015 1602	DG
General Parameters							
pH	8.1	s.u.		0.1	SM 4500 H B	08/10/2015 2224	MRL
Electrical Conductivity	2030	µmhos/cm		5	SM 2510B	08/10/2015 2224	MRL
Total Dissolved Solids (180)	1860	mg/L		10	SM 2540	08/07/2015 1447	TS
Sodium Adsorption Ratio	3.0			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	25.44	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	26.41	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	1.87	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	1700	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.09	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-004
ClientSample ID: PW-6 /MW-23
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 5:38:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/10/2015 1602	DG
Arsenic	0.007	mg/L		0.001	EPA 200.8	08/07/2015 2257	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2257	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1602	DG
Boron	0.3	mg/L		0.1	EPA 200.7	08/10/2015 1602	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2257	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1602	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/07/2015 2257	MS
Iron	0.51	mg/L		0.05	EPA 200.7	08/10/2015 1602	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2257	MS
Manganese	0.38	mg/L		0.02	EPA 200.7	08/10/2015 1602	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1304	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/07/2015 2257	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/10/2015 1602	DG
Selenium	0.028	mg/L		0.001	EPA 200.8	08/07/2015 2257	MS
Uranium	0.128	mg/L		0.0003	EPA 200.8	08/07/2015 2257	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2257	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/10/2015 1602	DG
Metals - Total							
Iron	0.55	mg/L		0.05	EPA 200.7	08/28/2015 1823	DG
Manganese	0.43	mg/L		0.02	EPA 200.7	08/28/2015 1823	DG

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-004
ClientSample ID: PW-6 /MW-23
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 5:38:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	122	pCi/L		2	SM 7110B	08/21/2015 1532	MB
Gross Alpha Precision (±)	7.5	pCi/L			SM 7110B	08/21/2015 1532	MB
Gross Beta	52.6	pCi/L		3	SM 7110B	08/21/2015 1532	MB
Gross Beta Precision (±)	4.5	pCi/L			SM 7110B	08/21/2015 1532	MB
Radium 226	1.0	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/29/2015 400	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/29/2015 400	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 1323	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 1323	MB
Thorium 229 Tracer (30-120)	93	%			ACW10	08/24/2015 1323	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- 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 or is less than LCL
- O Outside the Range of Dilutions
- X Matrix Effect
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-005
ClientSample ID: PW-8 /MW-25
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 3:30:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	452	mg/L		5	SM 2320B	08/10/2015 2240	MRL
Alkalinity, Bicarbonate as HCO3	551	mg/L		5	SM 2320B	08/10/2015 2240	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/10/2015 2240	MRL
Chloride	139	mg/L		1	EPA 300.0	08/14/2015 243	AB
Fluoride	0.7	mg/L		0.1	EPA 300.0	08/12/2015 2355	AB
Nitrogen, Nitrate+Nitrite (as N)	8.7	mg/L		0.1	EPA 353.2	08/20/2015 1450	AMB
Sulfate	2640	mg/L		1	EPA 300.0	08/14/2015 243	AB
Calcium	463	mg/L		1	EPA 200.7	08/20/2015 332	BJ
Magnesium	204	mg/L		1	EPA 200.7	08/20/2015 332	BJ
Potassium	68	mg/L		1	EPA 200.7	08/20/2015 332	BJ
Sodium	676	mg/L		1	EPA 200.7	08/20/2015 332	BJ
Nitrogen, Ammonia (As N)	0.3	mg/L		0.1	EPA 350.1	08/13/2015 1304	AMB
Silica as SiO2	3.8	mg/L		0.1	EPA 200.7	08/10/2015 1615	DG
General Parameters							
pH	8.1	s.u.		0.1	SM 4500 H B	08/10/2015 2240	MRL
Electrical Conductivity	4150	µmhos/cm		5	SM 2510B	08/10/2015 2240	MRL
Total Dissolved Solids (180)	4700	mg/L		10	SM 2540	08/07/2015 1448	TS
Sodium Adsorption Ratio	6.6			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	71.03	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	68.65	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	1.70	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	4500	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.04	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-005
ClientSample ID: PW-8 /MW-25
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 3:30:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/10/2015 1615	DG
Arsenic	0.008	mg/L		0.001	EPA 200.8	08/07/2015 2318	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2318	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1615	DG
Boron	ND	mg/L		0.1	EPA 200.7	08/10/2015 1615	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2318	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1615	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/07/2015 2318	MS
Iron	ND	mg/L		0.05	EPA 200.7	08/10/2015 1615	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2318	MS
Manganese	ND	mg/L		0.02	EPA 200.7	08/10/2015 1615	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1306	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/07/2015 2318	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/10/2015 1615	DG
Selenium	0.074	mg/L		0.001	EPA 200.8	08/07/2015 2318	MS
Uranium	1.44	mg/L		0.0003	EPA 200.8	08/07/2015 2318	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2318	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/10/2015 1615	DG
Metals - Total							
Iron	0.33	mg/L		0.05	EPA 200.7	08/28/2015 1826	DG
Manganese	0.07	mg/L		0.02	EPA 200.7	08/28/2015 1826	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

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 or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-005
ClientSample ID: PW-8 /MW-25
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/5/2015 3:30:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	583	pCi/L		2	SM 7110B	09/10/2015 729	WN
Gross Alpha Precision (±)	35.6	pCi/L			SM 7110B	09/10/2015 729	WN
Gross Beta	450	pCi/L		3	SM 7110B	09/10/2015 729	WN
Gross Beta Precision (±)	25.0	pCi/L			SM 7110B	09/10/2015 729	WN
Radium 226	0.7	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/29/2015 701	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/29/2015 701	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 1323	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 1323	MB
Thorium 229 Tracer (30-120)	86	%			ACW10	08/24/2015 1323	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-006
ClientSample ID: PW-9 /MW-26
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 3:40:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	172	mg/L		5	SM 2320B	08/10/2015 2307	MRL
Alkalinity, Bicarbonate as HCO3	206	mg/L		5	SM 2320B	08/10/2015 2307	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/10/2015 2307	MRL
Chloride	13	mg/L		1	EPA 300.0	08/13/2015 009	AB
Fluoride	0.6	mg/L		0.1	EPA 300.0	08/13/2015 009	AB
Nitrogen, Nitrate+Nitrite (as N)	0.4	mg/L		0.1	EPA 353.2	08/18/2015 1308	AMB
Sulfate	544	mg/L		1	EPA 300.0	08/14/2015 257	AB
Calcium	58	mg/L		1	EPA 200.7	08/10/2015 1617	DG
Magnesium	18	mg/L		1	EPA 200.7	08/10/2015 1617	DG
Potassium	15	mg/L		1	EPA 200.7	08/10/2015 1617	DG
Sodium	226	mg/L		1	EPA 200.7	08/10/2015 1617	DG
Nitrogen, Ammonia (As N)	0.3	mg/L		0.1	EPA 350.1	08/13/2015 1305	AMB
Silica as SiO2	10.8	mg/L		0.1	EPA 200.7	08/10/2015 1617	DG
General Parameters							
pH	8.4	s.u.		0.1	SM 4500 H B	08/10/2015 2307	MRL
Electrical Conductivity	1400	µmhos/cm		5	SM 2510B	08/10/2015 2307	MRL
Total Dissolved Solids (180)	1040	mg/L		10	SM 2540	08/07/2015 1449	TS
Sodium Adsorption Ratio	6.7			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	14.54	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	15.18	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	2.17	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	990	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.05	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

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 or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-006
ClientSample ID: PW-9 /MW-26
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 3:40:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	0.8	mg/L		0.1	EPA 200.7	08/10/2015 1617	DG
Arsenic	0.001	mg/L		0.001	EPA 200.8	08/07/2015 2324	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2324	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1617	DG
Boron	0.4	mg/L		0.1	EPA 200.7	08/10/2015 1617	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2324	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1617	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/07/2015 2324	MS
Iron	1.19	mg/L		0.05	EPA 200.7	08/10/2015 1617	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2324	MS
Manganese	0.08	mg/L		0.02	EPA 200.7	08/10/2015 1617	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1308	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/07/2015 2324	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/10/2015 1617	DG
Selenium	0.001	mg/L		0.001	EPA 200.8	08/07/2015 2324	MS
Uranium	0.0044	mg/L		0.0003	EPA 200.8	08/07/2015 2324	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2324	MS
Zinc	0.01	mg/L		0.01	EPA 200.7	08/10/2015 1617	DG
Metals - Total							
Iron	5.94	mg/L		0.05	EPA 200.7	08/28/2015 1828	DG
Manganese	0.09	mg/L		0.02	EPA 200.7	08/28/2015 1828	DG

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-006
ClientSample ID: PW-9 /MW-26
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 3:40:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	5.3	pCi/L		2	SM 7110B	08/21/2015 1532	MB
Gross Alpha Precision (±)	2.0	pCi/L			SM 7110B	08/21/2015 1532	MB
Gross Beta	12.1	pCi/L		3	SM 7110B	08/21/2015 1532	MB
Gross Beta Precision (±)	3.2	pCi/L			SM 7110B	08/21/2015 1532	MB
Radium 226	0.6	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	ND	pCi/L		1	Ga-Tech	08/29/2015 1002	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	08/29/2015 1002	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 1323	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 1323	MB
Thorium 229 Tracer (30-120)	94	%			ACW10	08/24/2015 1323	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-007
ClientSample ID: PW-10 /MW-27
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 10:40:00 AM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	694	mg/L		5	SM 2320B	08/10/2015 2320	MRL
Alkalinity, Bicarbonate as HCO3	847	mg/L		5	SM 2320B	08/10/2015 2320	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/10/2015 2320	MRL
Chloride	123	mg/L		1	EPA 300.0	08/18/2015 1250	AB
Fluoride	0.3	mg/L		0.1	EPA 300.0	08/13/2015 023	AB
Nitrogen, Nitrate+Nitrite (as N)	ND	mg/L		0.1	EPA 353.2	08/18/2015 1310	AMB
Sulfate	1350	mg/L		1	EPA 300.0	08/18/2015 1250	AB
Calcium	479	mg/L		1	EPA 200.7	08/18/2015 1315	BJ
Magnesium	101	mg/L		1	EPA 200.7	08/18/2015 1315	BJ
Potassium	35	mg/L		1	EPA 200.7	08/18/2015 1315	BJ
Sodium	221	mg/L		1	EPA 200.7	08/18/2015 1315	BJ
Nitrogen, Ammonia (As N)	0.7	mg/L		0.1	EPA 350.1	08/13/2015 1307	AMB
Silica as SiO2	10.9	mg/L		0.1	EPA 200.7	08/10/2015 1620	DG
General Parameters							
pH	7.9	s.u.		0.1	SM 4500 H B	08/10/2015 2320	MRL
Electrical Conductivity	2880	µmhos/cm		5	SM 2510B	08/10/2015 2320	MRL
Total Dissolved Solids (180)	3000	mg/L		10	SM 2540	08/07/2015 1450	TS
Sodium Adsorption Ratio	2.4			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	42.76	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	45.43	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	3.02	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	2730	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.10	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-007
ClientSample ID: PW-10 /MW-27
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 10:40:00 AM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	0.2	mg/L		0.1	EPA 200.7	08/10/2015 1620	DG
Arsenic	ND	mg/L		0.001	EPA 200.8	08/07/2015 2329	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2329	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1620	DG
Boron	0.1	mg/L		0.1	EPA 200.7	08/10/2015 1620	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2329	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1620	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/07/2015 2329	MS
Iron	1.70	mg/L		0.05	EPA 200.7	08/10/2015 1620	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2329	MS
Manganese	0.36	mg/L		0.02	EPA 200.7	08/10/2015 1620	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1310	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/07/2015 2329	MS
Nickel	ND	mg/L		0.01	EPA 200.7	08/10/2015 1620	DG
Selenium	ND	mg/L		0.001	EPA 200.8	08/07/2015 2329	MS
Uranium	0.0023	mg/L		0.0003	EPA 200.8	08/07/2015 2329	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2329	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/10/2015 1620	DG
Metals - Total							
Iron	11.4	mg/L		0.05	EPA 200.7	08/28/2015 1830	DG
Manganese	1.16	mg/L		0.02	EPA 200.7	08/28/2015 1830	DG

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

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 or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-007
ClientSample ID: PW-10 /MW-27
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 10:40:00 AM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	5.6	pCi/L		2	SM 7110B	08/21/2015 1532	MB
Gross Alpha Precision (±)	3.9	pCi/L			SM 7110B	08/21/2015 1532	MB
Gross Beta	19.8	pCi/L		3	SM 7110B	08/21/2015 1532	MB
Gross Beta Precision (±)	6.3	pCi/L			SM 7110B	08/21/2015 1532	MB
Radium 226	4.7	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.3	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	4.7	pCi/L		1	Ga-Tech	08/29/2015 1303	MB
Radium 228 Precision (±)	1.2	pCi/L			Ga-Tech	08/29/2015 1303	MB
Thorium 230	ND	pCi/L		0.2	ACW10	08/24/2015 1323	MB
Thorium 230 Precision (±)	NA	pCi/L			ACW10	08/24/2015 1323	MB
Thorium 229 Tracer (30-120)	85	%			ACW10	08/24/2015 1323	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-008
ClientSample ID: PW-12 /MW-28
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 5:03:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	671	mg/L		5	SM 2320B	08/10/2015 2335	MRL
Alkalinity, Bicarbonate as HCO3	819	mg/L		5	SM 2320B	08/10/2015 2335	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/10/2015 2335	MRL
Chloride	108	mg/L		1	EPA 300.0	08/14/2015 326	AB
Fluoride	0.5	mg/L		0.1	EPA 300.0	08/13/2015 038	AB
Nitrogen, Nitrate+Nitrite (as N)	7.7	mg/L		0.1	EPA 353.2	08/20/2015 1452	AMB
Sulfate	1670	mg/L		1	EPA 300.0	08/14/2015 326	AB
Calcium	464	mg/L		1	EPA 200.7	08/20/2015 335	BJ
Magnesium	165	mg/L		1	EPA 200.7	08/20/2015 335	BJ
Potassium	47	mg/L		1	EPA 200.7	08/20/2015 335	BJ
Sodium	217	mg/L		1	EPA 200.7	08/20/2015 335	BJ
Nitrogen, Ammonia (As N)	0.1	mg/L		0.1	EPA 350.1	08/13/2015 1308	AMB
Silica as SiO2	13.7	mg/L		0.1	EPA 200.7	08/10/2015 1622	DG
General Parameters							
pH	7.6	s.u.		0.1	SM 4500 H B	08/10/2015 2335	MRL
Electrical Conductivity	3330	µmhos/cm		5	SM 2510B	08/10/2015 2335	MRL
Total Dissolved Solids (180)	3350	mg/L		10	SM 2540	08/07/2015 1452	TS
Sodium Adsorption Ratio	2.2			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	47.37	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	51.74	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	4.40	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	3100	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.08	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-008
ClientSample ID: PW-12 /MW-28
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 5:03:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/10/2015 1622	DG
Arsenic	0.001	mg/L		0.001	EPA 200.8	08/07/2015 2335	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2335	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1622	DG
Boron	ND	mg/L		0.1	EPA 200.7	08/10/2015 1622	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2335	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1622	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/07/2015 2335	MS
Iron	ND	mg/L		0.05	EPA 200.7	08/10/2015 1622	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2335	MS
Manganese	7.11	mg/L		0.02	EPA 200.7	08/10/2015 1622	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1316	AW
Molybdenum	ND	mg/L		0.02	EPA 200.8	08/07/2015 2335	MS
Nickel	0.14	mg/L		0.01	EPA 200.7	08/10/2015 1622	DG
Selenium	0.012	mg/L		0.001	EPA 200.8	08/07/2015 2335	MS
Uranium	0.837	mg/L		0.0003	EPA 200.8	08/07/2015 2335	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2335	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/10/2015 1622	DG
Metals - Total							
Iron	0.39	mg/L		0.05	EPA 200.7	08/28/2015 1832	DG
Manganese	20.4	mg/L		0.02	EPA 200.7	08/28/2015 1832	DG

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-008
ClientSample ID: PW-12 /MW-28
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 5:03:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	423	pCi/L		2	SM 7110B	08/24/2015 2132	MB
Gross Alpha Precision (±)	22.7	pCi/L			SM 7110B	08/24/2015 2132	MB
Gross Beta	202	pCi/L		3	SM 7110B	08/24/2015 2132	MB
Gross Beta Precision (±)	10.8	pCi/L			SM 7110B	08/24/2015 2132	MB
Radium 226	0.7	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	1.1	pCi/L		1	Ga-Tech	08/29/2015 1604	MB
Radium 228 Precision (±)	0.9	pCi/L			Ga-Tech	08/29/2015 1604	MB
Thorium 230	0.6	pCi/L		0.2	ACW10	08/24/2015 1323	MB
Thorium 230 Precision (±)	0.3	pCi/L			ACW10	08/24/2015 1323	MB
Thorium 229 Tracer (30-120)	40	%			ACW10	08/24/2015 1323	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-009
ClientSample ID: MW-12
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 1:15:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	407	mg/L		5	SM 2320B	08/10/2015 2348	MRL
Alkalinity, Bicarbonate as HCO3	496	mg/L		5	SM 2320B	08/10/2015 2348	MRL
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	08/10/2015 2348	MRL
Chloride	158	mg/L		1	EPA 300.0	08/18/2015 1318	AB
Fluoride	0.3	mg/L		0.1	EPA 300.0	08/13/2015 052	AB
Nitrogen, Nitrate+Nitrite (as N)	ND	mg/L		0.1	EPA 353.2	08/18/2015 1313	AMB
Sulfate	1600	mg/L		1	EPA 300.0	08/18/2015 1318	AB
Calcium	553	mg/L		1	EPA 200.7	08/18/2015 1320	BJ
Magnesium	85	mg/L		1	EPA 200.7	08/18/2015 1320	BJ
Potassium	31	mg/L		1	EPA 200.7	08/18/2015 1320	BJ
Sodium	203	mg/L		1	EPA 200.7	08/18/2015 1320	BJ
Nitrogen, Ammonia (As N)	0.5	mg/L		0.1	EPA 350.1	08/13/2015 1309	AMB
Silica as SiO2	9.1	mg/L		0.1	EPA 200.7	08/10/2015 1624	DG
General Parameters							
pH	7.8	s.u.		0.1	SM 4500 H B	08/10/2015 2348	MRL
Electrical Conductivity	2930	µmhos/cm		5	SM 2510B	08/10/2015 2348	MRL
Total Dissolved Solids (180)	3220	mg/L		10	SM 2540	08/07/2015 1453	TS
Sodium Adsorption Ratio	2.1			0.1	Calculation	08/20/2015 1555	WN
Data Quality							
Cation Sum	44.23	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Anion Sum	45.85	meq/L		0.01	SM 1030E	08/20/2015 1555	WN
Cation-Anion Balance (± 5%)	1.79	%		0.01	SM 1030E	08/20/2015 1555	WN
Solids, Total Dissolved (Calc)	2880	mg/L		10	SM 1030E	08/20/2015 1555	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.12	dec. %		0.01	Calculation	08/27/2015 1619	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-009
ClientSample ID: MW-12
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 1:15:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	08/10/2015 1624	DG
Arsenic	0.005	mg/L		0.001	EPA 200.8	08/07/2015 2340	MS
Barium	ND	mg/L		0.1	EPA 200.8	08/07/2015 2340	MS
Beryllium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1624	DG
Boron	ND	mg/L		0.1	EPA 200.7	08/10/2015 1624	DG
Cadmium	ND	mg/L		0.002	EPA 200.8	08/07/2015 2340	MS
Chromium	ND	mg/L		0.01	EPA 200.7	08/10/2015 1624	DG
Copper	ND	mg/L		0.01	EPA 200.8	08/07/2015 2340	MS
Iron	0.42	mg/L		0.05	EPA 200.7	08/10/2015 1624	DG
Lead	ND	mg/L		0.02	EPA 200.8	08/07/2015 2340	MS
Manganese	0.35	mg/L		0.02	EPA 200.7	08/10/2015 1624	DG
Mercury	ND	mg/L		0.001	EPA 245.1	08/11/2015 1323	AW
Molybdenum	0.04	mg/L		0.02	EPA 200.8	08/07/2015 2340	MS
Nickel	0.02	mg/L		0.01	EPA 200.7	08/10/2015 1624	DG
Selenium	ND	mg/L		0.001	EPA 200.8	08/07/2015 2340	MS
Uranium	5.61	mg/L		0.0003	EPA 200.8	08/07/2015 2340	MS
Vanadium	ND	mg/L		0.02	EPA 200.8	08/07/2015 2340	MS
Zinc	ND	mg/L		0.01	EPA 200.7	08/10/2015 1624	DG
Metals - Total							
Iron	2.37	mg/L		0.05	EPA 200.7	08/28/2015 1835	DG
Manganese	1.05	mg/L		0.02	EPA 200.7	08/28/2015 1835	DG

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- C Calculated Value
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- L Analyzed by another laboratory
- M Value exceeds Monthly Ave or MCL or is less than LCL
- ND Not Detected at the Reporting Limit
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: Lidstone & Associates Inc
4025 Automation Way Bldg E
Fort Collins, CO 80525

Date Reported 9/11/2015
Report ID S1508125001

ProjectName: ANC
Lab ID: S1508125-009
ClientSample ID: MW-12
COC: 162366

WorkOrder: S1508125
CollectionDate: 8/6/2015 1:15:00 PM
DateReceived: 8/7/2015 11:49:00 AM
FieldSampler: JG
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Gross Alpha	3320	pCi/L		2	SM 7110B	08/24/2015 2132	MB
Gross Alpha Precision (±)	61.2	pCi/L			SM 7110B	08/24/2015 2132	MB
Gross Beta	1110	pCi/L		3	SM 7110B	08/24/2015 2132	MB
Gross Beta Precision (±)	22.6	pCi/L			SM 7110B	08/24/2015 2132	MB
Radium 226	26.2	pCi/L		0.2	SM 7500 Ra-B	08/21/2015 1801	MB
Radium 226 Precision (±)	0.6	pCi/L			SM 7500 Ra-B	08/21/2015 1801	MB
Radium 228	16.6	pCi/L		1	Ga-Tech	08/29/2015 1905	MB
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	08/29/2015 1905	MB
Thorium 230	0.4	pCi/L		0.2	ACW10	08/24/2015 1323	MB
Thorium 230 Precision (±)	0.2	pCi/L			ACW10	08/24/2015 1323	MB
Thorium 229 Tracer (30-120)	76	%			ACW10	08/24/2015 1323	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Alkalinity Sample Type **MBLK** Units: mg/L

BLANK (08/10/15 15:46) RunNo: 124703

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Alkalinity, Total (As CaCO3)	ND	5					

Alkalinity Sample Type **LCS** Units: mg/L

ATQC (08/10/15 15:35) RunNo: 124703

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Alkalinity, Total (As CaCO3)	602	5	595		101	90 - 110	

Alkalinity Sample Type **DUP** Units: mg/L

S1508125-005A (08/10/15 22:53) RunNo: 124703

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Alkalinity, Bicarbonate as HCO3	513	5	551	7.08		20	
Alkalinity, Carbonate as CO3	ND	5	ND			20	
Alkalinity, Total (As CaCO3)	421	5	452	7.08		20	

Conductivity Sample Type **MBLK** Units: µmhos/cm

BLANK (08/10/15 15:46) RunNo: 124703

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Electrical Conductivity	ND	5					

Conductivity Sample Type **LCS** Units: µmhos/cm

ATQC (08/10/15 15:35) RunNo: 124703

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Electrical Conductivity	1030	5	1060		97.3	90 - 110	

Conductivity Sample Type **DUP** Units: µmhos/cm

S1508125-005A (08/10/15 22:53) RunNo: 124703

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Electrical Conductivity	4150	5	4150	0		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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Dissolved Mercury by EPA 245.1 - Water Sample Type **MBLK** Units: mg/L

LRB (08/11/15 10:52)	RunNo: 124742						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	ND	0.001					

Dissolved Mercury by EPA 245.1 - Water Sample Type **LCS** Units: mg/L

LCS (08/11/15 13:46)	RunNo: 124742						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.002	0.001	0.002		85.3	85 - 115	

Dissolved Mercury by EPA 245.1 - Water Sample Type **MS** Units: mg/L

S1508125-008C (08/11/15 13:20)	RunNo: 124742						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Mercury	0.002	0.001	0.00197	ND	92.7	70 - 130	

Dissolved Mercury by EPA 245.1 - Water Sample Type **MSD** Units: mg/L

S1508125-008C (08/11/15 13:22)	RunNo: 124742						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Mercury	0.002	0.001	0.002	0.714	93.3	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/10/15 11:22) RunNo: 124694

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	ND	0.1					
Beryllium	ND	0.01					
Boron	ND	0.1					
Chromium	ND	0.01					
Iron	ND	0.05					
Manganese	ND	0.02					
Nickel	ND	0.01					
Zinc	ND	0.01					

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **LCS** Units: mg/L

DISS LCS Q (08/10/15 11:24) RunNo: 124694

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	1.0	0.1	1		98.8	85 - 115	
Beryllium	1.01	0.01	1		101	85 - 115	
Boron	1.0	0.1	1		98.8	85 - 115	
Chromium	1.01	0.01	1		101	85 - 115	
Iron	1.00	0.05	1		99.9	85 - 115	
Manganese	1.03	0.02	1		103	85 - 115	
Nickel	1.04	0.01	1		104	85 - 115	
Zinc	0.99	0.01	1		99.4	85 - 115	

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MS** Units: mg/L

S1508125-004CS (08/10/15 16:04) RunNo: 124694

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Aluminum	0.3	0.1	0.25	ND	92.9	70 - 130	
Beryllium	0.26	0.01	0.25	ND	105	70 - 130	
Boron	0.6	0.1	0.25	0.3	91.3	70 - 130	
Chromium	0.26	0.01	0.25	ND	105	70 - 130	
Iron	0.73	0.05	0.25	0.51	85.7	70 - 130	
Manganese	0.61	0.02	0.25	0.38	90.9	70 - 130	
Nickel	0.26	0.01	0.25	ND	101	70 - 130	
Zinc	0.25	0.01	0.25	ND	98.4	70 - 130	

Dissolved Metals by ICP - EPA 200.7 - Water Sample Type **MSD** Units: mg/L

S1508125-004CSD (08/10/15 16:06) RunNo: 124694

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Aluminum	0.3	0.1	0.3	0.766	92.1	20	
Beryllium	0.26	0.01	0.26	1.17	104	20	
Boron	0.6	0.1	0.6	0.0777	91.5	20	
Chromium	0.26	0.01	0.26	1.55	104	20	
Iron	0.72	0.05	0.73	0.914	83.1	20	
Manganese	0.61	0.02	0.61	0.509	89.6	20	
Nickel	0.25	0.01	0.26	2.13	99.1	20	
Zinc	0.24	0.01	0.25	1.55	96.9	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MBLK** Units: mg/L

MBLK (08/07/15 13:03) RunNo: 124645

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	ND	0.005					
Barium	ND	0.1					
Cadmium	ND	0.001					
Copper	ND	0.01					
Lead	ND	0.02					
Molybdenum	ND	0.02					
Selenium	ND	0.001					
Uranium	ND	0.0003					
Vanadium	ND	0.02					

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **LCS** Units: mg/L

LCS (08/07/15 12:57) RunNo: 124645

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	0.099	0.005	0.1		99.1	85 - 115	
Barium	0.1	0.1	0.1		100	85 - 115	
Cadmium	0.094	0.001	0.1		94.4	85 - 115	
Copper	0.10	0.01	0.1		99.1	85 - 115	
Lead	0.10	0.02	0.1		98.7	85 - 115	
Molybdenum	0.10	0.02	0.1		97.3	85 - 115	
Selenium	0.100	0.001	0.1		99.9	85 - 115	
Uranium	0.102	0.0003	0.1		102	85 - 115	
Vanadium	0.10	0.02	0.1		100	85 - 115	

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MS** Units: mg/L

S1508125-004CS (08/07/15 23:08) RunNo: 124645

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Arsenic	1.12	0.005	1.1	0.007	101	70 - 130	
Barium	1.2	0.5	1.1	ND	101	70 - 130	
Cadmium	1.05	0.002	1.1	ND	95.1	70 - 130	
Copper	1.12	0.01	1.1	ND	102	70 - 130	
Lead	1.08	0.02	1.1	ND	98.2	70 - 130	
Molybdenum	1.12	0.02	1.1	ND	102	70 - 130	
Selenium	0.996	0.005	1.1	0.028	88.0	70 - 130	
Uranium	1.27	0.0003	1.1	0.128	104	70 - 130	
Vanadium	1.19	0.02	1.1	ND	108	70 - 130	

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MSD** Units: mg/L

S1508125-004CMSD (08/07/15 23:13) RunNo: 124645

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Arsenic	1.11	0.005	1.12	0.984	100	20	
Barium	1.1	0.5	1.2	3.45	97.0	20	
Cadmium	1.05	0.002	1.05	0.287	95.4	20	
Copper	1.11	0.01	1.12	1.23	101	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Dissolved Metals by ICPMS EPA 200.8 - Water Sample Type **MSD** Units: mg/L

S1508125-004CMSD (08/07/15 23:13)	RunNo: 124645						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Lead	1.06	0.02	1.08	1.73	96.5	20	
Molybdenum	1.09	0.02	1.12	3.34	98.5	20	
Selenium	0.992	0.005	0.996	0.347	87.6	20	
Uranium	1.24	0.0003	1.27	2.87	101	20	
Vanadium	1.13	0.02	1.19	4.45	103	20	

Gross Alpha, Beta by SM 7110B Sample Type **MBLK** Units: pCi/L

MB-339 (08/21/15 08:58)	RunNo: 125254	PrepDate: 08/18/15 0:00			BatchID: R125254		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	ND	2					
Gross Beta (Dissolved)	ND	3					

MB-343 (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	ND	2					
Gross Beta (Dissolved)	ND	3					

Gross Alpha, Beta by SM 7110B Sample Type **LCS** Units: pCi/L

LCS-339 (08/21/15 08:58)	RunNo: 125254	PrepDate: 08/18/15 0:00			BatchID: R125254		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	53	2	72.6		73.3	59.5 - 130	
Gross Beta (Dissolved)	125	3	118		105	80 - 122	

LCS-343 A (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	77	2	70		109	59.5 - 130	

LCS-343 B (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Beta (Dissolved)	145	3	126		116	84.2 - 125	

Gross Alpha, Beta by SM 7110B Sample Type **MS** Units: pCi/L

S1508155-001F MS (08/21/15 08:58)	RunNo: 125254	PrepDate: 08/18/15 0:00			BatchID: R125254		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	89	2	72.6	20	94.9	50 - 150	
Gross Beta (Dissolved)	154	3	118	8	124	61.4 - 150	

S1508462-001D MSA (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Alpha (Dissolved)	158	2	140	3	111	50 - 150	

S1508462-001D MSB (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Gross Beta (Dissolved)	288	3	251	73	85.9	66.1 - 145	

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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Gross Alpha, Beta by SM 7110B Sample Type **DUP** Units: pCi/L

S1508204-006F DUP (08/21/15 15:32)	RunNo: 125254	PrepDate: 08/18/15 0:00			BatchID: R125254		
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Gross Alpha (Dissolved)	186	2	152	20.1		20	
Gross Beta (Dissolved)	66	3	69	4.45		20	

S1508462-002D DUP (09/09/15 10:48)	RunNo: 125898						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Gross Alpha (Dissolved)	4	2	4	12.0		20	
Gross Beta (Dissolved)	14	3	17	19.9		20	

Anions by ION Chromatography Sample Type **MBLK** Units: mg/L

BLK (08/12/15 09:33)	RunNo: 124784						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	ND	1					
Fluoride	ND	0.1					
Sulfate	ND	1					

Anions by ION Chromatography Sample Type **LCS** Units: mg/L

DIONEX (08/12/15 09:47)	RunNo: 124784						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	31	1	30		102	90 - 110	
Sulfate	147	1	150		98.2	90 - 110	

DIONEX (08/12/15 10:02)	RunNo: 124784						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Fluoride	19.1	0.1	20		95.7	90 - 110	

Anions by ION Chromatography Sample Type **MS** Units: mg/L

S1508125-002ASPK (08/12/15 22:28)	RunNo: 124784						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Chloride	78	1	54.5	19	108	80 - 120	
Fluoride	28.5	0.1	27.2	0.5	103	80 - 120	
Sulfate	2160	1	409	1780	92.6	80 - 120	

Anions by ION Chromatography Sample Type **MSD** Units: mg/L

S1508125-002ASPK (08/12/15 22:43)	RunNo: 124784						
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Chloride	78	1	78	0.0499	108	20	
Fluoride	28.6	0.1	28.5	0.357	103	20	
Sulfate	2150	1	2160	0.617	89.4	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Cations by ICP (Method 200.7) Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/10/15 11:22) RunNo: 124691

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	ND	1					
Magnesium	ND	1					
Potassium	ND	1					
Sodium	ND	1					

Cations by ICP (Method 200.7) Sample Type **LCS** Units: mg/L

CAT LCS IML3 (08/19/15 13:39) RunNo: 125058

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	38	1	40		96.1	85 - 115	
Magnesium	40	1	40		99.7	85 - 115	
Potassium	39	1	40		97.8	85 - 115	
Sodium	39	1	40		97.9	85 - 115	

Cations by ICP (Method 200.7) Sample Type **MS** Units: mg/L

S1508119-002AS (08/10/15 14:36) RunNo: 124691

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Calcium	87	1	25	57	118	70 - 130	
Magnesium	57	1	25	31	103	70 - 130	
Potassium	29	1	25	4	100	70 - 130	
Sodium	28	1	25	7	84.4	70 - 130	

Cations by ICP (Method 200.7) Sample Type **MSD** Units: mg/L

S1508119-002ASD (08/10/15 14:38) RunNo: 124691

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Calcium	90	1	87	2.92	128	20	
Magnesium	58	1	57	2.63	109	20	
Potassium	29	1	29	0.676	99.2	20	
Sodium	27	1	28	1.98	82.3	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Nitrogen, Ammonia (as N) Sample Type **MBLK** Units: mg/L

BLANK (08/13/15 11:47) RunNo: 124900							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	ND	0.1					

Nitrogen, Ammonia (as N) Sample Type **LCS** Units: mg/L

QC (08/13/15 11:49) RunNo: 124900							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	2.3	0.1	2.5		92.7	90 - 110	

Nitrogen, Ammonia (as N) Sample Type **MS** Units: mg/L

S1508158-001C (08/13/15 12:09) RunNo: 124900							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Ammonia (As N)	4.8	0.1	2.5	2.3	101	90 - 110	

Nitrogen, Ammonia (as N) Sample Type **MSD** Units: mg/L

S1508158-001C (08/13/15 12:11) RunNo: 124900							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Nitrogen, Ammonia (As N)	4.8	0.1	4.8	0.109	101	20	

Nitrogen, Nitrate-Nitrite (as N) Sample Type **MBLK** Units: mg/L

BLANK (08/18/15 08:52) RunNo: 125005							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Nitrate-Nitrite (as N)	ND	0.1					

Nitrogen, Nitrate-Nitrite (as N) Sample Type **LCS** Units: mg/L

QC (08/18/15 08:55) RunNo: 125005							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Nitrate-Nitrite (as N)	16.2	0.1	17.7		91.6	90 - 110	

Nitrogen, Nitrate-Nitrite (as N) Sample Type **MS** Units: mg/L

S1508170-001D (08/18/15 10:08) RunNo: 125005							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Nitrogen, Nitrate-Nitrite (as N)	2.55	0.05	2.5	ND	102	90 - 110	

Nitrogen, Nitrate-Nitrite (as N) Sample Type **MSD** Units: mg/L

S1508170-001D (08/18/15 10:09) RunNo: 125005							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Nitrogen, Nitrate-Nitrite (as N)	2.58	0.05	2.55	1.40	103	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-10645 (08/27/15 15:49)	RunNo: 125563	PrepDate: 08/26/15 9:33			BatchID: 10645		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	ND	1					

Radium 228 by Ga/Tech Sample Type **LCS** Units: pCi/L

LCS-10645 (08/27/15 18:50)	RunNo: 125563	PrepDate: 08/26/15 9:33			BatchID: 10645		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	32	1	39.2		80.5	61.3 - 120	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

MS-10645 (08/28/15 00:52)	RunNo: 125563	PrepDate: 08/18/15 9:00			BatchID: 10645		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	35	1	39.2	ND	88.0	64.3 - 120	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

MSD-10645 (08/28/15 03:53)	RunNo: 125563	PrepDate: 08/18/15 9:00			BatchID: 10645		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 228 (Dissolved)	38	1	35	10.7	98.0	20	

Radium 226 in Water - Dissolved Sample Type **MBLK** Units: pCi/L

MB-1499 (08/21/15 14:42)	RunNo: 125217	PrepDate: 08/13/15 0:00			BatchID: 10632		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	ND	0.2					

Radium 226 in Water - Dissolved Sample Type **LCS** Units: pCi/L

LCS-1499 (08/21/15 14:42)	RunNo: 125217	PrepDate: 08/13/15 0:00			BatchID: 10632		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	4.6	0.2	5.03		91.5	72.5 - 120	

Radium 226 in Water - Dissolved Sample Type **MS** Units: pCi/L

MS-1499 (08/21/15 14:42)	RunNo: 125217	PrepDate: 08/13/15 0:00			BatchID: 10632		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226 (Dissolved)	4.8	0.2	5.03	ND	95.1	69.6 - 120	

Radium 226 in Water - Dissolved Sample Type **MSD** Units: pCi/L

MSD-1499 (08/21/15 14:42)	RunNo: 125217	PrepDate: 08/13/15 0:00			BatchID: 10632		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226 (Dissolved)	4.9	0.2	4.8	2.91	97.9	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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Thorium 230 in Water - Dissolved Sample Type **MBLK** Units: pCi/L

MB-464 (08/24/15 08:45) RunNo: 125247 PrepDate: 08/18/15 0:00 BatchID: R125247

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 230 (Dissolved)	ND	0.2					

Thorium 230 in Water - Dissolved Sample Type **LCS** Units: pCi/L

LCS-464 (08/24/15 08:45) RunNo: 125247 PrepDate: 08/18/15 0:00 BatchID: R125247

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Thorium 230 (Dissolved)	12	0.2	12		94.3	68 - 146	

Silica as SiO2 Sample Type **MBLK** Units: mg/L

MBLK DISS/CAT (08/10/15 11:22) RunNo: 124697

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Silica as SiO2	ND	0.1					

Silica as SiO2 Sample Type **LCS** Units: mg/L

DISS LCS Q (08/10/15 11:24) RunNo: 124697

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Silica as SiO2	2.1	0.1	2.14		96.7	85 - 115	

Silica as SiO2 Sample Type **MSD** Units: mg/L

S1508125-004CSD (08/10/15 16:06) RunNo: 124697

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Silica as SiO2	33.1	0.1	33.3	0.532		20	

Solids By SM 2540 Sample Type **MBLK** Units: mg/L

DI (08/07/15 13:44) RunNo: 124780

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Dissolved Solids (180)	ND	10					

Solids By SM 2540 Sample Type **LCS** Units: mg/L

CONTROL (08/07/15 13:45) RunNo: 124780

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Dissolved Solids (180)	230	10	226		101	90 - 110	

Solids By SM 2540 Sample Type **DUP** Units: mg/L

S1508125-007A (08/07/15 14:51) RunNo: 124780

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Total Dissolved Solids (180)	3040	10	3000	1.19		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 another 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	X	Matrix Effect

ANALYTICAL QC SUMMARY REPORT

CLIENT: Lidstone & Associates Inc
Work Order: S1508125
Project: ANC

Date: 9/11/2015
Report ID: S1508125001

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MBLK** Units: mg/L

MB-10578 (08/12/15 16:45)	RunNo: 124809	PrepDate: 08/10/15 6:00			BatchID: 10578		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Iron	ND	0.05					
Manganese	ND	0.02					

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **LCS** Units: mg/L

LCS-10578 (08/28/15 18:01)	RunNo: 125514	PrepDate: 08/10/15 6:00			BatchID: 10578		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Iron	0.50	0.05	0.5		100	85 - 115	
Manganese	0.20	0.02	0.2		101	85 - 115	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MS** Units: mg/L

S1508122-003DS (08/10/15 17:18)	RunNo: 124707	PrepDate: 08/10/15 6:00			BatchID: 10578		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Iron	0.48	0.05	0.5	ND	93.3	70 - 130	
Manganese	0.19	0.02	0.2	ND	93.2	70 - 130	

Total (200.2) Metals by EPA 200.7 ICP - Water Sample Type **MSD** Units: mg/L

S1508122-003DMSD (08/10/15 17:21)	RunNo: 124707	PrepDate: 08/10/15 6:00			BatchID: 10578		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Iron	0.48	0.05	0.48	1.32	94.6	20	
Manganese	0.19	0.02	0.19	0.991	94.1	20	

pH Water Sample Type **LCS** Units: s.u.

ATQC (08/10/15 15:35)	RunNo: 124703						
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
pH	8.8	0.1	8.6		102	90 - 110	

pH Water Sample Type **DUP** Units: s.u.

S1508125-005A (08/10/15 22:53)	RunNo: 124703					
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
pH	8.1	0.1	8.1	0.202		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 another 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	X	Matrix Effect

September 2015

Ground Water Field Sampling Sheet

Project WYDEQ104 Date 9/21/15

Client ANC Technicians JVG

Well No. MW-1 Casing Type/Dia. 2" PVC

Measuring Point (MP) Pump Depth 100'~

Static Water Level from MP T.O.C. 64.96 Well Volume (WV) 6.575 GAL

Total Well Depth from MP 105.3 Total to Evacuate (WVx3) 19.73 GAL

Lidstone and Associates, Inc.
Engineering, Geology & Water Resource Consulting
4025 Automation Way, Bldg. E
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
11:00 AM	0.75				66.95	INCREASED PUMP RATE
11:03	1.125				67.35	
11:11	"	6.29	12°C	8.52	"	
11:18	"	6.30	11.1°	8.52	67.60'	clear
11:23	1.125	6.34	11.1°	8.56	67.65'	
11:28	"	6.32	11.1°	8.51	67.45'	
11:33	"	6.30	11.1°	8.58		
***		SAMPLED @		11:35		
		TOOK DUPLICATE SAMPLE (2)				
11:45	PUMP	OFF				

SAMPLE Name: JOHN GOIN Date: 9/21/15 Time: 11:30

Total Minutes Pumped 45 Sample Handling _____ Method: Bailer / (Pump) / Grab

Total Gallons Pumped 49.5 Type of Analysis _____ Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

DUPLICATE SAMPLE @ 11:30 AM
"MW-1A"

Ground Water Field Sampling Sheet

Project: WYDEQ - 104 | Date: 9/21/15

Client: WY DEQ | Technicians: AEM

Well No.: MW-2 | Casing Type/Dia.: 2"

Measuring Point (MP): Top of casing | Pump Depth: 30'

Static Water Level from MP: 21.46 | Well Volume (WV):

Total Well Depth from MP: 34.98 | Total to Evacuate (WVx3):

Lidstone and Associates, Inc.
Engineering, Geology, & Water Resource Consulting
4025 Automation Way, Bldg. E
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
12:33					21.45	Pump on
12:35	0.125	6.13	22.4	8.08	21.25	0.25 0.25
12:44	0.0826		~~19.4~~	~~8.10~~	~~21.95~~	0.75 1.00
12:48	0.094	6.17	19.4	8.10	21.95	0.37 1.37
12:53	0.137	6.15	20.3	8.28	21.91	0.68 2.05
12:59	0.075	6.15	19.9	8.19	21.79	0.45 2.50
13:05	0.113	6.17	19.9	8.20	21.86	0.67 3.17
	Parameters stable, begin collecting samples					
	Finished collecting samples at 13:20					
	Could handle much higher flow rate, probably ~0.4 → 0.5 gpm					

SAMPLE Name: AEM Date: 9/21/15 Time: 13:00

Total Minutes Pumped: 32 min | Sample Handling: | Method: Bailer / Pump / Grab

Total Gallons Pumped: 3.17 + | Type of Analysis: | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ 104 | Date: 9/21/15

Client: ANC | Technicians: JVG

Well No.: MW-3 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~ 52'

Static Water Level from MP: 44.40' | Well Volume (WV): 2.54 GAL

Total Well Depth from MP: 60' | Total to Evacuate (WVx3): 7.63 GAL

Lidstone and Associates, Inc.
Engineering, Geology, & Water Resource Consulting
4025 Automation Way, Bldg. E
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
2:20	0.31				51.	43.65 w/ pump set
2:28	0.16	7.18	16.4	1929	50.9	Slow to pump started dry
2:33	0.16	7.22	15.9	1916	50.92	clear
2:38	0.16	7.20	15.8	1828	51.22	
2:43	"	7.23	15.5	1808	51.18	
2:50	"	7.22	15.5	1773	51.25	
2:55	"	7.23	15.3	1770	50.9	
AAA		Sampled	@	2:55 pm		
		Pump	OFF	@ 3:15		

SAMPLE Name: JOHN GOIN Date: 9/21/15 Time: 2:55 pm

Total Minutes Pumped: 55 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: ~ 6.8 | Type of Analysis: | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ-104 | Date: 9/21/15

Client: WYDEQ | Technicians: AEM

Well No.: MW-4 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: 45-50 ft

Static Water Level from MP: 32.56 | Well Volume (WV): 3.25

Total Well Depth from MP: 52.52 | Total to Evacuate (WVx3):

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
9T 14:10					32.27	Pump on
14:12					38.40	water reached surface
14:14					38.86	H_2O lvl stabilizing
14:18	0.137	5.96	19.4	6.75	39.25	1.10 1.10
* 14:23	0.125	5.90	17.7	6.67	38.97	0.62 1.72
* 14:27	0.125	5.97	17.4	6.89	39.30	0.50 2.22
* 14:32	0.093	6.06	17.7	6.98	38.71	0.47 2.69
* 14:36	0.063	6.16 ✓	18.8	7.01 ✓	38.01	0.25 2.94
* 14:41	0.100	6.26 ✓	18.5	7.10 ✓	38.06	0.50 3.44
* 14:46	0.125	6.25 ✓	18.7	7.14 ✓	37.68	0.63 4.07
		± 0.1 ✓		~~0.018 change~~ 1.8 % change ✓		
Parameters stable, begin collecting samples						

SAMPLE Name: AEM Date: 9/21/15 Time: 14:50

Total Minutes Pumped: 36 | Sample Handling: | Method: Bailer / Pump / Grab

Total Gallons Pumped: 4.07 + | Type of Analysis: | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

* pump setting unchanged, flow rate falling, H_2O level fluctuating
  → The flow rate varied from 0 to 0.125 gpm and the H_2O level varied from 37.68 to 39.30 without any change on the VFD. Flow always recovered within ~ 20 seconds.

Ground Water Field Sampling Sheet

Project: WY DEQ 104
Date: 9/22/15
Client: WY DEQ
Technicians: AEM GHS
Well No.: MW-5
Casing Type/Dia.: 2"
Measuring Point (MP): TOC
Pump Depth: —
Static Water Level from MP: 28.12
Well Volume (WV): 0.4 gal
Total Well Depth from MP: 30.61
Total to Evacuate (WVx3): 1.2 gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	~~Pumping Rate (GPM)~~ Vol	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
10:30	Start bailing w/		12"	bailer		clear
10:45	1.25 qt.	6.29	11.2	6.10 mS		"
10:52	2.5 qt.	6.33	11.0	5.92 mS		"
11:00	1 gal	6.37	10.4	6.04 mS		slightly opaque
11:04	1.25 g	6.34	11.1	6.10 mS		
* Start		sampling	*			

SAMPLE Name: MW-5 Date: 9-22-15 Time: 11:15

Total Minutes Pumped: _____
Total Gallons Pumped: _____
Sample Handling: ~~Bed~~ Hand del.
Type of Analysis: 168, Be, Th 230
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WY DEQ 104 | Date: 9/21

Client: WY DEQ | Technicians: AEM

Well No.: MW-6 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: ~35'

Static Water Level from MP: 18.16 | Well Volume (WV): 3.56

Total Well Depth from MP: 39.98 | Total to Evacuate (WVx3):

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (µS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
18:54					18.15	Pump On
18:57	0.49	6.78	18.0	3.29	19.81	0.98 0.98 Pump rate ↑
19:00	0.83	6.76	11.8	3.49	20.24	2.49 3.47
19:04	0.83	6.76	10.8	3.49	20.36	3.32 6.79
19:07	0.83	6.75	10.5	3.51	20.43	2.49 9.28
19:10	0.65	6.74	10.4	3.50	20.52	1.95 11.23
Parameters are stable, collecting samples at 9:14						

SAMPLE Name: AEM Date: 9/21 Time: 19:15

Total Minutes Pumped: 20
Total Gallons Pumped: 11.23+

Sample Handling:
Type of Analysis:

Method: Bailer / (Pump) / Grab
Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WY DEQ 109 | Date: 9/21/15

Client: ANC | Technicians: JVG

Well No.: MW-7 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~35'

Static Water Level from MP: 26.60' | Well Volume (WV): 2.17 GAL

Total Well Depth from MP: 39.90' | Total to Evacuate (WVx3): 6.5 GAL

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
5:35	0.40	6.65	18.5	3.04	27.30	26.55' s/ pump set
5:42	0.38	6.64	13.3	3.54	27.45	cleaning up
5:48	0.38	6.66	13.2	3.52	27.55	
5:55	"	6.67	12.9	3.59	27.60	
6:02	"	6.65	12.7	3.64	27.67	
6:05	"	6.66	12.5	3.61		
	XXX	Samples @		6:05 pm		
		Pump	OFF @	6:15		

SAMPLE Name: JOHN GOIN Date: 9/21/15 Time: 6:05 pm

Total Minutes Pumped: 40 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: ~15 GAL | Type of Analysis: | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

0.038013

Project WY DEQ-104 | Date 9/23/15

Client WY DEQ | Technicians AEM

Well No. MW-9 | Casing Type/Dia. 2"

Measuring Point (MP) T.O.C. | Pump Depth —

Static Water Level from MP 44.15 | Well Volume (WV) 1.02 gal

Total Well Depth from MP 50.40 | Total to Evacuate (WVx3) 3.06 gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	~~Drawdown~~ (Depth to Water, nearest 0.01 ft)	Comments
16:40	1/3 gal				Cumulative V Rmvd	4 ft of bailer
16:42	1/3 gal				2/3 gal	"
16:44	1/3 gal				1	"
18:00	1/3 gal				1 1/3	"
18:02	1/3 gal				1 2/3	"
18:04	1/3 gal	7.38	11.3	1688	2	"
18:14	1 gal	7.40	10.3	1614	3	3 more full bailers (4 ft ea.)
	3 casing volumes removed, begin collecting samples					
18:35	Final	sample	collected			

SAMPLE Name: AEM Date: 9/23/15 Time: 18:35

Total Minutes Pumped — | Sample Handling | Method: Bailer / Pump / Grab

Total Gallons Pumped — | Type of Analysis | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

CF
Sal
CA

Ground Water Field Sampling Sheet

Project: WYDEQ 104 | Date: 9/21/15

Client: ANC | Technicians: JVG

Well No.: MW-10 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~35

Static Water Level from MP: 11.37' | Well Volume (WV): 4.64 GAL

Total Well Depth from MP: 39.82 | Total to Evacuate (WVx3): 13.9 GAL

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
4:00	0.20	6.34	18.7	5.70	18.3	8.82' w/pump set
4:08	0.09	6.49	17.6	5.61	18.6	
4:15	0.09	6.41	17.4	5.65	19.3	Clear
4:20	0.10	6.35	18.5	5.68	20.7	
4:25	"	6.32	18.4	5.68		
4:30	"	6.38	18.2	5.65	21.8	
☆☆☆		Sampled @		4:30		
		Pump	OFF	@ 4:55		

SAMPLE Name: JOHN GOIN Date: 9/21/15 Time: 4:30 pm

Total Minutes Pumped: 55
Total Gallons Pumped: ~6.1 gal

Sample Handling:
Type of Analysis:

Method: Bailer (Pump) / Grab
Bailed/Pumped Dry?: Yes (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WY DEQ - 104 | Date: 9/21/15

Client: WY DEQ | Technicians: AEM

Well No.: MW - 11 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: ~35 ft

Static Water Level from MP: ~~51.57~~ 25.10 | Well Volume (WV): 2.35

Total Well Depth from MP: 39.51 | Total to Evacuate (WVx3):

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
17:32	0.675				24.97	Pump On
17:34	0.675	6.92	19.5	2.63	25.60	1.35 1.35 milky
17:38	0.68	7.03	12.8	2.57	25.79	2.72 4.07 clear
17:42	0.75	7.16	12.7	2.63	25.82	3.00 7.07
17:45	0.75	7.07	12.6	2.64	25.84	2.25 9.32
17:48	0.75	7.06	12.9	2.60	25.85	2.25 11.57
17:51	0.75	7.07	12.5	2.62	25.87	2.25 13.82
Parameters	Stable,	collecting samples				

SAMPLE Name: AEM Date: 9/21/15 Time: 17:55

Total Minutes Pumped: 19
Total Gallons Pumped: 13.82 +

Sample Handling:
Type of Analysis:

Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

2620

Ground Water Field Sampling Sheet

Project: WYDEQ 104 | Date: 9/22/15

Client: ANC | Technicians: JVG, AEm

Well No.: MW-12 | Casing Type/Dia.: 2" PVC → 38'

Measuring Point (MP): T.O.C. | Pump Depth: 1.65 GAL

Static Water Level from MP: 32.10' | Well Volume (WV): 4.95 GAL

Total Well Depth from MP: 42.22' | Total to Evacuate (WVx3):

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
18:52	0.94				32.09	
18:56	0.84	6.72	19.9	3.01	33.80'	foggy
18:58	0.94	6.60	11.8	3.80	33.88'	
19:01	0.94	6.56	11.0	3.84	33.96'	
19:04		6.58	10.7	3.85	33.99'	
19:09		6.57	10.7	3.48	34.02'	still foggy
19:14		6.52	10.6	3.85		
19:20						
	XX	X sampled @		19:20		
		Pump OFF @		19:35		

SAMPLE Name: JOHN GOIN Date: 9/22/15 Time: 19:20

Total Minutes Pumped: 43 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 40.4 GAL | Type of Analysis: | Bailed/Pumped Dry?: Yes (No)

Comments / Notes:
field filtered radionuclides bottles & dissolved metals bottle

Ground Water Field Sampling Sheet

Project: WYDEQ 104 | Date: 9/21/15

Client: WY DEQ | Technicians: AEM

Well No.: MW-13 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: ~55'

Static Water Level from MP: 32.67 | Well Volume (WV): 4.20

Total Well Depth from MP: 58.42 | Total to Evacuate (WVx3):

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (µS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
15:53					31.78	Very red (rust colored H_2O)
16:05	0.187	6.68	17.8	2.88	38.2	0.93 0.93
16:11	0.137	6.70	15.8	2.94	38.25	0.83 1.76
16:16	0.136	6.78	17.0	2.80	38.45	0.68 2.44
16:20	0.137	6.81	16.6	2.84	38.75	0.55 2.99
16:29	0.14	6.78	16.8	2.82		0.56 3.55 H_2O Quality much improved light milky color
Parameters are stable, begin collecting samples						
The red color in initial H_2O draw was due to precipitate residing at the well bottom. The H_2O quality improved greatly once the precipitate was removed from the H_2O column. Set the pump well above the well bottom.						

SAMPLE Name: AEM Date: 9/21/15 Time: 16:30

Total Minutes Pumped: 29
Total Gallons Pumped: 3.55+
Sample Handling:
Type of Analysis:
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

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Project: WY DEQ 104 | Date: 9/22/15
Client: WY DEQ | Technicians: AEM GHS
Well No.: MW-14a | Casing Type/Dia.: 2"
Measuring Point (MP): TOC | Pump Depth:
Static Water Level from MP: 34.14 | Well Volume (WV): 0.92 gal
Total Well Depth from MP: 39.8 | Total to Evacuate (WVx3): 2.76 gal

Volume factor: 2" 0.163 gal/ft; 4" 0.653 gal/ft; 5" 1.02 gal/ft; 6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	~~Drawdown (Depth to Water, nearest 0.01 ft)~~	Comments
10:00	large bailer				Cumulative	
10:15	1.25 g.	7.24	9.9	1654 µS	H_2O Removed	5 bailers > ½ full
10:18		7.29	10.4	1670		↳ 5th bailer - slightly milky
13:10	0.6 g	7.04	13.4	1520	1.85 gal	2 Bailers
13:28	0.28 g	7.20	10.7	1574	2.45 gal	1 full, 2 partial bailers
15:34	0.35	7.12	11.1	1584	2.80 gal	1 full, 1 partial bailers
3 Casing volumes removed, collecting samples						
16:08		7.22	11.2	1650		

SAMPLE Name: AEM Date: 9/22/15 Time: 15:40

Total Minutes Pumped: —
Total Gallons Pumped: 2.80
Sample Handling:
Type of Analysis:
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WY DEQ - 104 | Date: 9/23/15

Client: WY DEQ | Technicians: AEM

Well No.: MW-15 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: 25'

Static Water Level from MP: 12.25 | Well Volume (WV): 2.37

Total Well Depth from MP: 31.78 | Total to Evacuate (WVx3):

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
12:03	0.8				17.22	Pump on
12:05						H_2O reached surface
12:06	0.8	7.19	19.9	3.23 mS	18.97	0.8 – cloudy
12:10	0.65	7.25	13.9	3.20	18.97	2.6 3.4 milky
12:13	0.65	7.28	13.0	3.18	18.99	1.95 5.35 clear
12:16	0.65	7.25	12.8	3.16	19.02	1.95 7.30
12:19	0.65	7.27	12.6	3.16	19.02	1.95 9.25
12:22	Parameters stable, begin collecting samples					

SAMPLE Name: AEM Date: 9/23/15 Time: 12:30

Total Minutes Pumped: 16+ sampling | Sample Handling: | Method: Bailer / Pump / Grab

Total Gallons Pumped: 9.25 + sampling | Type of Analysis: | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WY DEQ - 104 | Date: 9/23/15

Client: WY DEQ | Technicians: AEM

Well No.: MW-16 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: 33 ft

Static Water Level from MP: 28.07 | Well Volume (WV): 1.33 gal

Total Well Depth from MP: 36.22 | Total to Evacuate (WVx3): 4.0

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
~~to~~ 13:04					28.01	Pump On
13:05					28.09	H_2O reached surface
13:06	0.14	7.25	21.0	2.87 mS	~~28.45~~	0.14 — Clear
13:12	0.15	7.31	19.1	2.86	28.45	0.62 0.76
13:15	0.21	7.31	18.4	2.83	28.52	0.62 1.38
13:18	0.29	7.26	17.2	2.82	28.71	0.87 2.25
13:22	0.31	7.31	15.9	2.81	28.76	1.24 3.49
13:25	Parameters stable, begin collecting samples					
13:34	Final sample collected, pump off					

SAMPLE Name: AEM | Date: 9/23/15 | Time: 1:30

Total Minutes Pumped: 18+ samples | Sample Handling: | Method: Bailer / Pump / Grab

Total Gallons Pumped: 3.49+ samples | Type of Analysis: | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WyDEQ 104 | Date: 9/2/15

Client: ANC | Technicians: JVG

Well No.: MW-17 | Casing Type/Dia.: 2" PVC in 5" surface casing

Measuring Point (MP): T.O. Surface casing | Pump Depth: ~29'

Static Water Level from MP: 18.18 | Well Volume (WV): 2.85 Gal

Total Well Depth from MP: 35.65 | Total to Evacuate (WVx3): 8.54 Gal

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Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
6:55	1.22					18.18 w/ pump set
6:58	1.17	7.37	11.3	1551	20.38	slowed pump
7:02	1.125	7.32	10.6	1563	20.60'	cleared up
7:05	1.125	7.33	10.5	1560	20.67'	
7:08	"	7.31	10.4	1560	20.70'	
7:12	"	7.30	10.4	1556	20.72'	
☆☆☆		Sampled @		7:15 pm	☆☆	
		Pump off @		7:20 pm		

SAMPLE Name: John Goin | Date: 9/2/15 | Time: 7:15 pm

Total Minutes Pumped: 25 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: ~28 Gal | Type of Analysis: | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

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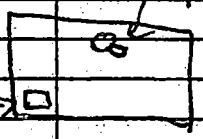
Fort Collins, CO 80525

Project: WYDEQ 104 | Date: 9/21/15
Client: DEQ | Technicians: AEM & GS
Well No.: R-4 | Casing Type/Dia.: 8"
Measuring Point (MP): TOC | Pump Depth:
Static Water Level from MP: Cannot measure b/c pump | Well Volume (WV):
Total Well Depth from MP: 53.70 | Total to Evacuate (WVx3):

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
11:14	0.5					- -
11:16	0.32	~~5.46~~ 3.47	16.7	5.50		0.64 0.64
11:22	0.19	3.56	14.7	8.14	53.95	1.14 1.78
11:27	0.06	3.56	14.5	~~8.09~~ 7.84		0.30 2.08
11:32	0.11	3.56	12.9	8.17	53.88	0.55 2.63
11:35	0.11	3.57	12.9	8.13	53.84	0.33 2.96
Parameters stable, begin sample collection						
Flow died at 11:36, pump off at 11:38						
11:51	Pump on, samples collected					
11:54	Pump off					
Note: Pump operates off of pump disconnect in the SE corner of pumphouse						
Disconnect →						



SAMPLE Name: AEM Date: 9/21/15 Time: ~~11:40~~ 11:50

Total Minutes Pumped: 40
Total Gallons Pumped: 2.96+
Sample Handling:
Type of Analysis:
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Surface Water Sampling
Field Data Sheet

Project: WYDEQ104	Site Name: North Willow Spring	Technician: GHS, ABM
Location Description:		

SAMPLE RETRIEVAL

Sample Name: N/A	Time: 12:40	Date: 9-24-15
Sampling Description (i.e. grab/pump/decant/filter, etc): DRY		

FIELD PARAMETERS

pH:	Temperature:
Specific Conductance:	DO:
Turbidity:	Other (specify):
Discharge (units and method of measurement):	Other (specify):

STREAMS (circle all that apply)

Location	Wading	Bank	Station Gage: at / above / below				
	Bridge: upstream / downstream		Side Bridge ____ ft/mile			Boat	Ice
	Other (specify):						
Sampling Site	Pool	Riffle	Open	Braided	Backwater		
	Sample Type:						
Bottom	Bedrock	Rock	Cobble	Gravel	Sand	Mud	Concrete
Stage Conditions	Not Determined		Stable: normal / low / high				
	Falling	Rising	Peak	Other (specify):			
Hydraulic Event	Routine Sampling		Regular Flow				
	Snowmelt	Flood	Drought	Spill			
	Ice Cover: Thickness _____ inches		Other (specify):				
Stream Color	Brown	Clear	Green	Blue	Gray		
	Other (specify):						
Stream Mixing/Flow Type: Turbulent / Laminar / Stagnant		Excellent	Good	Fair	Poor		

SPRINGS/SEEPS (circle all that apply)

Sampling Site	Pool	Riffle	Braided	Backwater		
Bottom	Bedrock	Rock	Cobble	Gravel	Sand	Mud
Stage Conditions	Not Determined		Stable: normal / low / high			
Water Color(s)	Brown	Clear	Green	Blue	Gray	
	Other (specify):					
Spring Water Mixing and Sample Location Distance from Source		Excellent	Good	Fair	Poor	

IMPOUNDMENTS / PITS / LAKES (circle all that apply)

Sampling Site	Locale		Distance from bank:		Other:	
Bottom	Bedrock	Rock	Cobble	Gravel	Sand	Mud
Stage Conditions	Not Determined		Surveyed BS monument =		SWL=	
Water Color(s)	Brown	Clear	Green	Blue	Gray	
	Other (specify):					

Notes:

Surface Water Sampling
Field Data Sheet

Project: WYDEQ104	Site Name: South willow Spring	Technician: AEM
Location Description:		

SAMPLE RETRIEVAL

Sample Name: South willow Spring	Time: 17:05	Date: 9/23/15
Sampling Description (i.e. grab/pump/decant/filter, etc): Grab into bottles at small ~1' head cut drop, downstream of bridge		

FIELD PARAMETERS

pH: 8.01	Temperature: 16.5 °C
Specific Conductance: 2.54 mS/cm	DO:
Turbidity: 1.67 NTU	Other (specify):
Discharge (units and method of measurement): < 1 gpm Visual est	Other (specify):

STREAMS (circle all that apply)

Location	Wading / (Bank)	Station Gage: at / above / below N/A			
	Bridge: (upstream) / downstream	Side Bridge ___ ft/mile	Boat	Ice	
	Other (specify):				
Sampling Site	(Pool)	Riffle	Open	Braided	Backwater
	Sample Type: Small <1' head cut & pool				
Bottom	Bedrock	Rock	Cobble	Gravel	(Sand) / (Mud)	Concrete
Stage Conditions	(Not Determined)	Stable: normal / low / high			
	Falling / Rising	Peak	Other (specify):		
Hydraulic Event	(Routine Sampling)	Regular Flow			
	Snowmelt / Flood	Drought / Spill			
	Ice Cover: Thickness ___ inches	Other (specify):			
Stream Color	Brown / (Clear) / Green / Blue / Gray				
	Other (specify):				
Stream Mixing/Flow Type: Turbulent / Laminar / Stagnant	Excellent / (Good) / Fair / Poor				

SPRINGS/SEEPS (circle all that apply)

Sampling Site	Pool / Riffle / Braided / Backwater				
Bottom	Bedrock / Rock / Cobble / Gravel / Sand / Mud				
Stage Conditions	Not Determined	Stable: normal / low / high			
Water Color(s)	Brown / Clear / Green / Blue / Gray				
	Other (specify):				
Spring Water Mixing and Sample Location Distance from Source	Excellent / Good / Fair / Poor				

IMPOUNDMENTS / PITS / LAKES (circle all that apply)

Sampling Site	Locale	Distance from bank:	Other:		
Bottom	Bedrock / Rock / Cobble / Gravel / Sand / Mud				
Stage Conditions	Not Determined	Surveyed BS monument = SWL=			
Water Color(s)	Brown / Clear / Green / Blue / Gray				
	Other (specify):				

Notes:

Ground Water Field Sampling Sheet

Project WYDEQ 104 Date 9-21-15

Client WY DEQ Technicians G/FS

Well No. N/A Casing Type/Dia. _____

Measuring Point (MP) Pump Depth _____

Static Water Level from MP Well Volume (WV) _____

Total Well Depth from MP Total to Evacuate (WVx3) _____

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
	Blank					
		ANC-B				

SAMPLE Name: ANC-B Date: 9-21-15 Time: 12:30

Total Minutes Pumped _____ Sample Handling 2005 G8 Method: Bailer / Pump / Grab

Total Gallons Pumped _____ Type of Analysis Hand Deliver Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Blank Sample

Ground Water Field Sampling Sheet

Project WYDEQ104 | Date 9-23-15

Client ANC wells- DEQ | Technicians GHS, JVG

Well No. PW-1/MW-18 | Casing Type/Dia. 2" PVC

Measuring Point (MP) T.O.C. | Pump Depth 33'

Static Water Level from MP 28.41 | Well Volume (WV) 1.44 Gal

Total Well Depth from MP 37.25 | Total to Evacuate (WVx3) 4.32 Gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
5:01	1.5				28.85	Pump @ max
5:05	"	7.58	15.8	5.37 mS	28.85	
5:09	1.88					
5:13	1.88	7.68	10.4	5.92 mS	28.90	
5:16	1.88	7.68	10.5	5.91 mS	28.90	
5:19	"	7.69	10.5	5.87 mS	28.90	
5:21	"	7.71	10.3	5.94 mS		
5:25	"	7.73	10.3	5.87 mS		
	***	Sample	@	5:25pm	***	
- closed	valves on pump discharge & turned off pump, did not pull pump				t	dtw
10 s					28.45	3m 28.45
20 s					28.35	4m 28.45
30 s					28.28	5m, 28.45
40 s					28.21	
50 s					28.20	
60 s					28.35	
75 s					28.40	
90 s					28.41	
115 s					28.43	
2 m					28.45	

SAMPLE Name: PW-1 Date: 9/23/15 Time: 17:25

Total Minutes Pumped 24 | Sample Handling Hand Deliver | Method: Bailer (Pump) Grab

Total Gallons Pumped 42 Gal | Type of Analysis Guideline 8 | Bailed/Pumped Dry?: Yes (No)

Comments / Notes: Water in pump line held by weak suction at head manifold but is likely leaking down into the well

Ground Water Field Sampling Sheet

Project: WY DEQ 104 | Date: 9-24-15

Client: WY DEQ | Technicians: GHS JVG

Well No.: PW-2 /MW-19 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~116'

Static Water Level from MP: 95.14 | Well Volume (WV): 4.34 Gal

Total Well Depth from MP: 121.75 | Total to Evacuate (WVx3): 13.0 Gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
9:12					97.5	slightly dirty
9:14	0.66				99.0	turned pump down
9:15	0.56				99.5	turned pump down
9:16		7.76	12.7	5.30 mS	99.8	clearing up
9:18	0.41	7.73	12.0	5.28 mS	100.7	
9:21	0.4	7.71	12.1	5.35 mS	102.05	
9:24	0.4	7.72	12.1	5.40 mS	103.2	dirty grey water
9:27	0.375	7.71	12.4	5.43 mS	103.95	cleared up
**	Sample					
9:35	Pump off				105.9	

SAMPLE Name: PW-2 Date: 9-24-15 Time: 9:45

Total Minutes Pumped: ____
Total Gallons Pumped: ____

Sample Handling: Hand deliver
Type of Analysis: 68 (PEQ - 2005)

Method: Bailer / (Pump) / Grab
Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project WYDEQ 104 | Date 9-23-15

Client ANC/DEQ | Technicians GHS, JVG

Well No. PW-3 /MW-20 | Casing Type/Dia. 2" PVC

Measuring Point (MP) TOC | Pump Depth 55'

Static Water Level from MP 26.16 | Well Volume (WV) 5.9 gal

Total Well Depth from MP 62.45 | Total to Evacuate (WVx3) 17.7 gal

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
18:10						Pump on
18:12	0.5	8.00	16.6	3.64 mS	31.6	
18:16	0.375	8.06	13.6	3.62 mS	36.1	
18:19	0.375	8.05	13.0	3.62 mS	40.03	Slightly Cloudy
18:22	0.31	8.09	12.9	3.64 mS	42.7	
18:26	0.31	8.08	13.0	3.64 mS	43.5	
***	* Sampled					
18:32						Pump off

SAMPLE Name: PW-3 Date: 9-23-15 Time: 18:30

Total Minutes Pumped _____ | Sample Handling Hand deliver | Method: Bailer / (Pump) / Grab

Total Gallons Pumped _____ | Type of Analysis 6-8 | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

1.70
2.5
1.64
1.60
3.95

Ground Water Field Sampling Sheet

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Project: WYDEQ 104 | Date: 9-24-15

Client: ~~WYDEQ~~ DEQ | Technicians: GHS, JVG

Well No.: PW-4/MW-21 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: 34'

Static Water Level from MP: 25.89 | Well Volume (WV): 1.81 GAL

Total Well Depth from MP: 36.98 | Total to Evacuate (WVx3): 5.42 GAL

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
11:15					26.07	turned pump up
11:17	.69				27.35	turned pump down
11:18	0.50	7.20	15.2	2.73 mS	28.1	turned pump down
11:20					28.28	
11:22	0.41	7.16	13.1	2.75 mS	28.75	
11:24	0.41	7.14	12.4	2.76 mS	29.6	turned pump down
11:26	0.28	7.06	12.2	2.76 mS	30.0	
11:29	0.28	6.94	12.8	2.76 mS	30.27	*Temp increase due to longer time in hose in
11:32	0.25	6.90	13.5	2.76 mS	tape @ top of pump	
11:35	0.25	6.86	13.5	2.79 mS		turned pump down
**	Sampled					
11:47	Pump off					

SAMPLE Name: PW-4 Date: 9-24-15 Time: 11:35

Total Minutes Pumped: 32 | Sample Handling: Hand del. | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 11 GAL | Type of Analysis: GS | Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WY DEQ 104 | Date: 9/23/15

Client: WY DEQ | Technicians: AEM

Well No.: PW-5 /MW-22 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: 35 FL

Static Water Level from MP: 28.09 | Well Volume (WV): 2.11 gal

Total Well Depth from MP: 41.08 | Total to Evacuate (WVx3):

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
10:13					27.71	Pump on
10:22	0.25	7.33	20.3	3.47 mS	30.25	0.75 — 3 minutes of flow
10:26	0.08	7.57	15.9	3.87	TOP of Pump	0.32 1.07 Slowed to near stop
10:34	0.03	7.66	17.5	3.86	31.63	0.25 1.32
10:41	0.03	7.65	18.3	3.89	31.73	0.22 1.54 Pump ↓ 1 ft
10:43	Parameters stable, begin collecting samples					TOP = Top of Pump
						BoP = Bottom of Pump
10:48					31.71	TOP = 32.45 BoP = 36.45
10:54					31.71	ToP = 32.45 BoP = 36.45 ~~WV = 0.75 gal~~
10:58					31.71	ToP = 33.61 BoP = 37.61
11:06					32.03	WV = 1.46 gal
11:15					33.02	

SAMPLE Name: AEM Date: 9/23/15 Time: 11:00

Total Minutes Pumped: 30 + Sampling | Sample Handling: | Method: Bailer / Pump / Grab

Total Gallons Pumped: 1.54 + Sampling | Type of Analysis: | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

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Project: WY DEQ 104
Date: 9/23/15
Client: WY DEQ
Technicians: AEM
Well No.: PW-6 /MW-23
Casing Type/Dia.: 2"
Measuring Point (MP): TOC
Pump Depth: ~15 ft
Static Water Level from MP: 6.45
Well Volume (WV): 2.59
Total Well Depth from MP: 22.37
Total to Evacuate (WVx3): 7.78

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
9:22					6.30	Pump on
9:23					11.6	H_2O reaches surface
9:26	0.75	7.05	15.2	2.28 mS	11.65	~~3.75~~ 2.25 — Cloudy
9:29	0.25	7.04	13.1	2.27	12.90	~~3.75~~ 2.25 ~~7.50~~ 4.50 H_2O clearing
9:32	0.56	7.06	13.5	2.25	11.97	1.68 6.18
9:36	0.56	7.03	13.1	2.25	12.12	2.24 8.42 H_2O clear
9:40	Parameters stable, collecting samples					
10						
off	1 hour					

SAMPLE Name: AEM Date: 9/23/15 Time: 9:40

Total Minutes Pumped: 24
Total Gallons Pumped: 8.42
Sample Handling:
Type of Analysis:
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project WYDEQ104 | Date 9-24-15

Client ANC/DEQ | Technicians GHS, JVG

Well No. PW-7/MW-24 | Casing Type/Dia. 2" PVC

Measuring Point (MP) T.O.C. | Pump Depth 25'

Static Water Level from MP 21.70 | Well Volume (WV) 0.84 Gal

Total Well Depth from MP 26.85 | Total to Evacuate (WVx3) 2.5 GAL

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
10:03					21.65	
10:05	.06				below top of pump	turned pump down
10:08	0.125					
10:10	0.125	7.57	16.2	8.14 mS		
10:13	0.125	7.60	14.8	8.06 mS		
10:17	0.125	7.57	14.8	8.07 mS		Clearing up
10:22	0.18	7.56	14.2	8.01 mS		
10:26	0.19	7.58	13.7	7.99 mS		
10:28	** Sampled					
10:40	Pump off					
						1.75 GAL

SAMPLE Name: PW-7 Date: 9-24-15 Time: 10:30

Total Minutes Pumped 37 | Sample Handling Hand del. | Method: Bailer / (Pump) / Grab

Total Gallons Pumped 10.0 GAL | Type of Analysis | Bailed/Pumped Dry?: Yes (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WY DEQ-104 | Date: 9/23

Client: WY DEQ | Technicians: AEM

Well No.: PW-8/MW-25 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: 40 ft

Static Water Level from MP: 31.96 | Well Volume (WV): 1.86

Total Well Depth from MP: 43.40 | Total to Evacuate (WVx3): 5.59

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
Bgn 14:18					31.83	Pump on
14:19						H_2O reached surface
14:21	0.56	7.43	16.5	3.36 mS	34.65	1.12 — Very milky
14:25	0.56	7.32	13.5	4.32	35.2	2.24 3.36
14:28	0.56	7.32	13.1	4.78	35.67	1.68 5.04
14:31	0.62	7.31	13.(	4.83	36.39	1.86 6.90
14:34	0.62	7.30	13.5	4.84	36.68	1.86 8.76
14:37	Parameters stable collecting samples					1.86 10.62
14:55	Final sample collected, pump off					
	Sample H_2O cloudy with a light yellowish hue					

SAMPLE Name: AEM Date: 9/23/15 Time: 14:50

Total Minutes Pumped: 19 + Sampling | Sample Handling: | Method: Bailer / Pump / Grab

Total Gallons Pumped: 10.62 + Sampling | Type of Analysis: | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ104 / ANC102
Date: 9-23-15
Client: ANC
Technicians: GHS, AEM
Well No.: PW-9/MW-26
Casing Type/Dia.: 2" PVC
Measuring Point (MP): T.O.C.
Pump Depth: ~~58' 60'~~ 59'
Static Water Level from MP: 54.30
Well Volume (WV): 1.32
Total Well Depth from MP: 62.41
Total to Evacuate (WVx3): 3.96

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Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
9:00					44.8	
9:04	0.665	7.91	16.5	1465	48.6	2.66 -
9:07	0.45	8.07	13.2	1388	51.3	1.35 4.01
9:10	0.337	7.94	13.0	1371	53.1	1.01 5.02
9:17	0.25	7.90	13.3	1404	55.68	1.75 6.77
9:21	0.25	7.93	13.3	1411	56.45	1.00 7.77
9:24	~~SA~~ Parameters stable, collecting samples					

SAMPLE Name: GHS, AEM Date: 9/23/15 Time: ~~8:54~~ 9:30

Total Minutes Pumped: 21
Total Gallons Pumped: 7.77
Sample Handling:
Type of Analysis:
Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WyDEQ104 | Date: 9/21/15

Client: ANC | Technicians: JVG

Well No.: PW-10 /MW-27 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~72

Static Water Level from MP: 39.75' | Well Volume (WV): 7.57 gal

Total Well Depth from MP: 86.2' | Total to Evacuate (WVx3): 22.7

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Engineering, Geology, & Water Resource Consulting
4025 Automation Way, Bldg. E
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
12:35						38.8' w/ pump set
12:40	0.04	7.16	20.2	1964	42.6'	42.6' cloudy
12:45	0.04				42.3'	42.3'
12:49	0.25	7.14	15.7°	2.26	43.05	Increased pump rate
12:55	0.14	7.08	15.6°	2.28	45.60'	Very Dirty
1:02	0.08	6.95	17.8°	2.47	45.00'	
1:09	0.14	6.87	17.4	2.58	44.0'	Increased pump rate slightly
1:16	0.125	6.90	15.6	2.67	45.1'	
1:23	0.10	6.88	17.1	2.69	44.1'	
**	** samples @		1:26	pm **		
		Pump	OFF	@ 1:42		

SAMPLE Name: John Doe | Date: 9/21/15 | Time: 1:26 pm

Total Minutes Pumped: 67 | Sample Handling: | Method: Bailer (Pump) Grab

Total Gallons Pumped: ~17.2 | Type of Analysis: | Bailed/Pumped Dry?: Yes (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ104 | Date: 9/22/15

Client: ANC | Technicians: JVG

Well No.: PW-12 /MW-28 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~48'

Static Water Level from MP: 40.87' | Well Volume (WV): 2.50 Gal

Total Well Depth from MP: 56.20' | Total to Evacuate (WVx3): 7.50 Gal

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Engineering, Geology, & Water Resource Consulting
4025 Automation Way, Bldg. I
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
3:10	0.75	6.26	17.1	4.44	41.38'	Initial DTW
3:15	1.31	6.34	11.5	4.60		
3:20	1.31	6.31	11.4	4.51	41.41'	
3:25	1.31	6.32	11.1	4.59	41.40'	clear
3:30	1.31	6.31	11.1	4.55		
	***	Sampled	@ 3:30 pm			
		Pump OFF @	3:38			

SAMPLE Name: JOHN GOIN Date: 9/22/15 Time: 3:30 pm

Total Minutes Pumped: 28
Total Gallons Pumped: 33.9 Gal

Sample Handling:
Type of Analysis:

Method: Bailer / Pump / Grab
Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ104 | Date: 9/22/~~15~~

Client: ANC | Technicians: JVG

Well No.: ~~MW~~-PW-13/MW-29 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~75'

Static Water Level from MP: 67.13 | Well Volume (WV): 2.31 GAL

Total Well Depth from MP: 81.30 | Total to Evacuate (WVx3): 6.93 GAL

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Engineering, Geology & Water Resource Consulting
4025 Automation Way, Bldg 1
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
4:25	1.125	7.06	18.4	1244	69.45	66.96' w/ pump
4:30	~~1~~1.25	7.13	12.0	1265	69.85	increased flow
4:33	1.31	7.07	11.7	1250	70.32	very dirty (Gray)
4:38	1.31	7.03	11.5	1247	70.53	
4:42	1.31	7.02	11.5	1246	70.57	
4:47	1.31	7.01	11.5	1247	70.62	Still Dirty
4:50	1.31	7.01	11.5	1241	70.67	clearing a little
~~*~~	~~*~~	~~*~~	samples @	4:50		
			Pump increased to 100% flow @		5:05	
					5:15	still @ 70.71
					Pump OFF	@ 5:20 @ 70.71

Time	H_2O Lvl		Time	H_2O Lvl		
5:24	69:01		5:39	67.20	~~69.04~~	Well off, 200 ft x 3/8 inch hose flowed back into well before this point
5:25	68:15		5:44	67.19	~~68.15~~	
5:26	67.81		5:49	67.18	~~67.81~~	
5:27	67.60		5:54	67.17	~~67.60~~	
5:28	67.46		5:59	67.165	~~67.46~~	
5:29	67.38		6:04	67.16	~~67.38~~	
5:30	67.34		6:09	67.165	~~67.34~~	
5:32	67.29		6:14	67.15		
5:34	67.25		6:19	67.15		
5:36	67.22		6:24	67.15		

SAMPLE Name: JOHN GOIN Date: 9/22/15 Time: 4:50 pm

Total Minutes Pumped: 40 | Sample Handling: | Method: Bailer / (Pump) / Grab

Total Gallons Pumped: 52.4 GAL | Type of Analysis: | Bailed/Pumped Dry?: Yes (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WYDEQ104 | Date: 9/22/15

Client: ANC | Technicians: JVG

Well No.: PW-14 /MW-30 | Casing Type/Dia.: 2" PVC

Measuring Point (MP): T.O.C. | Pump Depth: ~74

Static Water Level from MP: 65.34' | Well Volume (WV): 2.61 GAL

Total Well Depth from MP: 81.33' | Total to Evacuate (WVx3): 7.82 GAL

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Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
9:50	0.69	6.91	13.1	4.14	65.82	
9:56	0.81	6.92	11.1	4.30	66.00'	Increased pump rate slightly
10:02	0.81	6.94	10.9	4.33	66.03'	cleared up
10:06	"	6.92	10.8	4.33	66.11'	
10:12	"	6.95	10.9	4.34	66.15'	
	XXX	Samples @		10:15 AM	XXX	
		Pump	OFF @	10:23 AM		

SAMPLE Name: JOHN GOIN Date: 9/22/15 Time: 10:15 AM

Total Minutes Pumped: 33
Total Gallons Pumped: ~26 GAL

Sample Handling:
Type of Analysis:

Method: Bailer / (Pump) / Grab
Bailed/Pumped Dry?: Yes / (No)

Comments / Notes:

Ground Water Field Sampling Sheet

Project: WY DEQ - 104 | Date: 9/24

Client: WY DEQ | Technicians: AEM

Well No.: PW-15 /MW-31 | Casing Type/Dia.: 2"

Measuring Point (MP): TOC | Pump Depth: —

Static Water Level from MP: 23.26 | Well Volume (WV): 1.48 gal

Total Well Depth from MP: 32.32 | Total to Evacuate (WVx3): 4.43 gal

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Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
10:35						
10:52	3/4 g				~24.05	
10:53					24.45	3½ bailers
10:55	5.75 gt.			mS	24.80	
11:06	6 gal	6.89	12.2	4.20 ~~mS~~		@ 1 casing volume
11:13						full bailer
11:14						Mostly full
11:15	3 gal					Mostly full
11:16		6.97	11.5	4.21	25.31	
11:25	4 gal	7.13	10.9	4.46		Production ↓ 4, ½ full bailers in a row
11:33	4.5 gal			~~4.2~~		3 casing volumes
11:34					27.99	
11:38		7.23	11.7	4.57	1st slug from 1st sample bailer	Bailer's ⅓ full
11:41	3 casing volumes removed, begin sampling					
12:01	Final sample collected					
12:03		7.40	11.3	5.21		Left over slug from final bailer

SAMPLE Name: PW-15 Date: 9/24 Time: 12:00

Total Minutes Pumped: — | Sample Handling: — | Method: Bailer / Pump / Grab

Total Gallons Pumped: — | Type of Analysis: — | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

Ground Water Field Sampling Sheet

Project WYDEQ104 | Date 9/22/15

Client ANC | Technicians JVG

Well No. TP2-3 | Casing Type/Dia. 5" pvc

Measuring Point (MP) T.O.C. | Pump Depth ~125'

Static Water Level from MP 107.48' | Well Volume (WV) 84.43 Gal

Total Well Depth from MP 190.25' | Total to Evacuate (WVx3) 253.28 Gal

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Engineering Geology & Water Resource Consulting
4025 Automation Way, Bldg E
Fort Collins, CO 80525

Volume factor: 2" 0.163 gal/ft
4" 0.653 gal/ft
5" 1.02 gal/ft
6" 1.5 gal/ft
1 L = 1000 ml = 0.2642 gal

EVACUATION/STABILIZATION TEST DATA

Time	Pumping Rate (GPM)	pH (±0.1)	Temp (°C) (±1°)	Specific Conductance (uS/cm) (±3%)	Drawdown (Depth to Water, nearest 0.01 ft)	Comments
~~11:12~~						
11:25	0.56					Increased flow rate
11:28	1.03	7.18	12.4	1675	107.72	
11:33	0.98	7.21	11.6	1686	107.75'	Increased " " slightly
11:37	1.17	7.22	11.5	1689	107.80'	
11:42	1.17	7.19	11.5	1695	107.81'	clear
11:47	0.81	7.20	11.5	1732	107.775'	flow slowed ??
11:51			Flow	stopped		
~~1:07~~						
13:56					107.44	Static H2O
14:05					107.47	Pump on
14:07	~~0.88~~	7.19		1684		flow reached surface
14:14		7.19	13.4	1597		
14:18		7.18	13.4	1790		
14:22		7.10	12.4	1931	107.80'	changed pH/cond meter
14:26		7.07	13.6	1938		
14:30	0.44	7.19	13.2	1666		
14:34	0.44	7.18	13.6	1680		
14:37		7.19	13.8	1737		
14:47	0.41	7.12	14.0	18.94	107.65	

SAMPLE Name: JOHN GOTH Date: 9/22/15 Time:

Total Minutes Pumped _____ | Sample Handling _____ | Method: Bailer / Pump / Grab

Total Gallons Pumped _____ | Type of Analysis _____ | Bailed/Pumped Dry?: Yes / No

Comments / Notes:

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ANALYTICAL SUMMARY REPORT

October 07, 2015

Lidstone and Associates
4025 Automation Way Unit E
Fort Collins, CO 80525

Work Order: C15090761

Project Name: WY DEQ 104

Energy Laboratories, Inc. Casper WY received the following 10 samples for Lidstone and Associates on 9/23/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C15090761-001	MW-1	09/21/15 11:30	09/23/15	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Conductivity Sample Filtering Fluoride E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha, Gross Beta Radium 226, Dissolved Radium 228, Dissolved Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated
C15090761-002	MW-1A	09/21/15 11:30	09/23/15	Aqueous	Same As Above
C15090761-003	PW-10/MW-27	09/21/15 13:26	09/23/15	Aqueous	Same As Above
C15090761-004	MW-3	09/21/15 14:55	09/23/15	Aqueous	Same As Above
C15090761-005	MW-10	09/21/15 16:30	09/23/15	Aqueous	Same As Above
C15090761-006	MW-7	09/21/15 18:05	09/23/15	Aqueous	Same As Above
C15090761-007	MW-17	09/21/15 19:15	09/23/15	Aqueous	Same As Above
C15090761-008	TP2-3	09/22/15 12:30	09/23/15	Aqueous	Same As Above
C15090761-009	PW-14/MW-30	09/22/15 10:15	09/23/15	Aqueous	Same As Above
C15090761-010	MW-5	09/22/15 11:15	09/23/15	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. 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 test results, please call.

Report Approved By:

CLIENT: Lidstone and Associates
Project: WY DEQ 104
Work Order: C15090761

Report Date: 10/07/15

CASE NARRATIVE

RADIOCHEMISTRY ANALYSIS
Per client request, results less than MDC (or precision if no MDC), are reported as <MDC (or <precision). Actual instrument results are available by request.

TH230 ANALYSIS
USNRC Regulatory Guide 4.14 provides guidance on Minimum Detectable Concentrations (MDC) that should be achieved in samples for this radionuclide. The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis. Please consult with your local regulatory agency prior to using these results for compliance purposes.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-001
Client Sample ID: MW-1

Report Date: 10/07/15
Collection Date: 09/21/15 11:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 18:12 / wc
Bicarbonate as HCO3	1230	mg/L		5		A2320 B	09/23/15 18:12 / wc
Calcium	488	mg/L		1		E200.7	09/29/15 20:03 / sf
Chloride	279	mg/L	D	5		E300.0	09/23/15 23:03 / wc
Fluoride	3.9	mg/L		0.1		A4500-F C	09/23/15 14:26 / wc
Magnesium	376	mg/L		1		E200.8	09/25/15 18:54 / smm
Nitrogen, Ammonia as N	418	mg/L	D	10		A4500-NH3 G	09/25/15 11:24 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/23/15 12:29 / lr
Potassium	19	mg/L		1		E200.8	09/25/15 18:54 / smm
Silica	19.6	mg/L	D	0.3		E200.7	09/29/15 20:03 / sf
Sodium	393	mg/L		1		E200.8	09/25/15 18:54 / smm
Sulfate	3750	mg/L	D	20		E300.0	09/23/15 23:03 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	8360	umhos/cm		5		A2510 B	09/23/15 13:17 / lmc
pH	6.44	s.u.	H	0.01		A4500-H B	09/23/15 13:17 / lmc
Solids, Total Dissolved TDS @ 180 C	5320	mg/L		100		A2540 C	09/24/15 09:06 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 18:54 / smm
Arsenic	0.014	mg/L		0.001		E200.8	09/25/15 18:54 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 18:54 / smm
Beryllium	0.001	mg/L		0.001		E200.8	09/25/15 18:54 / smm
Boron	ND	mg/L	D	0.2		E200.7	09/29/15 20:03 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 18:54 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 18:54 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 18:54 / smm
Iron	30.9	mg/L		0.03		E200.8	09/25/15 18:54 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 18:54 / smm
Manganese	7.17	mg/L		0.01		E200.8	09/25/15 18:54 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 18:54 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 18:54 / smm
Nickel	0.99	mg/L		0.05		E200.8	09/25/15 18:54 / smm
Selenium	0.011	mg/L		0.001		E200.8	09/25/15 18:54 / smm
Uranium	5.55	mg/L		0.0003		E200.8	09/25/15 18:54 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 18:54 / smm
Zinc	0.04	mg/L		0.01		E200.8	09/25/15 18:54 / smm
METALS - TOTAL							
Iron	34.3	mg/L		0.03		E200.7	09/28/15 21:01 / sf
Manganese	6.96	mg/L		0.01		E200.7	10/01/15 21:45 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-001
Client Sample ID: MW-1

Report Date: 10/07/15
Collection Date: 09/21/15 11:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	4850	pCi/L		23.9		E900.0	09/28/15 22:08 / trs
Gross Alpha precision (±)	943	pCi/L				E900.0	09/28/15 22:08 / trs
Gross Alpha MDC	23.9	pCi/L				E900.0	09/28/15 22:08 / trs
Gross Beta	319	pCi/L		28.4		E900.0	09/28/15 22:08 / trs
Gross Beta precision (±)	34.3	pCi/L				E900.0	09/28/15 22:08 / trs
Gross Beta MDC	28.4	pCi/L				E900.0	09/28/15 22:08 / trs
Radium 226	77	pCi/L		0.15		E903.0	10/05/15 12:21 / dmf
Radium 226 precision (±)	15	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 226 MDC	0.15	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 228	66.6	pCi/L		1.2		RA-05	09/29/15 12:04 / plj
Radium 228 precision (±)	11.8	pCi/L				RA-05	09/29/15 12:04 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	09/29/15 12:04 / plj
Thorium 230	<0.6	pCi/L	U	0.6		E908.0	09/30/15 09:28 / cng
Thorium 230 precision (±)	0.2	pCi/L				E908.0	09/30/15 09:28 / cng
Thorium 230 MDC	0.6	pCi/L				E908.0	09/30/15 09:28 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.74	%				A1030 E	09/30/15 14:40 / sdw
Anions	106	meq/L				A1030 E	09/30/15 14:40 / sdw
Cations	103	meq/L				A1030 E	09/30/15 14:40 / sdw
Solids, Total Dissolved Calculated	5900	mg/L				A1030 E	09/30/15 14:40 / sdw
TDS Balance (0.80 - 1.20)	0.90	unitless				A1030 E	09/30/15 14:40 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-002
Client Sample ID: MW-1A

Report Date: 10/07/15
Collection Date: 09/21/15 11:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 18:22 / wc
Bicarbonate as HCO3	1240	mg/L		5		A2320 B	09/23/15 18:22 / wc
Calcium	488	mg/L		1		E200.7	09/29/15 20:07 / sf
Chloride	277	mg/L	D	5		E300.0	09/23/15 23:20 / wc
Fluoride	3.4	mg/L		0.1		A4500-F C	09/23/15 14:29 / wc
Magnesium	368	mg/L		1		E200.8	09/25/15 18:59 / smm
Nitrogen, Ammonia as N	424	mg/L	D	10		A4500-NH3 G	09/25/15 11:26 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/23/15 12:31 / lr
Potassium	18	mg/L		1		E200.8	09/25/15 18:59 / smm
Silica	19.7	mg/L	D	0.3		E200.7	09/29/15 20:07 / sf
Sodium	382	mg/L		1		E200.8	09/25/15 18:59 / smm
Sulfate	3720	mg/L	D	20		E300.0	09/23/15 23:20 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	8240	umhos/cm		5		A2510 B	09/23/15 13:21 / lmc
pH	6.44	s.u.	H	0.01		A4500-H B	09/23/15 13:21 / lmc
Solids, Total Dissolved TDS @ 180 C	5250	mg/L		100		A2540 C	09/24/15 09:07 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 18:59 / smm
Arsenic	0.015	mg/L		0.001		E200.8	09/25/15 18:59 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 18:59 / smm
Beryllium	0.001	mg/L		0.001		E200.8	09/25/15 18:59 / smm
Boron	ND	mg/L	D	0.2		E200.7	09/29/15 20:07 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 18:59 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 18:59 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 18:59 / smm
Iron	31.1	mg/L		0.03		E200.8	09/25/15 18:59 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 18:59 / smm
Manganese	7.10	mg/L		0.01		E200.8	09/25/15 18:59 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 18:59 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 18:59 / smm
Nickel	0.95	mg/L		0.05		E200.8	09/25/15 18:59 / smm
Selenium	0.002	mg/L		0.001		E200.8	09/25/15 18:59 / smm
Uranium	5.42	mg/L		0.0003		E200.8	09/25/15 18:59 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 18:59 / smm
Zinc	0.04	mg/L		0.01		E200.8	09/25/15 18:59 / smm
METALS - TOTAL							
Iron	32.5	mg/L		0.03		E200.7	09/28/15 21:05 / sf
Manganese	7.09	mg/L		0.01		E200.7	10/01/15 21:49 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-002
Client Sample ID: MW-1A

Report Date: 10/07/15
Collection Date: 09/21/15 11:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	5230	pCi/L		23.8		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	1020	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	23.8	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	326	pCi/L		29.4		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	34.9	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	29.4	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	45	pCi/L		0.15		E903.0	10/05/15 12:21 / dmf
Radium 226 precision (±)	8.6	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 226 MDC	0.15	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 228	56.8	pCi/L		1.2		RA-05	09/29/15 12:04 / plj
Radium 228 precision (±)	10.1	pCi/L				RA-05	09/29/15 12:04 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	09/29/15 12:04 / plj
Thorium 230	<0.5	pCi/L	U	0.5		E908.0	09/30/15 09:28 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	09/30/15 09:28 / cng
Thorium 230 MDC	0.5	pCi/L				E908.0	09/30/15 09:28 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.76	%				A1030 E	09/30/15 14:40 / sdw
Anions	106	meq/L				A1030 E	09/30/15 14:40 / sdw
Cations	102	meq/L				A1030 E	09/30/15 14:40 / sdw
Solids, Total Dissolved Calculated	5900	mg/L				A1030 E	09/30/15 14:40 / sdw
TDS Balance (0.80 - 1.20)	0.89	unitless				A1030 E	09/30/15 14:40 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-003
Client Sample ID: PW-10/MW-27

Report Date: 10/07/15
Collection Date: 09/21/15 13:26
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 18:30 / wc
Bicarbonate as HCO3	459	mg/L		5		A2320 B	09/23/15 18:30 / wc
Calcium	307	mg/L		1		E200.7	09/29/15 20:11 / sf
Chloride	75	mg/L		1		E300.0	09/24/15 00:12 / wc
Fluoride	0.3	mg/L		0.1		A4500-F C	09/23/15 14:31 / wc
Magnesium	62	mg/L		1		E200.8	09/25/15 19:04 / smm
Nitrogen, Ammonia as N	0.31	mg/L		0.05		A4500-NH3 G	09/25/15 11:27 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/23/15 12:34 / lr
Potassium	22	mg/L		1		E200.8	09/25/15 19:04 / smm
Silica	20.1	mg/L		0.2		E200.7	09/29/15 20:11 / sf
Sodium	176	mg/L		1		E200.8	09/25/15 19:04 / smm
Sulfate	1040	mg/L	D	2		E300.0	09/24/15 00:12 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	2500	umhos/cm		5		A2510 B	09/23/15 13:25 / lmc
pH	7.03	s.u.	H	0.01		A4500-H B	09/23/15 13:25 / lmc
Solids, Total Dissolved TDS @ 180 C	2060	mg/L		20		A2540 C	09/24/15 09:07 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 19:04 / smm
Arsenic	0.001	mg/L		0.001		E200.8	09/25/15 19:04 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 19:04 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 19:04 / smm
Boron	0.2	mg/L		0.1		E200.7	09/29/15 20:11 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 19:04 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 19:04 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 19:04 / smm
Iron	0.70	mg/L		0.03		E200.8	09/25/15 19:04 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 19:04 / smm
Manganese	0.51	mg/L		0.01		E200.8	09/25/15 19:04 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 19:04 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 19:04 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 19:04 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 19:04 / smm
Uranium	0.0065	mg/L		0.0003		E200.8	09/25/15 19:04 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 19:04 / smm
Zinc	0.04	mg/L		0.01		E200.8	09/25/15 19:04 / smm
METALS - TOTAL							
Iron	4.86	mg/L		0.03		E200.7	09/28/15 21:09 / sf
Manganese	0.53	mg/L		0.01		E200.7	09/28/15 21:09 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-003
Client Sample ID: PW-10 /MW-27

Report Date: 10/07/15
Collection Date: 09/21/15 13:26
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	56.3	pCi/L		6.7		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	14.1	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	6.7	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	36.7	pCi/L		9.2		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	6.6	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	9.2	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	7.0	pCi/L		0.15		E903.0	10/05/15 12:21 / dmf
Radium 226 precision (±)	1.4	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 226 MDC	0.15	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 228	7.6	pCi/L		1.2		RA-05	09/29/15 12:04 / plj
Radium 228 precision (±)	1.8	pCi/L				RA-05	09/29/15 12:04 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	09/29/15 12:04 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	09/30/15 09:28 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	09/30/15 09:28 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	09/30/15 09:28 / cng
DATA QUALITY							
A/C Balance (± 5)	-4.35	%				A1030 E	09/30/15 14:40 / sdw
Anions	31.3	meq/L				A1030 E	09/30/15 14:40 / sdw
Cations	28.7	meq/L				A1030 E	09/30/15 14:40 / sdw
Solids, Total Dissolved Calculated	1900	mg/L				A1030 E	09/30/15 14:40 / sdw
TDS Balance (0.80 - 1.20)	1.07	unitless				A1030 E	09/30/15 14:40 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-004
Client Sample ID: MW-3

Report Date: 10/07/15
Collection Date: 09/21/15 14:55
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 18:38 / wc
Bicarbonate as HCO3	318	mg/L		5		A2320 B	09/23/15 18:38 / wc
Calcium	234	mg/L		1		E200.7	09/29/15 20:15 / sf
Chloride	26	mg/L		1		E300.0	09/24/15 01:05 / wc
Fluoride	0.3	mg/L		0.1		A4500-F C	09/23/15 14:34 / wc
Magnesium	49	mg/L		1		E200.8	09/25/15 19:09 / smm
Nitrogen, Ammonia as N	0.18	mg/L		0.05		A4500-NH3 G	09/25/15 11:29 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/23/15 12:36 / lr
Potassium	18	mg/L		1		E200.8	09/25/15 19:09 / smm
Silica	20.3	mg/L		0.2		E200.7	09/29/15 20:15 / sf
Sodium	116	mg/L		1		E200.8	09/25/15 19:09 / smm
Sulfate	721	mg/L	D	2		E300.0	09/24/15 01:05 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1760	umhos/cm		5		A2510 B	09/23/15 13:34 / lmc
pH	7.29	s.u.	H	0.01		A4500-H B	09/23/15 13:34 / lmc
Solids, Total Dissolved TDS @ 180 C	1400	mg/L		10		A2540 C	09/24/15 09:07 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 19:09 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 19:09 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 19:09 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 19:09 / smm
Boron	0.1	mg/L		0.1		E200.7	09/29/15 20:15 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 19:09 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 19:09 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 19:09 / smm
Iron	0.04	mg/L		0.03		E200.8	09/25/15 19:09 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 19:09 / smm
Manganese	0.17	mg/L		0.01		E200.8	09/25/15 19:09 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 19:09 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 19:09 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 19:09 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 19:09 / smm
Uranium	0.0032	mg/L		0.0003		E200.8	09/25/15 19:09 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 19:09 / smm
Zinc	0.01	mg/L		0.01		E200.8	09/25/15 19:09 / smm
METALS - TOTAL							
Iron	0.11	mg/L		0.03		E200.7	09/28/15 21:14 / sf
Manganese	0.17	mg/L		0.01		E200.7	09/28/15 21:14 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-004
Client Sample ID: MW-3

Report Date: 10/07/15
Collection Date: 09/21/15 14:55
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	25.2	pCi/L		5.2		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	7.4	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	5.2	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	25.8	pCi/L		6.6		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	4.9	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	6.6	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	6.4	pCi/L		0.15		E903.0	10/05/15 12:21 / dmf
Radium 226 precision (±)	1.3	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 226 MDC	0.15	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 228	3.7	pCi/L		1.4		RA-05	09/29/15 13:38 / plj
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/29/15 13:38 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	09/29/15 13:38 / plj
Thorium 230	<0.5	pCi/L	U	0.5		E908.0	09/30/15 09:28 / cng
Thorium 230 precision (±)	0.2	pCi/L				E908.0	09/30/15 09:28 / cng
Thorium 230 MDC	0.5	pCi/L				E908.0	09/30/15 09:28 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	0.48	%				A1030 E	09/30/15 14:41 / sdw
Anions	21.0	meq/L				A1030 E	09/30/15 14:41 / sdw
Cations	21.2	meq/L				A1030 E	09/30/15 14:41 / sdw
Solids, Total Dissolved Calculated	1300	mg/L				A1030 E	09/30/15 14:41 / sdw
TDS Balance (0.80 - 1.20)	1.04	unitless				A1030 E	09/30/15 14:41 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-005
Client Sample ID: MW-10

Report Date: 10/07/15
Collection Date: 09/21/15 16:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 18:47 / wc
Bicarbonate as HCO3	787	mg/L		5		A2320 B	09/23/15 18:47 / wc
Calcium	562	mg/L		1		E200.7	09/29/15 20:19 / sf
Chloride	285	mg/L	D	2		E300.0	09/24/15 01:22 / wc
Fluoride	0.1	mg/L		0.1		A4500-F C	09/23/15 14:37 / wc
Magnesium	280	mg/L		1		E200.8	09/25/15 19:14 / smm
Nitrogen, Ammonia as N	76	mg/L	D	2		A4500-NH3 G	09/25/15 11:31 / ljl
Nitrogen, Nitrate+Nitrite as N	15	mg/L	D	1		E353.2	09/23/15 12:39 / lr
Potassium	44	mg/L		1		E200.8	09/25/15 19:14 / smm
Silica	34.6	mg/L		0.2		E200.7	09/29/15 20:19 / sf
Sodium	366	mg/L		1		E200.8	09/25/15 19:14 / smm
Sulfate	2490	mg/L	D	8		E300.0	09/24/15 01:22 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	5400	umhos/cm		5		A2510 B	09/23/15 13:38 / lmc
pH	6.45	s.u.	H	0.01		A4500-H B	09/23/15 13:38 / lmc
Solids, Total Dissolved TDS @ 180 C	4360	mg/L		40		A2540 C	09/24/15 09:08 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 19:14 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 19:14 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 19:14 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 19:14 / smm
Boron	0.2	mg/L		0.1		E200.7	09/29/15 20:19 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 19:14 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 19:14 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 19:14 / smm
Iron	0.04	mg/L		0.03		E200.8	09/25/15 19:14 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 19:14 / smm
Manganese	11.5	mg/L		0.01		E200.8	09/25/15 19:14 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 19:14 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 19:14 / smm
Nickel	0.33	mg/L		0.05		E200.8	09/25/15 19:14 / smm
Selenium	0.011	mg/L		0.001		E200.8	09/25/15 19:14 / smm
Uranium	2.21	mg/L		0.0003		E200.8	09/25/15 19:14 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 19:14 / smm
Zinc	0.06	mg/L		0.01		E200.8	09/25/15 19:14 / smm
METALS - TOTAL							
Iron	0.09	mg/L		0.03		E200.7	09/28/15 21:18 / sf
Manganese	11.0	mg/L		0.01		E200.7	10/01/15 21:53 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-005
Client Sample ID: MW-10

Report Date: 10/07/15
Collection Date: 09/21/15 16:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	1620	pCi/L		15.5		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	319	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	15.5	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	207	pCi/L		23.1		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	23.8	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	23.1	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	9.4	pCi/L		0.14		E903.0	10/05/15 12:21 / dmf
Radium 226 precision (±)	1.8	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 226 MDC	0.14	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 228	9.9	pCi/L		1.3		RA-05	09/29/15 13:38 / plj
Radium 228 precision (±)	2.1	pCi/L				RA-05	09/29/15 13:38 / plj
Radium 228 MDC	1.3	pCi/L				RA-05	09/29/15 13:38 / plj
Thorium 230	<0.4	pCi/L	U	0.4		E908.0	09/30/15 09:28 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	09/30/15 09:28 / cng
Thorium 230 MDC	0.4	pCi/L				E908.0	09/30/15 09:28 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-0.04	%				A1030 E	09/30/15 14:41 / sdw
Anions	73.6	meq/L				A1030 E	09/30/15 14:41 / sdw
Cations	73.6	meq/L				A1030 E	09/30/15 14:41 / sdw
Solids, Total Dissolved Calculated	4500	mg/L				A1030 E	09/30/15 14:41 / sdw
TDS Balance (0.80 - 1.20)	0.97	unitless				A1030 E	09/30/15 14:41 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-006
Client Sample ID: MW-7

Report Date: 10/07/15
Collection Date: 09/21/15 18:05
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 18:54 / wc
Bicarbonate as HCO3	469	mg/L		5		A2320 B	09/23/15 18:54 / wc
Calcium	417	mg/L		1		E200.7	09/29/15 20:23 / sf
Chloride	48	mg/L		1		E300.0	09/24/15 01:40 / wc
Fluoride	0.2	mg/L		0.1		A4500-F C	09/23/15 14:39 / wc
Magnesium	138	mg/L		1		E200.8	09/25/15 19:20 / smm
Nitrogen, Ammonia as N	68	mg/L	D	2		A4500-NH3 G	09/25/15 11:32 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/23/15 12:41 / lr
Potassium	46	mg/L		1		E200.8	09/25/15 19:20 / smm
Silica	16.6	mg/L		0.2		E200.7	09/29/15 20:23 / sf
Sodium	133	mg/L		1		E200.8	09/25/15 19:20 / smm
Sulfate	1730	mg/L	D	4		E300.0	09/24/15 01:40 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	3380	umhos/cm		5		A2510 B	09/23/15 13:41 / lmc
pH	6.79	s.u.	H	0.01		A4500-H B	09/23/15 13:41 / lmc
Solids, Total Dissolved TDS @ 180 C	2660	mg/L		20		A2540 C	09/24/15 09:08 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 19:20 / smm
Arsenic	0.002	mg/L		0.001		E200.8	09/25/15 19:20 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 19:20 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 19:20 / smm
Boron	0.1	mg/L		0.1		E200.7	09/29/15 20:23 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 19:20 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 19:20 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 19:20 / smm
Iron	1.80	mg/L		0.03		E200.8	09/25/15 19:20 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 19:20 / smm
Manganese	6.06	mg/L		0.01		E200.8	09/25/15 19:20 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 19:20 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 19:20 / smm
Nickel	0.05	mg/L		0.05		E200.8	09/25/15 19:20 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 19:20 / smm
Uranium	1.01	mg/L		0.0003		E200.8	09/25/15 19:20 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 19:20 / smm
Zinc	ND	mg/L		0.01		E200.8	09/25/15 19:20 / smm
METALS - TOTAL							
Iron	2.71	mg/L		0.03		E200.7	09/28/15 21:22 / sf
Manganese	5.77	mg/L		0.01		E200.7	10/01/15 21:57 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-006
Client Sample ID: MW-7

Report Date: 10/07/15
Collection Date: 09/21/15 18:05
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	945	pCi/L		6.8		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	186	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	6.8	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	93.5	pCi/L		13.2		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	10.9	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	13.2	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	6.6	pCi/L		0.14		E903.0	10/05/15 12:21 / dmf
Radium 226 precision (±)	1.3	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 226 MDC	0.14	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 228	8.2	pCi/L		1.4		RA-05	09/29/15 13:38 / plj
Radium 228 precision (±)	1.8	pCi/L				RA-05	09/29/15 13:38 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	09/29/15 13:38 / plj
Thorium 230	<0.6	pCi/L	U	0.6		E908.0	09/30/15 09:28 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	09/30/15 09:28 / cng
Thorium 230 MDC	0.6	pCi/L				E908.0	09/30/15 09:28 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.33	%				A1030 E	09/30/15 14:41 / sdw
Anions	45.2	meq/L				A1030 E	09/30/15 14:41 / sdw
Cations	44.0	meq/L				A1030 E	09/30/15 14:41 / sdw
Solids, Total Dissolved Calculated	2800	mg/L				A1030 E	09/30/15 14:41 / sdw
TDS Balance (0.80 - 1.20)	0.96	unitless				A1030 E	09/30/15 14:41 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-007
Client Sample ID: MW-17

Report Date: 10/07/15
Collection Date: 09/21/15 19:15
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 19:02 / wc
Bicarbonate as HCO3	284	mg/L		5		A2320 B	09/23/15 19:02 / wc
Calcium	118	mg/L		1		E200.7	09/29/15 20:27 / sf
Chloride	14	mg/L		1		E300.0	09/24/15 01:57 / wc
Fluoride	0.4	mg/L		0.1		A4500-F C	09/23/15 14:42 / wc
Magnesium	32	mg/L		1		E200.8	09/25/15 19:25 / smm
Nitrogen, Ammonia as N	0.60	mg/L		0.05		A4500-NH3 G	09/25/15 11:34 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/23/15 12:44 / lr
Potassium	15	mg/L		1		E200.8	09/25/15 19:25 / smm
Silica	15.5	mg/L		0.2		E200.7	09/29/15 20:27 / sf
Sodium	197	mg/L		1		E200.8	09/25/15 19:25 / smm
Sulfate	563	mg/L	D	2		E300.0	09/24/15 01:57 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1510	umhos/cm		5		A2510 B	09/23/15 13:46 / lmc
pH	7.60	s.u.	H	0.01		A4500-H B	09/23/15 13:46 / lmc
Solids, Total Dissolved TDS @ 180 C	1100	mg/L		10		A2540 C	09/24/15 09:08 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 19:25 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 19:25 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 19:25 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 19:25 / smm
Boron	0.3	mg/L		0.1		E200.7	09/29/15 20:27 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 19:25 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 19:25 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 19:25 / smm
Iron	ND	mg/L		0.03		E200.8	09/25/15 19:25 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 19:25 / smm
Manganese	0.18	mg/L		0.01		E200.8	09/25/15 19:25 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 19:25 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 19:25 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 19:25 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 19:25 / smm
Uranium	0.0024	mg/L		0.0003		E200.8	09/25/15 19:25 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 19:25 / smm
Zinc	ND	mg/L		0.01		E200.8	09/25/15 19:25 / smm
METALS - TOTAL							
Iron	0.32	mg/L		0.03		E200.7	09/28/15 21:26 / sf
Manganese	0.17	mg/L		0.01		E200.7	09/28/15 21:26 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-007
Client Sample ID: MW-17

Report Date: 10/07/15
Collection Date: 09/21/15 19:15
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	6.6	pCi/L		4.6		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	4.2	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	4.6	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	15.0	pCi/L		5.2		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	3.6	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	5.2	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	1.3	pCi/L		0.16		E903.0	10/05/15 12:21 / dmf
Radium 226 precision (±)	0.34	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 226 MDC	0.16	pCi/L				E903.0	10/05/15 12:21 / dmf
Radium 228	1.8	pCi/L		1.5		RA-05	09/29/15 13:38 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	09/29/15 13:38 / plj
Radium 228 MDC	1.5	pCi/L				RA-05	09/29/15 13:38 / plj
Thorium 230	<0.6	pCi/L	U	0.6		E908.0	09/30/15 09:28 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	09/30/15 09:28 / cng
Thorium 230 MDC	0.6	pCi/L				E908.0	09/30/15 09:28 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	2.07	%				A1030 E	09/30/15 14:41 / sdw
Anions	16.8	meq/L				A1030 E	09/30/15 14:41 / sdw
Cations	17.5	meq/L				A1030 E	09/30/15 14:41 / sdw
Solids, Total Dissolved Calculated	1100	mg/L				A1030 E	09/30/15 14:41 / sdw
TDS Balance (0.80 - 1.20)	1.00	unitless				A1030 E	09/30/15 14:41 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-008
Client Sample ID: TP2-3

Report Date: 10/07/15
Collection Date: 09/22/15 12:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 19:10 / wc
Bicarbonate as HCO3	192	mg/L		5		A2320 B	09/23/15 19:10 / wc
Calcium	300	mg/L		1		E200.7	09/29/15 20:31 / sf
Chloride	50	mg/L		1		E300.0	09/24/15 02:14 / wc
Fluoride	0.3	mg/L		0.1		A4500-F C	09/23/15 14:44 / wc
Magnesium	36	mg/L		1		E200.8	09/25/15 19:50 / smm
Nitrogen, Ammonia as N	8.8	mg/L	D	0.2		A4500-NH3 G	09/25/15 11:36 / ljl
Nitrogen, Nitrate+Nitrite as N	0.9	mg/L		0.1		E353.2	09/23/15 12:46 / lr
Potassium	17	mg/L		1		E200.8	09/25/15 19:50 / smm
Silica	15.7	mg/L		0.2		E200.7	09/29/15 20:31 / sf
Sodium	75	mg/L		1		E200.8	09/25/15 19:50 / smm
Sulfate	836	mg/L	D	2		E300.0	09/24/15 02:14 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1850	umhos/cm		5		A2510 B	09/23/15 13:50 / lmc
pH	7.27	s.u.	H	0.01		A4500-H B	09/23/15 13:50 / lmc
Solids, Total Dissolved TDS @ 180 C	1490	mg/L		20		A2540 C	09/24/15 10:25 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 19:50 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 19:50 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 19:50 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 19:50 / smm
Boron	ND	mg/L		0.1		E200.7	09/29/15 20:31 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 19:50 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 19:50 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 19:50 / smm
Iron	ND	mg/L		0.03		E200.8	09/25/15 19:50 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 19:50 / smm
Manganese	0.04	mg/L		0.01		E200.8	09/25/15 19:50 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 19:50 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 19:50 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 19:50 / smm
Selenium	0.033	mg/L		0.001		E200.8	09/25/15 19:50 / smm
Uranium	0.843	mg/L		0.0003		E200.8	09/25/15 19:50 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 19:50 / smm
Zinc	0.01	mg/L		0.01		E200.8	09/25/15 19:50 / smm
METALS - TOTAL							
Iron	ND	mg/L		0.03		E200.7	09/28/15 21:30 / sf
Manganese	0.06	mg/L		0.01		E200.7	09/28/15 21:30 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-008
Client Sample ID: TP2-3

Report Date: 10/07/15
Collection Date: 09/22/15 12:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	557	pCi/L		6.3		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	109	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	6.3	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	65.2	pCi/L		7.5		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	7.4	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	7.5	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	3.4	pCi/L		0.16		E903.0	10/05/15 13:54 / dmf
Radium 226 precision (±)	0.73	pCi/L				E903.0	10/05/15 13:54 / dmf
Radium 226 MDC	0.16	pCi/L				E903.0	10/05/15 13:54 / dmf
Radium 228	3.4	pCi/L		1.5		RA-05	09/29/15 13:38 / plj
Radium 228 precision (±)	1.0	pCi/L				RA-05	09/29/15 13:38 / plj
Radium 228 MDC	1.5	pCi/L				RA-05	09/29/15 13:38 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	09/30/15 09:28 / cng
Thorium 230 precision (±)	0.08	pCi/L				E908.0	09/30/15 09:28 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	09/30/15 09:28 / cng
DATA QUALITY							
A/C Balance (± 5)	0.35	%				A1030 E	09/30/15 14:42 / sdw
Anions	22.1	meq/L				A1030 E	09/30/15 14:42 / sdw
Cations	22.2	meq/L				A1030 E	09/30/15 14:42 / sdw
Solids, Total Dissolved Calculated	1400	mg/L				A1030 E	09/30/15 14:42 / sdw
TDS Balance (0.80 - 1.20)	1.04	unitless				A1030 E	09/30/15 14:42 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-009
Client Sample ID: PW-14/MW-30

Report Date: 10/07/15
Collection Date: 09/22/15 10:15
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 19:26 / wc
Bicarbonate as HCO3	427	mg/L		5		A2320 B	09/23/15 19:26 / wc
Calcium	444	mg/L		1		E200.7	09/29/15 20:58 / sf
Chloride	330	mg/L	D	2		E300.0	09/24/15 02:32 / wc
Fluoride	0.2	mg/L		0.1		A4500-F C	09/23/15 14:55 / wc
Magnesium	37	mg/L		1		E200.8	09/25/15 20:11 / smm
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	09/25/15 14:39 / ljl
Nitrogen, Nitrate+Nitrite as N	58	mg/L	D	5		E353.2	09/23/15 12:49 / lr
Potassium	13	mg/L		1		E200.8	09/25/15 20:11 / smm
Silica	31.9	mg/L		0.2		E200.7	09/29/15 20:58 / sf
Sodium	518	mg/L		1		E200.8	09/25/15 20:11 / smm
Sulfate	1410	mg/L	D	8		E300.0	09/24/15 02:32 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	4070	umhos/cm		5		A2510 B	09/23/15 13:54 / lmc
pH	7.16	s.u.	H	0.01		A4500-H B	09/23/15 13:54 / lmc
Solids, Total Dissolved TDS @ 180 C	3230	mg/L		40		A2540 C	09/24/15 09:09 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 20:11 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 20:11 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 20:11 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 20:11 / smm
Boron	0.3	mg/L		0.1		E200.7	09/29/15 20:58 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 20:11 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 20:11 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 20:11 / smm
Iron	ND	mg/L		0.03		E200.7	09/29/15 20:58 / sf
Lead	0.004	mg/L		0.001		E200.8	09/25/15 20:11 / smm
Manganese	0.08	mg/L		0.01		E200.7	09/29/15 20:58 / sf
Mercury	ND	mg/L		0.001		E200.8	09/25/15 20:11 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 20:11 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 20:11 / smm
Selenium	0.090	mg/L		0.001		E200.8	09/25/15 20:11 / smm
Uranium	0.748	mg/L		0.0003		E200.8	09/25/15 20:11 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 20:11 / smm
Zinc	0.01	mg/L		0.01		E200.8	09/25/15 20:11 / smm
METALS - TOTAL							
Iron	0.07	mg/L		0.03		E200.7	09/28/15 21:34 / sf
Manganese	0.07	mg/L		0.01		E200.7	09/28/15 21:34 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-009
Client Sample ID: PW-14 /MW-30

Report Date: 10/07/15
Collection Date: 09/22/15 10:15
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	534	pCi/L		11.9		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	107	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	11.9	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	53.6	pCi/L		15.5		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	7.9	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	15.5	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	2.4	pCi/L		0.14		E903.0	10/05/15 13:54 / dmf
Radium 226 precision (±)	0.53	pCi/L				E903.0	10/05/15 13:54 / dmf
Radium 226 MDC	0.14	pCi/L				E903.0	10/05/15 13:54 / dmf
Radium 228	4.2	pCi/L		1.4		RA-05	09/29/15 13:38 / plj
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/29/15 13:38 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	09/29/15 13:38 / plj
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	09/30/15 13:50 / cng
Thorium 230 precision (±)	0.2	pCi/L				E908.0	09/30/15 13:50 / cng
Thorium 230 MDC	0.3	pCi/L				E908.0	09/30/15 13:50 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.27	%				A1030 E	09/30/15 14:42 / sdw
Anions	49.3	meq/L				A1030 E	09/30/15 14:42 / sdw
Cations	48.0	meq/L				A1030 E	09/30/15 14:42 / sdw
Solids, Total Dissolved Calculated	3200	mg/L				A1030 E	09/30/15 14:42 / sdw
TDS Balance (0.80 - 1.20)	1.00	unitless				A1030 E	09/30/15 14:42 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-010
Client Sample ID: MW-5

Report Date: 10/07/15
Collection Date: 09/22/15 11:15
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/23/15 19:33 / wc
Bicarbonate as HCO3	238	mg/L		5		A2320 B	09/23/15 19:33 / wc
Calcium	619	mg/L		1		E200.7	09/29/15 21:02 / sf
Chloride	324	mg/L	D	2		E300.0	09/24/15 02:49 / wc
Fluoride	0.1	mg/L		0.1		A4500-F C	09/23/15 15:03 / wc
Magnesium	237	mg/L		1		E200.8	09/25/15 20:16 / smm
Nitrogen, Ammonia as N	55	mg/L	D	2		A4500-NH3 G	09/25/15 11:42 / ljl
Nitrogen, Nitrate+Nitrite as N	94	mg/L	D	5		E353.2	09/23/15 12:56 / lr
Potassium	47	mg/L		1		E200.8	09/25/15 20:16 / smm
Silica	46.9	mg/L		0.2		E200.7	09/29/15 21:02 / sf
Sodium	381	mg/L		1		E200.8	09/25/15 20:16 / smm
Sulfate	2610	mg/L	D	8		E300.0	09/24/15 02:49 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	5670	umhos/cm		5		A2510 B	09/23/15 13:59 / lmc
pH	6.15	s.u.	H	0.01		A4500-H B	09/23/15 13:59 / lmc
Solids, Total Dissolved TDS @ 180 C	4890	mg/L		40		A2540 C	09/24/15 09:10 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 20:16 / smm
Arsenic	0.004	mg/L		0.001		E200.8	09/25/15 20:16 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 20:16 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 20:16 / smm
Boron	0.2	mg/L		0.1		E200.7	09/29/15 21:02 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 20:16 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 20:16 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 20:16 / smm
Iron	ND	mg/L		0.03		E200.8	09/25/15 20:16 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 20:16 / smm
Manganese	8.63	mg/L		0.01		E200.8	09/25/15 20:16 / smm
Mercury	0.001	mg/L		0.001		E200.8	09/25/15 20:16 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 20:16 / smm
Nickel	0.25	mg/L		0.05		E200.8	09/25/15 20:16 / smm
Selenium	0.038	mg/L		0.001		E200.8	09/25/15 20:16 / smm
Uranium	0.606	mg/L		0.0003		E200.8	09/25/15 20:16 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 20:16 / smm
Zinc	0.02	mg/L		0.01		E200.8	09/25/15 20:16 / smm
METALS - TOTAL							
Iron	1.07	mg/L		0.03		E200.7	09/28/15 21:39 / sf
Manganese	11.7	mg/L		0.01		E200.7	09/28/15 21:39 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WY DEQ 104
Lab ID: C15090761-010
Client Sample ID: MW-5

Report Date: 10/07/15
Collection Date: 09/22/15 11:15
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	656	pCi/L		17.8		E900.0	09/29/15 00:27 / trs
Gross Alpha precision (±)	133	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Alpha MDC	17.8	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta	91.6	pCi/L		24.9		E900.0	09/29/15 00:27 / trs
Gross Beta precision (±)	14.0	pCi/L				E900.0	09/29/15 00:27 / trs
Gross Beta MDC	24.9	pCi/L				E900.0	09/29/15 00:27 / trs
Radium 226	7.5	pCi/L		0.14		E903.0	10/05/15 13:54 / dmf
Radium 226 precision (±)	1.5	pCi/L				E903.0	10/05/15 13:54 / dmf
Radium 226 MDC	0.14	pCi/L				E903.0	10/05/15 13:54 / dmf
Radium 228	4.2	pCi/L		1.3		RA-05	09/29/15 13:38 / plj
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/29/15 13:38 / plj
Radium 228 MDC	1.3	pCi/L				RA-05	09/29/15 13:38 / plj
Thorium 230	<0.5	pCi/L	U	0.5		E908.0	09/30/15 13:50 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	09/30/15 13:50 / cng
Thorium 230 MDC	0.5	pCi/L				E908.0	09/30/15 13:50 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.68	%				A1030 E	09/30/15 14:42 / sdw
Anions	74.6	meq/L				A1030 E	09/30/15 14:42 / sdw
Cations	72.1	meq/L				A1030 E	09/30/15 14:42 / sdw
Solids, Total Dissolved Calculated	4800	mg/L				A1030 E	09/30/15 14:42 / sdw
TDS Balance (0.80 - 1.20)	1.01	unitless				A1030 E	09/30/15 14:42 / sdw

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.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R204516
Lab ID: MBLK	3	Method Blank				Run: MANTECH_150923B				09/23/15 17:02
Alkalinity, Total as CaCO3		ND	mg/L	0.6						
Carbonate as CO3		ND	mg/L	1						
Bicarbonate as HCO3		ND	mg/L	1						
Lab ID: LCS_150317		Laboratory Control Sample				Run: MANTECH_150923B				09/23/15 17:16
Alkalinity, Total as CaCO3		246	mg/L	5.0	98	90	110			
Lab ID: C15090757-001AMS		Sample Matrix Spike				Run: MANTECH_150923B				09/23/15 17:54
Alkalinity, Total as CaCO3		479	mg/L	5.2	100	80	120			
Lab ID: C15090761-008ADUP	3	Sample Duplicate				Run: MANTECH_150923B				09/23/15 19:17
Alkalinity, Total as CaCO3		158	mg/L	5.0				0.1	10	
Carbonate as CO3		ND	mg/L	5.0					10	
Bicarbonate as HCO3		192	mg/L	5.0				0.1	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B										Batch: R204460
Lab ID: SC 2ND 1413	Laboratory Control Sample					Run: PHSC_101-C_150923A				09/23/15 08:50
Conductivity @ 25 C		1400	umhos/cm	5.0	99	90	110			
Lab ID: MBLK	Method Blank					Run: PHSC_101-C_150923A				09/23/15 12:36
Conductivity @ 25 C		1	umhos/cm	1						
Lab ID: C15090761-003ADUP	Sample Duplicate					Run: PHSC_101-C_150923A				09/23/15 13:29
Conductivity @ 25 C		2500	umhos/cm	5.0				0.2	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS150924A
Lab ID: MB-1_150924A		Method Blank				Run: BAL-18_150924A				09/24/15 09:04
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	9						
Lab ID: LCS-2_150924A		Laboratory Control Sample				Run: BAL-18_150924A				09/24/15 09:04
Solids, Total Dissolved TDS @ 180 C		1140	mg/L	11	102	90	110			
Lab ID: C15090761-008A DUP		Sample Duplicate				Run: BAL-18_150924A				09/24/15 09:09
Solids, Total Dissolved TDS @ 180 C		1490	mg/L	20				0.3	5	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C									Analytical Run: MANTECH_150923A	
Lab ID: CCV-8644		Continuing Calibration Verification Standard							09/23/15 14:13	
Fluoride		1.92	mg/L	0.10	96	90	110			
Lab ID: CCV-8644		Continuing Calibration Verification Standard							09/23/15 14:47	
Fluoride		1.92	mg/L	0.10	96	90	110			
Method: A4500-F C									Batch: R204515	
Lab ID: MBLK		Method Blank				Run: MANTECH_150923A			09/23/15 14:08	
Fluoride		ND	mg/L	0.01						
Lab ID: LCS-8595		Laboratory Control Sample				Run: MANTECH_150923A			09/23/15 14:10	
Fluoride		1.96	mg/L	0.10	98	90	110			
Lab ID: C15090756-001AMS		Sample Matrix Spike				Run: MANTECH_150923A			09/23/15 14:18	
Fluoride		2.00	mg/L	0.10	93	80	120			
Lab ID: C15090756-001AMSD		Sample Matrix Spike Duplicate				Run: MANTECH_150923A			09/23/15 14:21	
Fluoride		2.00	mg/L	0.10	93	80	120	0.0	10	
Lab ID: C15090761-009AMS		Sample Matrix Spike				Run: MANTECH_150923A			09/23/15 14:58	
Fluoride		2.08	mg/L	0.10	93	80	120			
Lab ID: C15090761-009AMSD		Sample Matrix Spike Duplicate				Run: MANTECH_150923A			09/23/15 15:01	
Fluoride		2.08	mg/L	0.10	93	80	120	0.0	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B									Analytical Run: PHSC_101-C_150923A	
Lab ID: pH 6.86	Initial Calibration Verification Standard								09/23/15 08:34	
pH		6.83	s.u.	0.010	100	98	102			
Method: A4500-H B									Batch: R204460	
Lab ID: C15090761-003ADUP	Sample Duplicate					Run: PHSC_101-C_150923A			09/23/15 13:29	
pH		7.04	s.u.	0.010				0.1	3	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NH3 G									Analytical Run: TECHNICON_150925A	
Lab ID: CCV-7		Continuing Calibration Verification Standard								09/25/15 11:21
Nitrogen, Ammonia as N		0.982	mg/L	0.050	98	90	110			
Lab ID: CCV-18		Continuing Calibration Verification Standard								09/25/15 11:39
Nitrogen, Ammonia as N		0.985	mg/L	0.050	99	90	110			
Lab ID: CCV-121		Continuing Calibration Verification Standard								09/25/15 14:31
Nitrogen, Ammonia as N		0.995	mg/L	0.050	100	90	110			
Method: A4500-NH3 G										Batch: R204636
Lab ID: MBLK-1		Method Blank				Run: TECHNICON_150925A				09/25/15 11:11
Nitrogen, Ammonia as N		ND	mg/L	0.01						
Lab ID: LFB-3		Laboratory Fortified Blank				Run: TECHNICON_150925A				09/25/15 11:14
Nitrogen, Ammonia as N		1.98	mg/L	0.050	101	90	110			
Lab ID: C15090609-003CMS		Sample Matrix Spike				Run: TECHNICON_150925A				09/25/15 11:17
Nitrogen, Ammonia as N		3.80	mg/L	0.10	95	90	110			
Lab ID: C15090609-003CMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150925A				09/25/15 11:19
Nitrogen, Ammonia as N		3.79	mg/L	0.10	95	90	110	0.3	10	
Lab ID: C15090761-010EMS		Sample Matrix Spike				Run: TECHNICON_150925A				09/25/15 11:44
Nitrogen, Ammonia as N		154	mg/L	2.5	102	90	110			
Lab ID: C15090761-010EMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150925A				09/25/15 11:46
Nitrogen, Ammonia as N		154	mg/L	2.5	102	90	110	0.0	10	
Lab ID: C15090609-003CMS		Sample Matrix Spike				Run: TECHNICON_150925A				09/25/15 14:36
Nitrogen, Ammonia as N		1.95	mg/L	0.050	99	90	110			
Lab ID: C15090609-003CMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150925A				09/25/15 14:37
Nitrogen, Ammonia as N		1.96	mg/L	0.050	99	90	110	0.5	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP4-C_150928A	
Lab ID: ICV	2	Initial Calibration Verification Standard							09/28/15 11:47	
Iron		4.98	mg/L	0.030	100	95	105			
Manganese		4.82	mg/L	0.010	96	95	105			
Lab ID: ICSA	2	Interference Check Sample A							09/28/15 12:10	
Iron		181	mg/L	0.030	90	80	120			
Manganese		-0.0228	mg/L	0.010						
Lab ID: ICSAB	2	Interference Check Sample AB							09/28/15 12:14	
Iron		181	mg/L	0.030	91	80	120			
Manganese		0.424	mg/L	0.010	85	80	120			
Method: E200.7									Batch: 45813	
Lab ID: MB-45813	2	Method Blank				Run: ICP4-C_150928A			09/28/15 20:38	
Iron		0.007	mg/L	0.003						
Manganese		ND	mg/L	0.002						
Lab ID: LCS3-45813	2	Laboratory Control Sample				Run: ICP4-C_150928A			09/28/15 20:42	
Iron		2.56	mg/L	0.030	102	85	115			
Manganese		2.53	mg/L	0.0012	101	85	115			
Lab ID: C15090761-010CMS3	2	Sample Matrix Spike				Run: ICP4-C_150928A			09/28/15 22:30	
Iron		3.65	mg/L	0.030	103	70	130			
Manganese		13.9	mg/L	0.0058		70	130			A
Lab ID: C15090761-010CMSD	2	Sample Matrix Spike Duplicate				Run: ICP4-C_150928A			09/28/15 22:35	
Iron		3.61	mg/L	0.030	102	70	130	0.9	20	
Manganese		13.6	mg/L	0.0058		70	130	1.9	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP4-C_150929A	
Lab ID: ICV	5	Initial Calibration Verification Standard							09/29/15 11:42	
Boron		1.01	mg/L	0.050	101	95	105			
Calcium		49.0	mg/L	1.0	98	95	105			
Iron		4.92	mg/L	0.030	98	95	105			
Manganese		4.80	mg/L	0.010	96	95	105			
Silicon		9.86	mg/L	0.10	99	95	105			
Lab ID: ICSA	5	Interference Check Sample A							09/29/15 12:06	
Boron		0.00843	mg/L	0.050						
Calcium		454	mg/L	1.0	91	80	120			
Iron		174	mg/L	0.030	87	80	120			
Manganese		-0.0207	mg/L	0.010						
Silicon		-0.0216	mg/L	0.10						
Lab ID: ICSAB	5	Interference Check Sample AB							09/29/15 12:10	
Boron		0.0126	mg/L	0.050						
Calcium		456	mg/L	1.0	91	80	120			
Iron		174	mg/L	0.030	87	80	120			
Manganese		0.425	mg/L	0.010	85	80	120			
Silicon		-0.0123	mg/L	0.10						
Method: E200.7									Batch: R204761	
Lab ID: MB-150929A	5	Method Blank				Run: ICP4-C_150929A			09/29/15 12:30	
Boron		ND	mg/L	0.006						
Calcium		0.02	mg/L	0.003						
Iron		ND	mg/L	0.004						
Manganese		ND	mg/L	0.0003						
Silicon		ND	mg/L	0.02						
Lab ID: LFB-150929A	5	Laboratory Fortified Blank				Run: ICP4-C_150929A			09/29/15 12:34	
Boron		0.957	mg/L	0.050	96	85	115			
Calcium		47.2	mg/L	1.0	94	85	115			
Iron		0.898	mg/L	0.030	90	85	115			
Manganese		0.929	mg/L	0.010	93	85	115			
Silicon		0.456	mg/L	0.10	101	85	115			
Lab ID: C15090761-008BMS2	5	Sample Matrix Spike				Run: ICP4-C_150929A			09/29/15 20:35	
Boron		1.97	mg/L	0.050	93	70	130			
Calcium		383	mg/L	1.0	82	70	130			
Iron		1.88	mg/L	0.030	91	70	130			
Manganese		1.89	mg/L	0.0031	91	70	130			
Silicon		8.02	mg/L	0.10		70	130			A
Lab ID: C15090761-008BMSD	5	Sample Matrix Spike Duplicate				Run: ICP4-C_150929A			09/29/15 20:39	
Boron		1.97	mg/L	0.050	93	70	130	0.0	20	
Calcium		383	mg/L	1.0	82	70	130	0.1	20	
Iron		1.89	mg/L	0.030	92	70	130	0.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: R204761
Lab ID: C15090761-008BMSD	5	Sample Matrix Spike Duplicate				Run: ICP4-C_150929A				09/29/15 20:39
Manganese		1.90	mg/L	0.0031	91	70	130	0.4	20	
Silicon		8.10	mg/L	0.10		70	130	0.9	20	A
Method: E200.7										Analytical Run: ICP4-C_151001A
Lab ID: ICV		Initial Calibration Verification Standard								10/01/15 13:30
Manganese		4.79	mg/L	0.010	96	95	105			
Lab ID: ICSA		Interference Check Sample A								10/01/15 13:53
Manganese		-0.0225	mg/L	0.010						
Lab ID: ICSAB		Interference Check Sample AB								10/01/15 13:58
Manganese		0.441	mg/L	0.010	88	80	120			
Method: E200.7										Batch: 45813
Lab ID: MB-45813		Method Blank				Run: ICP4-C_151001A				10/01/15 21:22
Manganese		ND	mg/L	0.002						
Lab ID: LCS3-45813		Laboratory Control Sample				Run: ICP4-C_151001A				10/01/15 21:42
Manganese		2.53	mg/L	0.0012	101	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS4-C_150925A	
Lab ID: ICV	20	Initial Calibration Verification Standard							09/25/15 12:49	
Aluminum		0.0494	mg/L	0.0010	99	90	110			
Arsenic		0.0495	mg/L	0.0010	99	90	110			
Barium		0.0480	mg/L	0.0010	96	90	110			
Beryllium		0.0496	mg/L	0.0010	99	90	110			
Cadmium		0.0491	mg/L	0.0010	98	90	110			
Chromium		0.0501	mg/L	0.0010	100	90	110			
Copper		0.0496	mg/L	0.0010	99	90	110			
Iron		0.977	mg/L	0.0010	98	90	110			
Lead		0.0490	mg/L	0.0010	98	90	110			
Magnesium		9.90	mg/L	0.0027	99	90	110			
Manganese		0.0482	mg/L	0.0010	97	90	110			
Mercury		0.00475	mg/L	0.0010	95	90	110			
Molybdenum		0.0480	mg/L	0.0010	96	90	110			
Nickel		0.0498	mg/L	0.0010	100	90	110			
Potassium		10.1	mg/L	0.0041	101	90	110			
Selenium		0.0499	mg/L	0.0010	100	90	110			
Sodium		9.63	mg/L	0.0043	96	90	110			
Uranium		0.0478	mg/L	0.00030	96	90	110			
Vanadium		0.0499	mg/L	0.0010	100	90	110			
Zinc		0.0513	mg/L	0.0010	103	90	110			
Method: E200.8									Batch: R204629	
Lab ID: LRB	20	Method Blank				Run: ICPMS4-C_150925A			09/25/15 13:35	
Aluminum		0.002	mg/L	0.0001						
Arsenic		ND	mg/L	5E-05						
Barium		ND	mg/L	9E-06						
Beryllium		ND	mg/L	3E-05						
Cadmium		ND	mg/L	7E-06						
Chromium		0.0001	mg/L	8E-05						
Copper		ND	mg/L	2E-05						
Iron		ND	mg/L	0.0003						
Lead		ND	mg/L	1.0E-05						
Magnesium		0.002	mg/L	0.0009						
Manganese		ND	mg/L	4E-05						
Mercury		4E-05	mg/L	3E-05						
Molybdenum		ND	mg/L	4E-05						
Nickel		ND	mg/L	0.0002						
Potassium		0.07	mg/L	0.02						
Selenium		ND	mg/L	3E-05						
Sodium		ND	mg/L	0.007						
Uranium		8E-06	mg/L	4E-06						
Vanadium		7E-05	mg/L	1E-05						
Zinc		0.0002	mg/L	8E-05						

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R204629
Lab ID: LFB	20	Laboratory Fortified Blank				Run: ICPMS4-C_150925A				09/25/15 13:41
Aluminum		0.0516	mg/L	0.0010	100	85	115			
Arsenic		0.0527	mg/L	0.0010	105	85	115			
Barium		0.0507	mg/L	0.0010	101	85	115			
Beryllium		0.0518	mg/L	0.0010	104	85	115			
Cadmium		0.0518	mg/L	0.0010	104	85	115			
Chromium		0.0525	mg/L	0.0010	105	85	115			
Copper		0.0522	mg/L	0.0010	104	85	115			
Iron		1.28	mg/L	0.0010	102	85	115			
Lead		0.0514	mg/L	0.0010	103	85	115			
Magnesium		12.1	mg/L	0.0027	97	85	115			
Manganese		0.0498	mg/L	0.0010	100	85	115			
Mercury		0.0102	mg/L	0.0010	102	85	115			
Molybdenum		0.0507	mg/L	0.0010	101	85	115			
Nickel		0.0522	mg/L	0.0010	104	85	115			
Potassium		12.4	mg/L	0.0041	98	85	115			
Selenium		0.0558	mg/L	0.0010	112	85	115			
Sodium		12.0	mg/L	0.0043	96	85	115			
Uranium		0.0492	mg/L	0.00030	98	85	115			
Vanadium		0.0526	mg/L	0.0010	105	85	115			
Zinc		0.0532	mg/L	0.0010	106	85	115			
Lab ID: C15090761-008BMS4	20	Sample Matrix Spike				Run: ICPMS4-C_150925A				09/25/15 19:55
Aluminum		0.0506	mg/L	0.030	101	70	130			
Arsenic		0.0574	mg/L	0.0010	114	70	130			
Barium		0.0683	mg/L	0.050	111	70	130			
Beryllium		0.0490	mg/L	0.0010	98	70	130			
Cadmium		0.0533	mg/L	0.0010	107	70	130			
Chromium		0.0559	mg/L	0.0050	111	70	130			
Copper		0.0584	mg/L	0.0050	107	70	130			
Iron		1.35	mg/L	0.030	107	70	130			
Lead		0.0555	mg/L	0.0010	111	70	130			
Magnesium		47.0	mg/L	1.0	88	70	130			
Manganese		0.101	mg/L	0.0010	113	70	130			
Mercury		0.0113	mg/L	0.00010	112	70	130			
Molybdenum		0.0555	mg/L	0.0010	107	70	130			
Nickel		0.0627	mg/L	0.0050	106	70	130			
Potassium		29.2	mg/L	1.0	100	70	130			
Selenium		0.0973	mg/L	0.0010	128	70	130			
Sodium		84.0	mg/L	1.0		70	130			A
Uranium		0.919	mg/L	0.00030		70	130			A
Vanadium		0.0558	mg/L	0.010	111	70	130			
Zinc		0.0669	mg/L	0.010	108	70	130			
Lab ID: C15090761-008BMSD	20	Sample Matrix Spike Duplicate				Run: ICPMS4-C_150925A				09/25/15 20:01
Aluminum		0.0498	mg/L	0.030	100	70	130	1.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R204629	
Lab ID: C15090761-008BMSD	20	Sample Matrix Spike Duplicate				Run: ICPMS4-C_150925A			09/25/15 20:01	
Arsenic		0.0572	mg/L	0.0010	114	70	130	0.4	20	
Barium		0.0678	mg/L	0.050	110	70	130	0.7	20	
Beryllium		0.0479	mg/L	0.0010	96	70	130	2.2	20	
Cadmium		0.0528	mg/L	0.0010	106	70	130	1.0	20	
Chromium		0.0548	mg/L	0.0050	109	70	130	1.9	20	
Copper		0.0574	mg/L	0.0050	105	70	130	1.7	20	
Iron		1.30	mg/L	0.030	103	70	130	4.0	20	
Lead		0.0552	mg/L	0.0010	110	70	130	0.5	20	
Magnesium		46.4	mg/L	1.0	84	70	130	1.2	20	
Manganese		0.101	mg/L	0.0010	113	70	130	0.1	20	
Mercury		0.0113	mg/L	0.00010	112	70	130	0.2	20	
Molybdenum		0.0553	mg/L	0.0010	107	70	130	0.4	20	
Nickel		0.0615	mg/L	0.0050	104	70	130	1.9	20	
Potassium		29.1	mg/L	1.0	99	70	130	0.3	20	
Selenium		0.0926	mg/L	0.0010	118	70	130	5.0	20	
Sodium		82.9	mg/L	1.0		70	130	1.4	20	A
Uranium		0.917	mg/L	0.00030		70	130	0.2	20	A
Vanadium		0.0550	mg/L	0.010	110	70	130	1.4	20	
Zinc		0.0658	mg/L	0.010	106	70	130	1.6	20	

Qualifiers:

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MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC1-C_150925A	
Lab ID: ICV	2	Initial Calibration Verification Standard							09/23/15 14:55	
Chloride		9.94	mg/L	1.0	99	90	110			
Sulfate		40.3	mg/L	1.0	101	90	110			
Lab ID: CCV-092315-2	2	Continuing Calibration Verification Standard							09/23/15 19:34	
Chloride		9.78	mg/L	1.0	98	90	110			
Sulfate		39.7	mg/L	1.0	99	90	110			
Lab ID: CCV-092315-3	2	Continuing Calibration Verification Standard							09/23/15 23:38	
Chloride		9.81	mg/L	1.0	98	90	110			
Sulfate		39.8	mg/L	1.0	99	90	110			
Method: E300.0									Batch: R204670	
Lab ID: ICB	2	Method Blank				Run: IC1-C_150925A			09/23/15 15:12	
Chloride		ND	mg/L	0.03						
Sulfate		0.1	mg/L	0.05						
Lab ID: LFB-092315-1	2	Laboratory Fortified Blank				Run: IC1-C_150925A			09/23/15 15:30	
Chloride		10.0	mg/L	1.0	100	90	110			
Sulfate		40.5	mg/L	1.0	101	90	110			
Lab ID: C15090761-003AMS	2	Sample Matrix Spike				Run: IC1-C_150925A			09/24/15 00:30	
Chloride		128	mg/L	1.0	105	90	110			
Sulfate		1240	mg/L	2.1		90	110			A
Lab ID: C15090761-003AMSD	2	Sample Matrix Spike Duplicate				Run: IC1-C_150925A			09/24/15 00:47	
Chloride		127	mg/L	1.0	103	90	110	1.0	20	
Sulfate		1210	mg/L	2.1		90	110	1.8	20	A
Lab ID: C15090764-003AMS	2	Sample Matrix Spike				Run: IC1-C_150925A			09/24/15 04:34	
Chloride		135	mg/L	1.0	107	90	110			
Sulfate		2700	mg/L	4.2		90	110			A
Lab ID: C15090764-003AMSD	2	Sample Matrix Spike Duplicate				Run: IC1-C_150925A			09/24/15 05:09	
Chloride		135	mg/L	1.0	108	90	110	0.4	20	
Sulfate		2690	mg/L	4.2		90	110	0.2	20	A
Lab ID: LFB-092315-3	2	Laboratory Fortified Blank				Run: IC1-C_150925A			09/24/15 16:07	
Chloride		9.98	mg/L	1.0	100	90	110			
Sulfate		40.4	mg/L	1.0	101	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: TECHNICON_150923A	
Lab ID: CCV-30	Continuing Calibration Verification Standard								09/23/15 12:16	
Nitrogen, Nitrate+Nitrite as N		1.06	mg/L	0.10	106	90	110			
Lab ID: CCV-44	Continuing Calibration Verification Standard								09/23/15 12:51	
Nitrogen, Nitrate+Nitrite as N		1.05	mg/L	0.10	105	90	110			
Method: E353.2									Batch: R204489	
Lab ID: MBLK-1	Method Blank					Run: TECHNICON_150923A			09/23/15 11:04	
Nitrogen, Nitrate+Nitrite as N		0.01	mg/L	0.008						
Lab ID: LFB-3	Laboratory Fortified Blank					Run: TECHNICON_150923A			09/23/15 11:09	
Nitrogen, Nitrate+Nitrite as N		2.12	mg/L	0.10	108	90	110			
Lab ID: C15090757-002EMS	Sample Matrix Spike					Run: TECHNICON_150923A			09/23/15 12:24	
Nitrogen, Nitrate+Nitrite as N		2.20	mg/L	0.10	112	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
Lab ID: C15090757-002EMSD	Sample Matrix Spike Duplicate					Run: TECHNICON_150923A			09/23/15 12:26	
Nitrogen, Nitrate+Nitrite as N		2.20	mg/L	0.10	112	90	110	0.0	10	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
Lab ID: C15090761-010EMS	Sample Matrix Spike					Run: TECHNICON_150923A			09/23/15 12:59	
Nitrogen, Nitrate+Nitrite as N		196	mg/L	5.0	106	90	110			
Lab ID: C15090761-010EMSD	Sample Matrix Spike Duplicate					Run: TECHNICON_150923A			09/23/15 13:01	
Nitrogen, Nitrate+Nitrite as N		197	mg/L	5.0	107	90	110	0.5	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-2133
Lab ID: Th230-GrAB-2133		Laboratory Control Sample				Run: G5000W_150925A				09/29/15 00:27
Gross Alpha		108	pCi/L		108	80	120			
Lab ID: Sr90-GrAB-2133		Laboratory Control Sample				Run: G5000W_150925A				09/29/15 00:27
Gross Beta		186	pCi/L		96	80	120			
Lab ID: MB-GrAB-2133	6	Method Blank				Run: G5000W_150925A				09/29/15 00:27
Gross Alpha		-0.3	pCi/L							U
Gross Alpha precision (±)		0.7	pCi/L							
Gross Alpha MDC		1	pCi/L							
Gross Beta		-0.7	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C15090761-004DDUP	6	Sample Duplicate				Run: G5000W_150925A				09/29/15 00:27
Gross Alpha		33.6	pCi/L					29	64.3	
Gross Alpha precision (±)		8.65	pCi/L							
Gross Alpha MDC		4.73	pCi/L							
Gross Beta		27.8	pCi/L					7.3	45.9	
Gross Beta precision (±)		4.77	pCi/L							
Gross Beta MDC		6.19	pCi/L							
Lab ID: C15090761-007DMS		Sample Matrix Spike				Run: G5000W_150925A				09/29/15 00:27
Gross Alpha		111	pCi/L		58	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the Duplicate RPD are acceptable the batch is approved.										
Lab ID: C15090761-007DMS		Sample Matrix Spike				Run: G5000W_150925A				09/29/15 00:27
Gross Beta		354	pCi/L		97	70	130			

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-2132
Lab ID: Th230-GrAB-2132		Laboratory Control Sample				Run: G542M_150925A				09/28/15 22:08
Gross Alpha		96.4	pCi/L		97	80	120			
Lab ID: Sr90-GrAB-2132		Laboratory Control Sample				Run: G542M_150925A				09/28/15 22:08
Gross Beta		179	pCi/L		92	80	120			
Lab ID: MB-GrAB-2132	6	Method Blank				Run: G542M_150925A				09/28/15 22:08
Gross Alpha		-0.3	pCi/L							U
Gross Alpha precision (±)		0.7	pCi/L							
Gross Alpha MDC		1	pCi/L							
Gross Beta		-1	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C15090756-001DMS		Sample Matrix Spike				Run: G542M_150925A				09/28/15 22:08
Gross Alpha		73.7	pCi/L		60	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the Duplicate RPD are acceptable the batch is approved.										
Lab ID: C15090756-001DMS		Sample Matrix Spike				Run: G542M_150925A				09/28/15 22:08
Gross Beta		194	pCi/L		95	70	130			
Lab ID: C15090759-004CDUP	6	Sample Duplicate				Run: G542M_150925A				09/28/15 22:08
Gross Alpha		2380	pCi/L					17	48.9	
Gross Alpha precision (±)		462	pCi/L							
Gross Alpha MDC		9.77	pCi/L							
Gross Beta		933	pCi/L					3.5	30.5	
Gross Beta precision (±)		95.6	pCi/L							
Gross Beta MDC		14.3	pCi/L							

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-7836
Lab ID: LCS-RA226-7836		Laboratory Control Sample				Run: BERTHOLD 770-1_150924A				10/05/15 10:48
Radium 226		9.7	pCi/L		93	80	120			
Lab ID: MB-RA226-7836	3	Method Blank				Run: BERTHOLD 770-1_150924A				10/05/15 10:48
Radium 226		0.09	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C15090711-004FMS		Sample Matrix Spike				Run: BERTHOLD 770-1_150924A				10/05/15 10:48
Radium 226		18	pCi/L		86	70	130			
Lab ID: C15090711-004FMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_150924A				10/05/15 10:48
Radium 226		21	pCi/L		102	70	130	17	49.2	

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0									Batch: RA-TH-ISO-2325	
Lab ID: LCS-RA-TH-ISO-2325		Laboratory Control Sample				Run: ALPHANALYST_150924A			09/30/15 09:27	
Thorium 230		6.9	pCi/L		104	80	120			
Lab ID: C15090735-001BMS		Sample Matrix Spike				Run: ALPHANALYST_150924A			09/30/15 09:28	
Thorium 230		11.9	pCi/L		89	70	130			
Lab ID: C15090735-001BMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_150924A			09/30/15 09:28	
Thorium 230		12.2	pCi/L		91	70	130	2.4	48	
Lab ID: MB-RA-TH-ISO-2325	3	Method Blank				Run: ALPHANALYST_150924A			09/30/15 13:50	
Thorium 230		0.09	pCi/L							U
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WY DEQ 104
Work Order: C15090761

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-5044
Lab ID: LCS-228-RA226-7836		Laboratory Control Sample				Run: TENNELEC-3_150924B				09/29/15 12:04
Radium 228		7.1	pCi/L		95	80	120			
Lab ID: MB-RA226-7836	3	Method Blank				Run: TENNELEC-3_150924B				09/29/15 12:04
Radium 228		0.03	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C15090756-001DMS		Sample Matrix Spike				Run: TENNELEC-3_150924B				09/29/15 12:04
Radium 228		20	pCi/L		108	70	130			
Lab ID: C15090756-001DMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_150924B				09/29/15 12:04
Radium 228		20	pCi/L		109	70	130	1.1	50	

Qualifiers:

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

Work Order Receipt Checklist

Lidstone and Associates

C15090761

Login completed by: Dorian Quis
Reviewed by: BL2000\tparke
Reviewed Date: 9/30/2015

Date Received: 9/23/2015
Received by: amm
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	3.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temperature Blank temperature for Cooler 1 was 3.4°C, Cooler 2 was 6.0°C, Cooler 3 was 6.6°C and Cooler 4 was 5.2°C.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Lidstone & Associates	Project Name, PWS, Permit, Etc.: WYDEQ104	Sample Origin State: WY	EPA/State Compliance: Yes ☐ No ☒
Report Mail Address (Required): 4035 Automation Way Bldg E Fort Collins, CO 80525	Contact Name: Greg Steed	Phone/Fax: 970-223-4705	Cell: 970-819-1783
☒ No Hard Copy Email: ghs@lidstone.com	Invoice Contact & Phone: Melinda Culver mcc@lidstone.com	Purchase Order:	Sampler: (Please Print) JVG
Invoice Address (Required): Same			Quote/Bottle Order: 47286
☐ No Hard Copy Email:			

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: ☐ Other: ☒ EDD/EDT (Electronic Data) Format: EV ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other DW - Drinking Water

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	2005 DEQ Guidelines	Dissolved Be	TI 230						SEE ATTACHED
1	MW-1	9-21-15	11:30	W	X	X	X						
2	MW-1A	9-21-15	11:30	W	X	X	X						
3	PW-10	9-21-15	13:26	W	X	X	X						
4	MW-3	9-21-15	14:55	W	X	X	X						
5	MW-10	9-21-15	16:30	W	X	X	X						
6	MW-7	9-21-15	18:05	W	X	X	X						
7	MW-17	9-21-15	19:15	W	X	X	X						
8	TP 2-3	9/22/15	12:30	W	X	X	X						
9	PW-14	9/22/15	10:15	W	X	X	X						
10	MW-5	9/22/15	11:15	W	X	X	X						

Standard Turnaround (TAT) — RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: C15090761

Shipped by: Lab Courier
Cooler ID(s): Various
Receipt Temp: 6.0, 6.4 3.4 C 5.2
On Ice: (Y) N
Custody Seal: On Bottle Y (N) On Cooler Y (N)
Intact: Y N
Signature Match: Y N

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Greg Steed	9-22-15/18:30	Greg Steed	Daniel Lashbrook	9/22/15 18:40	Daniel Lashbrook
Daniel Lashbrook	9/22/15 20:55	Daniel Lashbrook			
			Received by Laboratory:	Date/Time:	Signature:
				9/23/15 8:00	

Sample Disposal: Return to Client: ____ Lab Disposal: X

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.

ANALYTICAL SUMMARY REPORT

October 07, 2015

Lidstone and Associates
4025 Automation Way Unit E
Fort Collins, CO 80525

Work Order: C15090769

Project Name: WYAML 102

Energy Laboratories, Inc. Casper WY received the following 10 samples for Lidstone and Associates on 9/23/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C15090769-001	ANC-B	09/21/15 12:30	09/23/15	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Conductivity Sample Filtering Fluoride E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha, Gross Beta Radium 226, Dissolved Radium 228, Dissolved Thorium, Isotopic Solids, Total Dissolved
C15090769-002	R-4	09/21/15 11:50	09/23/15	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Acidity, Total as CaCO3 Alkalinity Anion - Cation Balance Conductivity Sample Filtering Fluoride E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha, Gross Beta Radium 226, Dissolved Radium 228, Dissolved Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated

ANALYTICAL SUMMARY REPORT

C15090769-003	MW-2	09/21/15 13:00 09/23/15	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Conductivity Sample Filtering Fluoride E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha, Gross Beta Radium 226, Dissolved Radium 228, Dissolved Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated
C15090769-004	MW-11	09/21/15 17:55 09/23/15	Aqueous	Same As Above
C15090769-005	MW-4	09/21/15 14:50 09/23/15	Aqueous	Same As Above
C15090769-006	MW-13	09/21/15 16:30 09/23/15	Aqueous	Same As Above
C15090769-007	MW-6	09/21/15 19:15 09/23/15	Aqueous	Same As Above
C15090769-008	MW-14A	09/22/15 15:45 09/23/15	Aqueous	Same As Above
C15090769-009	PW-12 /MW-28	09/22/15 15:30 09/23/15	Aqueous	Same As Above
C15090769-010	PW-13 /MW-29	09/22/15 16:50 09/23/15	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. 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 test results, please call.

Report Approved By:

CLIENT: Lidstone and Associates
Project: WYAML 102
Work Order: C15090769

Report Date: 10/07/15

CASE NARRATIVE

RADIOCHEMISTRY ANALYSIS
Per client request, results less than MDC (or precision if no MDC), are reported as <MDC (or <precision). Actual instrument results are available by request.

TH230 ANALYSIS
USNRC Regulatory Guide 4.14 provides guidance on Minimum Detectable Concentrations (MDC) that should be achieved in samples for this radionuclide. The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis. Please consult with your local regulatory agency prior to using these results for compliance purposes.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-001
Client Sample ID: ANC-B

Report Date: 10/07/15
Collection Date: 09/21/15 12:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 15:19 / wc
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	09/25/15 15:19 / wc
Calcium	ND	mg/L		1		E200.7	09/29/15 21:26 / sf
Chloride	ND	mg/L		1		E300.0	09/28/15 14:15 / wc
Fluoride	ND	mg/L		0.1		A4500-F C	09/23/15 15:40 / wc
Magnesium	ND	mg/L		1		E200.8	09/25/15 21:07 / smm
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	09/25/15 12:01 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/25/15 12:55 / lr
Potassium	ND	mg/L		1		E200.8	09/25/15 21:07 / smm
Silica	ND	mg/L		0.2		E200.7	09/29/15 21:26 / sf
Sodium	ND	mg/L		1		E200.8	09/25/15 21:07 / smm
Sulfate	ND	mg/L		1		E300.0	09/28/15 14:15 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	ND	umhos/cm		5		A2510 B	09/24/15 09:27 / lmc
pH	6.26	s.u.	H	0.01		A4500-H B	09/29/15 16:05 / mag
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/24/15 11:20 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 21:07 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 21:07 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 21:07 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 21:07 / smm
Boron	ND	mg/L		0.1		E200.7	09/29/15 21:26 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 21:07 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 21:07 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 21:07 / smm
Iron	ND	mg/L		0.03		E200.7	09/29/15 21:26 / sf
Lead	ND	mg/L		0.001		E200.8	09/25/15 21:07 / smm
Manganese	ND	mg/L		0.01		E200.8	09/25/15 21:07 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 21:07 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 21:07 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 21:07 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 21:07 / smm
Uranium	ND	mg/L		0.0003		E200.8	09/30/15 17:58 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 21:07 / smm
Zinc	ND	mg/L		0.01		E200.8	09/25/15 21:07 / smm
METALS - TOTAL							
Iron	ND	mg/L		0.03		E200.8	09/28/15 22:19 / smm
Manganese	ND	mg/L		0.01		E200.8	09/28/15 22:19 / smm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-001
Client Sample ID: ANC-B

Report Date: 10/07/15
Collection Date: 09/21/15 12:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	<1.6	pCi/L	U	1.6		E900.0	09/30/15 22:24 / trs
Gross Alpha precision (±)	1	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Alpha MDC	1.6	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta	<2.8	pCi/L	U	2.8		E900.0	09/30/15 22:24 / trs
Gross Beta precision (±)	1.7	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta MDC	2.8	pCi/L				E900.0	09/30/15 22:24 / trs
Radium 226	0.18	pCi/L		0.13		E903.0	10/05/15 12:50 / dmf
Radium 226 precision (±)	0.11	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 226 MDC	0.13	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 228	<1.3	pCi/L	U	1.3		RA-05	09/30/15 10:07 / plj
Radium 228 precision (±)	0.7	pCi/L				RA-05	09/30/15 10:07 / plj
Radium 228 MDC	1.3	pCi/L				RA-05	09/30/15 10:07 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	10/05/15 09:56 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 09:56 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 09:56 / cng
DATA QUALITY							
A/C Balance (± 5)	27.9	%				A1030 E	09/30/15 14:44 / sdw
Anions	0.03	meq/L				A1030 E	09/30/15 14:44 / sdw
Cations	0.05	meq/L				A1030 E	09/30/15 14:44 / sdw

- The ion balance is not appropriate for samples having a conductivity less than 300 umhos/cm.

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-002
Client Sample ID: R-4

Report Date: 10/07/15
Collection Date: 09/21/15 11:50
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Acidity, Total as CaCO3	968	mg/L		5		A2310 B	09/30/15 12:42 / wc
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 15:31 / wc
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	09/25/15 15:31 / wc
Calcium	428	mg/L		1		E200.7	09/29/15 21:30 / sf
Chloride	243	mg/L	D	5		E300.0	09/28/15 14:34 / wc
Fluoride	0.3	mg/L		0.1		A4500-F C	09/23/15 15:52 / wc
Magnesium	290	mg/L		1		E200.7	09/29/15 21:30 / sf
Nitrogen, Ammonia as N	386	mg/L	D	10		A4500-NH3 G	09/25/15 12:06 / ljl
Nitrogen, Nitrate+Nitrite as N	5.9	mg/L	D	0.5		E353.2	09/25/15 12:56 / lr
Potassium	9	mg/L		1		E200.7	09/29/15 21:30 / sf
Silica	104	mg/L	D	0.3		E200.7	09/29/15 21:30 / sf
Sodium	363	mg/L	D	2		E200.7	09/29/15 21:30 / sf
Sulfate	5390	mg/L	D	20		E300.0	09/28/15 14:34 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	8370	umhos/cm		5		A2510 B	09/24/15 09:31 / lmc
pH	3.91	s.u.	H	0.01		A4500-H B	09/29/15 16:09 / mag
Solids, Total Dissolved TDS @ 180 C	6930	mg/L		100		A2540 C	09/24/15 11:21 / lmc
METALS - DISSOLVED							
Aluminum	118	mg/L		0.1		E200.8	09/25/15 21:12 / smm
Arsenic	0.023	mg/L		0.001		E200.8	09/25/15 21:12 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 21:12 / smm
Beryllium	0.113	mg/L		0.001		E200.8	09/25/15 21:12 / smm
Boron	0.2	mg/L		0.1		E200.7	09/29/15 21:30 / sf
Cadmium	0.070	mg/L		0.005		E200.8	09/25/15 21:12 / smm
Chromium	0.08	mg/L		0.05		E200.8	09/25/15 21:12 / smm
Copper	0.22	mg/L		0.01		E200.8	09/25/15 21:12 / smm
Iron	71.9	mg/L	D	0.05		E200.7	09/29/15 21:30 / sf
Lead	0.008	mg/L		0.001		E200.8	09/25/15 21:12 / smm
Manganese	23.2	mg/L		0.01		E200.8	09/25/15 21:12 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 21:12 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 21:12 / smm
Nickel	1.99	mg/L		0.05		E200.8	09/25/15 21:12 / smm
Selenium	0.148	mg/L		0.001		E200.8	09/25/15 21:12 / smm
Uranium	2.19	mg/L		0.0003		E200.8	09/25/15 21:12 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 21:12 / smm
Zinc	1.83	mg/L		0.01		E200.8	09/25/15 21:12 / smm
METALS - TOTAL							
Iron	75.6	mg/L		0.03		E200.8	09/28/15 22:45 / smm
Manganese	22.9	mg/L		0.01		E200.8	09/28/15 22:45 / smm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-002
Client Sample ID: R-4

Report Date: 10/07/15
Collection Date: 09/21/15 11:50
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	1560	pCi/L		27.2		E900.0	09/30/15 22:24 / trs
Gross Alpha precision (±)	310	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Alpha MDC	27.2	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta	540	pCi/L		32.8		E900.0	09/30/15 22:24 / trs
Gross Beta precision (±)	59.5	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta MDC	32.8	pCi/L				E900.0	09/30/15 22:24 / trs
Radium 226	25	pCi/L		0.17		E903.0	10/05/15 12:50 / dmf
Radium 226 precision (±)	4.8	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 228	6.1	pCi/L		1.7		RA-05	09/30/15 10:07 / plj
Radium 228 precision (±)	1.5	pCi/L				RA-05	09/30/15 10:07 / plj
Radium 228 MDC	1.7	pCi/L				RA-05	09/30/15 10:07 / plj
Thorium 230	73.2	pCi/L		1		E908.0	10/05/15 09:56 / cng
Thorium 230 precision (±)	13.9	pCi/L				E908.0	10/05/15 09:56 / cng
Thorium 230 MDC	1	pCi/L				E908.0	10/05/15 09:56 / cng
DATA QUALITY							
A/C Balance (± 5)	-5.06	%				A1030 E	10/01/15 08:35 / sdw
Anions	120	meq/L				A1030 E	10/01/15 08:35 / sdw
Cations	108	meq/L				A1030 E	10/01/15 08:35 / sdw
Solids, Total Dissolved Calculated	6900	mg/L				A1030 E	10/01/15 08:35 / sdw
TDS Balance (0.80 - 1.20)	1.01	unitless				A1030 E	10/01/15 08:35 / sdw

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 Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-003
Client Sample ID: MW-2

Report Date: 10/07/15
Collection Date: 09/21/15 13:00
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 15:59 / wc
Bicarbonate as HCO3	1570	mg/L		5		A2320 B	09/25/15 15:59 / wc
Calcium	515	mg/L		1		E200.7	09/29/15 21:34 / sf
Chloride	331	mg/L	D	5		E300.0	09/28/15 14:52 / wc
Fluoride	0.6	mg/L		0.1		A4500-F C	09/23/15 15:55 / wc
Magnesium	447	mg/L		1		E200.8	09/25/15 21:17 / smm
Nitrogen, Ammonia as N	350	mg/L	D	5		A4500-NH3 G	09/25/15 12:11 / ljl
Nitrogen, Nitrate+Nitrite as N	0.2	mg/L		0.1		E353.2	09/25/15 12:57 / lr
Potassium	58	mg/L		1		E200.8	09/25/15 21:17 / smm
Silica	21.9	mg/L	D	0.3		E200.7	09/29/15 21:34 / sf
Sodium	389	mg/L		1		E200.8	09/25/15 21:17 / smm
Sulfate	3640	mg/L	D	20		E300.0	09/28/15 14:52 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	8590	umhos/cm		5		A2510 B	09/24/15 09:34 / lmc
pH	6.56	s.u.	H	0.01		A4500-H B	09/29/15 16:12 / mag
Solids, Total Dissolved TDS @ 180 C	5830	mg/L		100		A2540 C	09/24/15 11:21 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 21:17 / smm
Arsenic	0.001	mg/L		0.001		E200.8	09/25/15 21:17 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 21:17 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 21:17 / smm
Boron	0.1	mg/L		0.1		E200.7	09/29/15 21:34 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 21:17 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 21:17 / smm
Copper	0.01	mg/L		0.01		E200.8	09/25/15 21:17 / smm
Iron	1.32	mg/L	D	0.05		E200.7	09/29/15 21:34 / sf
Lead	0.001	mg/L		0.001		E200.8	09/25/15 21:17 / smm
Manganese	14.8	mg/L		0.01		E200.8	09/25/15 21:17 / smm
Mercury	0.001	mg/L		0.001		E200.8	09/25/15 21:17 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 21:17 / smm
Nickel	0.92	mg/L		0.05		E200.8	09/25/15 21:17 / smm
Selenium	0.003	mg/L		0.001		E200.8	09/25/15 21:17 / smm
Uranium	9.08	mg/L		0.0003		E200.8	09/25/15 21:17 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 21:17 / smm
Zinc	0.06	mg/L		0.01		E200.8	09/25/15 21:17 / smm
METALS - TOTAL							
Iron	13.7	mg/L		0.03		E200.8	09/28/15 22:50 / smm
Manganese	14.7	mg/L		0.01		E200.8	09/28/15 22:50 / smm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-003
Client Sample ID: MW-2

Report Date: 10/07/15
Collection Date: 09/21/15 13:00
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	7570	pCi/L		27.0		E900.0	09/30/15 22:24 / trs
Gross Alpha precision (±)	1470	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Alpha MDC	27.0	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta	698	pCi/L		33.6		E900.0	09/30/15 22:24 / trs
Gross Beta precision (±)	72.8	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta MDC	33.6	pCi/L				E900.0	09/30/15 22:24 / trs
Radium 226	84	pCi/L		0.13		E903.0	10/05/15 12:50 / dmf
Radium 226 precision (±)	16	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 226 MDC	0.13	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 228	61.7	pCi/L		1.4		RA-05	09/30/15 10:07 / plj
Radium 228 precision (±)	11.0	pCi/L				RA-05	09/30/15 10:07 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	09/30/15 10:07 / plj
Thorium 230	0.6	pCi/L		0.6		E908.0	10/05/15 09:56 / cng
Thorium 230 precision (±)	0.5	pCi/L				E908.0	10/05/15 09:56 / cng
Thorium 230 MDC	0.6	pCi/L				E908.0	10/05/15 09:56 / cng
DATA QUALITY							
A/C Balance (± 5)	-2.37	%				A1030 E	09/30/15 14:45 / sdw
Anions	111	meq/L				A1030 E	09/30/15 14:45 / sdw
Cations	106	meq/L				A1030 E	09/30/15 14:45 / sdw
Solids, Total Dissolved Calculated	6200	mg/L				A1030 E	09/30/15 14:45 / sdw
TDS Balance (0.80 - 1.20)	0.94	unitless				A1030 E	09/30/15 14:45 / sdw

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 Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-004
Client Sample ID: MW-11

Report Date: 10/07/15
Collection Date: 09/21/15 17:55
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 16:09 / wc
Bicarbonate as HCO3	320	mg/L		5		A2320 B	09/25/15 16:09 / wc
Calcium	472	mg/L		1		E200.7	09/30/15 13:03 / sf
Chloride	141	mg/L		1		E300.0	09/28/15 15:11 / wc
Fluoride	0.3	mg/L		0.1		A4500-F C	09/23/15 15:58 / wc
Magnesium	73	mg/L		1		E200.7	09/29/15 22:26 / sf
Nitrogen, Ammonia as N	0.07	mg/L		0.05		A4500-NH3 G	09/25/15 12:12 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/25/15 12:58 / lr
Potassium	20	mg/L		1		E200.8	09/25/15 23:11 / smm
Silica	21.7	mg/L		0.2		E200.7	09/29/15 22:26 / sf
Sodium	84	mg/L		1		E200.7	09/29/15 22:26 / sf
Sulfate	1250	mg/L	D	4		E300.0	09/28/15 15:11 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	2690	umhos/cm		5		A2510 B	09/24/15 09:38 / lmc
pH	7.55	s.u.	H	0.01		A4500-H B	09/29/15 16:15 / mag
Solids, Total Dissolved TDS @ 180 C	2320	mg/L		20		A2540 C	09/24/15 11:21 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 23:11 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 23:11 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 23:11 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:11 / smm
Boron	ND	mg/L		0.1		E200.7	09/29/15 22:26 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 23:11 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 23:11 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 23:11 / smm
Iron	0.75	mg/L		0.03		E200.8	09/25/15 23:11 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:11 / smm
Manganese	0.35	mg/L		0.01		E200.8	09/25/15 23:11 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 23:11 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 23:11 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 23:11 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 23:11 / smm
Uranium	0.0259	mg/L		0.0003		E200.8	09/25/15 23:11 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 23:11 / smm
Zinc	ND	mg/L		0.01		E200.8	09/25/15 23:11 / smm
METALS - TOTAL							
Iron	1.97	mg/L		0.03		E200.8	09/28/15 22:55 / smm
Manganese	0.34	mg/L		0.01		E200.8	09/28/15 22:55 / smm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-004
Client Sample ID: MW-11

Report Date: 10/07/15
Collection Date: 09/21/15 17:55
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	22.6	pCi/L		8.5		E900.0	09/30/15 22:24 / trs
Gross Alpha precision (±)	9.2	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Alpha MDC	8.5	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta	26.7	pCi/L		11.6		E900.0	09/30/15 22:24 / trs
Gross Beta precision (±)	7.4	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta MDC	11.6	pCi/L				E900.0	09/30/15 22:24 / trs
Radium 226	3.4	pCi/L		0.12		E903.0	10/05/15 12:50 / dmf
Radium 226 precision (±)	0.72	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 226 MDC	0.12	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 228	8.4	pCi/L		1.2		RA-05	09/30/15 10:07 / plj
Radium 228 precision (±)	1.9	pCi/L				RA-05	09/30/15 10:07 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	09/30/15 10:07 / plj
Thorium 230	0.7	pCi/L		0.5		E908.0	10/05/15 09:56 / cng
Thorium 230 precision (±)	0.4	pCi/L				E908.0	10/05/15 09:56 / cng
Thorium 230 MDC	0.5	pCi/L				E908.0	10/05/15 09:56 / cng
DATA QUALITY							
A/C Balance (± 5)	-2.38	%				A1030 E	10/01/15 08:36 / sdw
Anions	35.3	meq/L				A1030 E	10/01/15 08:36 / sdw
Cations	33.7	meq/L				A1030 E	10/01/15 08:36 / sdw
Solids, Total Dissolved Calculated	2200	mg/L				A1030 E	10/01/15 08:36 / sdw
TDS Balance (0.80 - 1.20)	1.04	unitless				A1030 E	10/01/15 08:36 / sdw

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 Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-005
Client Sample ID: MW-4

Report Date: 10/07/15
Collection Date: 09/21/15 14:50
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 16:17 / wc
Bicarbonate as HCO3	822	mg/L		5		A2320 B	09/25/15 16:17 / wc
Calcium	494	mg/L		1		E200.7	09/29/15 22:39 / sf
Chloride	248	mg/L	D	5		E300.0	09/28/15 15:29 / wc
Fluoride	1.0	mg/L		0.1		A4500-F C	09/23/15 16:01 / wc
Magnesium	283	mg/L		1		E200.7	09/29/15 22:39 / sf
Nitrogen, Ammonia as N	307	mg/L	D	10		A4500-NH3 G	09/25/15 12:14 / ljl
Nitrogen, Nitrate+Nitrite as N	6.2	mg/L	D	0.2		E353.2	09/25/15 13:01 / lr
Potassium	23	mg/L		1		E200.8	09/25/15 23:16 / smm
Silica	18.8	mg/L		0.2		E200.7	09/29/15 22:39 / sf
Sodium	302	mg/L		1		E200.7	09/29/15 22:39 / sf
Sulfate	3230	mg/L	D	20		E300.0	09/28/15 15:29 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	7110	umhos/cm		5		A2510 B	09/24/15 09:43 / lmc
pH	6.65	s.u.	H	0.01		A4500-H B	09/29/15 16:20 / mag
Solids, Total Dissolved TDS @ 180 C	4760	mg/L		20		A2540 C	09/24/15 11:22 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 23:16 / smm
Arsenic	0.004	mg/L		0.001		E200.8	09/25/15 23:16 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 23:16 / smm
Beryllium	0.002	mg/L		0.001		E200.8	09/25/15 23:16 / smm
Boron	0.1	mg/L		0.1		E200.7	09/29/15 22:39 / sf
Cadmium	0.005	mg/L		0.005		E200.8	09/25/15 23:16 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 23:16 / smm
Copper	0.02	mg/L		0.01		E200.8	09/25/15 23:16 / smm
Iron	16.6	mg/L		0.03		E200.8	09/25/15 23:16 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:16 / smm
Manganese	9.56	mg/L		0.01		E200.8	09/25/15 23:16 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 23:16 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 23:16 / smm
Nickel	0.63	mg/L		0.05		E200.8	09/25/15 23:16 / smm
Selenium	0.006	mg/L		0.001		E200.8	09/25/15 23:16 / smm
Uranium	2.33	mg/L		0.0003		E200.8	09/25/15 23:16 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 23:16 / smm
Zinc	0.26	mg/L		0.01		E200.8	09/25/15 23:16 / smm
METALS - TOTAL							
Iron	24.0	mg/L		0.03		E200.8	09/28/15 23:00 / smm
Manganese	14.4	mg/L		0.01		E200.8	09/28/15 23:00 / smm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-005
Client Sample ID: MW-4

Report Date: 10/07/15
Collection Date: 09/21/15 14:50
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	2110	pCi/L		17.1		E900.0	09/30/15 22:24 / trs
Gross Alpha precision (±)	414	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Alpha MDC	17.1	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta	180	pCi/L		27.0		E900.0	09/30/15 22:24 / trs
Gross Beta precision (±)	20.7	pCi/L				E900.0	09/30/15 22:24 / trs
Gross Beta MDC	27.0	pCi/L				E900.0	09/30/15 22:24 / trs
Radium 226	26	pCi/L		0.12		E903.0	10/05/15 12:50 / dmf
Radium 226 precision (±)	4.9	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 226 MDC	0.12	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 228	26.4	pCi/L		1.2		RA-05	09/30/15 10:07 / plj
Radium 228 precision (±)	4.9	pCi/L				RA-05	09/30/15 10:07 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	09/30/15 10:07 / plj
Thorium 230	<0.4	pCi/L	U	0.4		E908.0	10/05/15 09:56 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	10/05/15 09:56 / cng
Thorium 230 MDC	0.4	pCi/L				E908.0	10/05/15 09:56 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-2.77	%				A1030 E	09/30/15 14:45 / sdw
Anions	88.3	meq/L				A1030 E	09/30/15 14:45 / sdw
Cations	83.5	meq/L				A1030 E	09/30/15 14:45 / sdw
Solids, Total Dissolved Calculated	5000	mg/L				A1030 E	09/30/15 14:45 / sdw
TDS Balance (0.80 - 1.20)	0.94	unitless				A1030 E	09/30/15 14:45 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-006
Client Sample ID: MW-13

Report Date: 10/07/15
Collection Date: 09/21/15 16:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 16:26 / wc
Bicarbonate as HCO3	357	mg/L		5		A2320 B	09/25/15 16:26 / wc
Calcium	506	mg/L		1		E200.7	09/29/15 22:43 / sf
Chloride	119	mg/L		1		E300.0	09/28/15 16:24 / wc
Fluoride	0.2	mg/L		0.1		A4500-F C	09/23/15 16:03 / wc
Magnesium	81	mg/L		1		E200.7	09/29/15 22:43 / sf
Nitrogen, Ammonia as N	0.08	mg/L		0.05		A4500-NH3 G	09/25/15 12:16 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/25/15 13:05 / lr
Potassium	21	mg/L		1		E200.8	09/25/15 23:21 / smm
Silica	25.7	mg/L		0.2		E200.7	09/29/15 22:43 / sf
Sodium	90	mg/L		1		E200.7	09/29/15 22:43 / sf
Sulfate	1400	mg/L	D	4		E300.0	09/28/15 16:24 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	2830	umhos/cm		5		A2510 B	09/24/15 09:47 / lmc
pH	7.31	s.u.	H	0.01		A4500-H B	09/29/15 16:23 / mag
Solids, Total Dissolved TDS @ 180 C	2520	mg/L		20		A2540 C	09/24/15 11:23 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 23:21 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 23:21 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 23:21 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:21 / smm
Boron	ND	mg/L		0.1		E200.7	09/29/15 22:43 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 23:21 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 23:21 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 23:21 / smm
Iron	0.04	mg/L		0.03		E200.8	09/25/15 23:21 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:21 / smm
Manganese	0.68	mg/L		0.01		E200.8	09/25/15 23:21 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 23:21 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 23:21 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 23:21 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 23:21 / smm
Uranium	0.0022	mg/L		0.0003		E200.8	09/25/15 23:21 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 23:21 / smm
Zinc	ND	mg/L		0.01		E200.8	09/25/15 23:21 / smm
METALS - TOTAL							
Iron	2.90	mg/L		0.03		E200.8	09/28/15 23:06 / smm
Manganese	0.69	mg/L		0.01		E200.8	09/28/15 23:06 / smm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-006
Client Sample ID: MW-13

Report Date: 10/07/15
Collection Date: 09/21/15 16:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	26.1	pCi/L		8.9		E900.0	09/30/15 22:25 / trs
Gross Alpha precision (±)	10	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Alpha MDC	8.9	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta	24.5	pCi/L		14.4		E900.0	09/30/15 22:25 / trs
Gross Beta precision (±)	8.6	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta MDC	14.4	pCi/L				E900.0	09/30/15 22:25 / trs
Radium 226	6.6	pCi/L		0.12		E903.0	10/05/15 12:50 / dmf
Radium 226 precision (±)	1.3	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 226 MDC	0.12	pCi/L				E903.0	10/05/15 12:50 / dmf
Radium 228	9.6	pCi/L		1.2		RA-05	09/30/15 10:07 / plj
Radium 228 precision (±)	2.2	pCi/L				RA-05	09/30/15 10:07 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	09/30/15 10:07 / plj
Thorium 230	<0.4	pCi/L	U	0.4		E908.0	10/05/15 09:56 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	10/05/15 09:56 / cng
Thorium 230 MDC	0.4	pCi/L				E908.0	10/05/15 09:56 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-2.67	%				A1030 E	09/30/15 14:45 / sdw
Anions	38.4	meq/L				A1030 E	09/30/15 14:45 / sdw
Cations	36.4	meq/L				A1030 E	09/30/15 14:45 / sdw
Solids, Total Dissolved Calculated	2400	mg/L				A1030 E	09/30/15 14:45 / sdw
TDS Balance (0.80 - 1.20)	1.04	unitless				A1030 E	09/30/15 14:45 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-007
Client Sample ID: MW-6

Report Date: 10/07/15
Collection Date: 09/21/15 19:15
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 16:34 / wc
Bicarbonate as HCO3	692	mg/L		5		A2320 B	09/25/15 16:34 / wc
Calcium	533	mg/L		1		E200.7	09/29/15 22:46 / sf
Chloride	153	mg/L		1		E300.0	09/28/15 17:20 / wc
Fluoride	0.2	mg/L		0.1		A4500-F C	09/23/15 16:06 / wc
Magnesium	94	mg/L		1		E200.7	09/29/15 22:46 / sf
Nitrogen, Ammonia as N	0.08	mg/L		0.05		A4500-NH3 G	09/25/15 12:17 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/25/15 13:06 / lr
Potassium	25	mg/L		1		E200.8	09/25/15 23:26 / smm
Silica	20.8	mg/L		0.2		E200.7	09/29/15 22:46 / sf
Sodium	263	mg/L		1		E200.7	09/29/15 22:46 / sf
Sulfate	1560	mg/L	D	4		E300.0	09/28/15 17:20 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	3610	umhos/cm		5		A2510 B	09/24/15 09:52 / lmc
pH	7.40	s.u.	H	0.01		A4500-H B	09/29/15 16:27 / mag
Solids, Total Dissolved TDS @ 180 C	3080	mg/L		20		A2540 C	09/24/15 11:23 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 23:26 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 23:26 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 23:26 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:26 / smm
Boron	0.2	mg/L		0.1		E200.7	09/29/15 22:46 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 23:26 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 23:26 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 23:26 / smm
Iron	0.60	mg/L		0.03		E200.8	09/25/15 23:26 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:26 / smm
Manganese	0.63	mg/L		0.01		E200.8	09/25/15 23:26 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 23:26 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 23:26 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 23:26 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 23:26 / smm
Uranium	0.0622	mg/L		0.0003		E200.8	09/25/15 23:26 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 23:26 / smm
Zinc	ND	mg/L		0.01		E200.8	09/25/15 23:26 / smm
METALS - TOTAL							
Iron	2.51	mg/L		0.03		E200.8	09/28/15 23:11 / smm
Manganese	0.65	mg/L		0.01		E200.8	09/28/15 23:11 / smm

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D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-007
Client Sample ID: MW-6

Report Date: 10/07/15
Collection Date: 09/21/15 19:15
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	52.7	pCi/L		12.3		E900.0	09/30/15 22:25 / trs
Gross Alpha precision (±)	16.0	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Alpha MDC	12.3	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta	33.3	pCi/L		14.8		E900.0	09/30/15 22:25 / trs
Gross Beta precision (±)	9.1	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta MDC	14.8	pCi/L				E900.0	09/30/15 22:25 / trs
Radium 226	5.2	pCi/L		0.11		E903.0	10/05/15 15:18 / dmf
Radium 226 precision (±)	1.1	pCi/L				E903.0	10/05/15 15:18 / dmf
Radium 226 MDC	0.11	pCi/L				E903.0	10/05/15 15:18 / dmf
Radium 228	9.5	pCi/L		1.4		RA-05	09/30/15 11:42 / plj
Radium 228 precision (±)	2.1	pCi/L				RA-05	09/30/15 11:42 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	09/30/15 11:42 / plj
Thorium 230	<0.5	pCi/L	U	0.5		E908.0	10/05/15 09:56 / cng
Thorium 230 precision (±)	0.2	pCi/L				E908.0	10/05/15 09:56 / cng
Thorium 230 MDC	0.5	pCi/L				E908.0	10/05/15 09:56 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.78	%				A1030 E	09/30/15 14:45 / sdw
Anions	48.1	meq/L				A1030 E	09/30/15 14:45 / sdw
Cations	46.4	meq/L				A1030 E	09/30/15 14:45 / sdw
Solids, Total Dissolved Calculated	3000	mg/L				A1030 E	09/30/15 14:45 / sdw
TDS Balance (0.80 - 1.20)	1.03	unitless				A1030 E	09/30/15 14:45 / sdw

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-008
Client Sample ID: MW-14A

Report Date: 10/07/15
Collection Date: 09/22/15 15:45
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 16:42 / wc
Bicarbonate as HCO3	317	mg/L		5		A2320 B	09/25/15 16:42 / wc
Calcium	203	mg/L		1		E200.7	09/29/15 22:50 / sf
Chloride	14	mg/L		1		E300.0	09/28/15 17:38 / wc
Fluoride	0.4	mg/L		0.1		A4500-F C	09/23/15 16:09 / wc
Magnesium	40	mg/L		1		E200.7	09/29/15 22:50 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	09/25/15 12:19 / ljl
Nitrogen, Nitrate+Nitrite as N	0.1	mg/L		0.1		E353.2	09/25/15 13:07 / lr
Potassium	19	mg/L		1		E200.8	09/25/15 23:31 / smm
Silica	24.5	mg/L		0.2		E200.7	09/29/15 22:50 / sf
Sodium	108	mg/L		1		E200.7	09/29/15 22:50 / sf
Sulfate	598	mg/L	D	2		E300.0	09/28/15 17:38 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1610	umhos/cm		5		A2510 B	09/24/15 09:56 / lmc
pH	5.79	s.u.	H	0.01		A4500-H B	09/24/15 09:56 / lmc
Solids, Total Dissolved TDS @ 180 C	1240	mg/L		10		A2540 C	09/24/15 11:23 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 23:31 / smm
Arsenic	0.003	mg/L		0.001		E200.8	09/25/15 23:31 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 23:31 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:31 / smm
Boron	0.1	mg/L		0.1		E200.7	09/29/15 22:50 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 23:31 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 23:31 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 23:31 / smm
Iron	ND	mg/L		0.03		E200.8	09/25/15 23:31 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:31 / smm
Manganese	0.04	mg/L		0.01		E200.8	09/25/15 23:31 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 23:31 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 23:31 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 23:31 / smm
Selenium	0.005	mg/L		0.001		E200.8	09/25/15 23:31 / smm
Uranium	0.173	mg/L		0.0003		E200.8	09/25/15 23:31 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 23:31 / smm
Zinc	ND	mg/L		0.01		E200.8	09/25/15 23:31 / smm
METALS - TOTAL							
Iron	2.29	mg/L		0.03		E200.8	09/28/15 23:16 / smm
Manganese	0.24	mg/L		0.01		E200.8	09/28/15 23:16 / smm

Report Definitions:
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-008
Client Sample ID: MW-14A

Report Date: 10/07/15
Collection Date: 09/22/15 15:45
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	140	pCi/L		5.0		E900.0	09/30/15 22:25 / trs
Gross Alpha precision (±)	28.6	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Alpha MDC	5.0	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta	30.0	pCi/L		6.4		E900.0	09/30/15 22:25 / trs
Gross Beta precision (±)	4.4	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta MDC	6.4	pCi/L				E900.0	09/30/15 22:25 / trs
Radium 226	3.2	pCi/L		0.12		E903.0	10/05/15 15:18 / dmf
Radium 226 precision (±)	0.67	pCi/L				E903.0	10/05/15 15:18 / dmf
Radium 226 MDC	0.12	pCi/L				E903.0	10/05/15 15:18 / dmf
Radium 228	3.6	pCi/L		1.5		RA-05	09/30/15 11:42 / plj
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/30/15 11:42 / plj
Radium 228 MDC	1.5	pCi/L				RA-05	09/30/15 11:42 / plj
Thorium 230	<0.5	pCi/L	U	0.5		E908.0	10/05/15 14:29 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	10/05/15 14:29 / cng
Thorium 230 MDC	0.5	pCi/L				E908.0	10/05/15 14:29 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	1.55	%				A1030 E	09/30/15 14:46 / sdw
Anions	18.0	meq/L				A1030 E	09/30/15 14:46 / sdw
Cations	18.6	meq/L				A1030 E	09/30/15 14:46 / sdw
Solids, Total Dissolved Calculated	1200	mg/L				A1030 E	09/30/15 14:46 / sdw
TDS Balance (0.80 - 1.20)	1.06	unitless				A1030 E	09/30/15 14:46 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-009
Client Sample ID: PW-12 /MW-28

Report Date: 10/07/15
Collection Date: 09/22/15 15:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 16:58 / wc
Bicarbonate as HCO3	775	mg/L		5		A2320 B	09/25/15 16:58 / wc
Calcium	516	mg/L		1		E200.7	09/29/15 22:54 / sf
Chloride	128	mg/L	D	2		E300.0	09/28/15 17:57 / wc
Fluoride	0.3	mg/L		0.1		A4500-F C	09/23/15 16:11 / wc
Magnesium	168	mg/L		1		E200.7	09/29/15 22:54 / sf
Nitrogen, Ammonia as N	52	mg/L	D	2		A4500-NH3 G	09/25/15 12:21 / ljl
Nitrogen, Nitrate+Nitrite as N	10	mg/L	D	1		E353.2	09/25/15 13:08 / lr
Potassium	39	mg/L		1		E200.8	09/25/15 23:36 / smm
Silica	31.1	mg/L		0.2		E200.7	09/29/15 22:54 / sf
Sodium	226	mg/L		1		E200.7	09/29/15 22:54 / sf
Sulfate	1850	mg/L	D	8		E300.0	09/28/15 17:57 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	4240	umhos/cm		5		A2510 B	09/24/15 10:05 / lmc
pH	4.91	s.u.	H	0.01		A4500-H B	09/24/15 10:05 / lmc
Solids, Total Dissolved TDS @ 180 C	3500	mg/L		40		A2540 C	09/24/15 11:24 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 23:36 / smm
Arsenic	0.002	mg/L		0.001		E200.8	09/25/15 23:36 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 23:36 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:36 / smm
Boron	0.1	mg/L		0.1		E200.7	09/29/15 22:54 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 23:36 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 23:36 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 23:36 / smm
Iron	ND	mg/L		0.03		E200.8	09/25/15 23:36 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:36 / smm
Manganese	16.1	mg/L		0.01		E200.8	09/25/15 23:36 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 23:36 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 23:36 / smm
Nickel	0.33	mg/L		0.05		E200.8	09/25/15 23:36 / smm
Selenium	0.014	mg/L		0.001		E200.8	09/25/15 23:36 / smm
Uranium	0.961	mg/L		0.0003		E200.8	09/25/15 23:36 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 23:36 / smm
Zinc	0.03	mg/L		0.01		E200.8	09/25/15 23:36 / smm
METALS - TOTAL							
Iron	0.42	mg/L		0.03		E200.8	09/28/15 23:21 / smm
Manganese	16.6	mg/L		0.01		E200.8	09/28/15 23:21 / smm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-009
Client Sample ID: PW-12/MW-28

Report Date: 10/07/15
Collection Date: 09/22/15 15:30
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	619	pCi/L		13.3		E900.0	09/30/15 22:25 / trs
Gross Alpha precision (±)	124	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Alpha MDC	13.3	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta	94.5	pCi/L		16.9		E900.0	09/30/15 22:25 / trs
Gross Beta precision (±)	12.4	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta MDC	16.9	pCi/L				E900.0	09/30/15 22:25 / trs
Radium 226	1.5	pCi/L		0.12		E903.0	10/05/15 15:18 / dmf
Radium 226 precision (±)	0.35	pCi/L				E903.0	10/05/15 15:18 / dmf
Radium 226 MDC	0.12	pCi/L				E903.0	10/05/15 15:18 / dmf
Radium 228	2.5	pCi/L		1.4		RA-05	09/30/15 11:42 / plj
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/30/15 11:42 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	09/30/15 11:42 / plj
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	10/05/15 14:29 / cng
Thorium 230 precision (±)	0.2	pCi/L				E908.0	10/05/15 14:29 / cng
Thorium 230 MDC	0.3	pCi/L				E908.0	10/05/15 14:29 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.33	%				A1030 E	09/30/15 14:46 / sdw
Anions	55.6	meq/L				A1030 E	09/30/15 14:46 / sdw
Cations	54.1	meq/L				A1030 E	09/30/15 14:46 / sdw
Solids, Total Dissolved Calculated	3400	mg/L				A1030 E	09/30/15 14:46 / sdw
TDS Balance (0.80 - 1.20)	1.03	unitless				A1030 E	09/30/15 14:46 / sdw

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-010
Client Sample ID: PW-13/MW-29

Report Date: 10/07/15
Collection Date: 09/22/15 16:50
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/25/15 17:06 / wc
Bicarbonate as HCO3	255	mg/L		5		A2320 B	09/25/15 17:06 / wc
Calcium	209	mg/L		1		E200.7	09/29/15 22:58 / sf
Chloride	1	mg/L		1		E300.0	09/28/15 18:15 / wc
Fluoride	0.3	mg/L		0.1		A4500-F C	09/23/15 16:14 / wc
Magnesium	19	mg/L		1		E200.7	09/29/15 22:58 / sf
Nitrogen, Ammonia as N	0.06	mg/L		0.05		A4500-NH3 G	09/25/15 12:22 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/25/15 13:09 / lr
Potassium	10	mg/L		1		E200.8	09/25/15 23:41 / smm
Silica	28.5	mg/L		0.2		E200.7	09/29/15 22:58 / sf
Sodium	35	mg/L		1		E200.7	09/29/15 22:58 / sf
Sulfate	463	mg/L	D	2		E300.0	09/28/15 18:15 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1190	umhos/cm		5		A2510 B	09/24/15 10:09 / lmc
pH	6.18	s.u.	H	0.01		A4500-H B	09/24/15 10:09 / lmc
Solids, Total Dissolved TDS @ 180 C	925	mg/L		10		A2540 C	09/24/15 11:24 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/25/15 23:41 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/25/15 23:41 / smm
Barium	ND	mg/L		0.1		E200.8	09/25/15 23:41 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:41 / smm
Boron	ND	mg/L		0.1		E200.7	09/29/15 22:58 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/25/15 23:41 / smm
Chromium	ND	mg/L		0.05		E200.8	09/25/15 23:41 / smm
Copper	ND	mg/L		0.01		E200.8	09/25/15 23:41 / smm
Iron	0.53	mg/L		0.03		E200.8	09/25/15 23:41 / smm
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:41 / smm
Manganese	0.40	mg/L		0.01		E200.8	09/25/15 23:41 / smm
Mercury	ND	mg/L		0.001		E200.8	09/25/15 23:41 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/25/15 23:41 / smm
Nickel	ND	mg/L		0.05		E200.8	09/25/15 23:41 / smm
Selenium	ND	mg/L		0.001		E200.8	09/25/15 23:41 / smm
Uranium	0.0060	mg/L		0.0003		E200.8	09/25/15 23:41 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/25/15 23:41 / smm
Zinc	ND	mg/L		0.01		E200.8	09/25/15 23:41 / smm
METALS - TOTAL							
Iron	1.63	mg/L		0.03		E200.8	09/28/15 23:26 / smm
Manganese	0.39	mg/L		0.01		E200.8	09/28/15 23:26 / smm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102
Lab ID: C15090769-010
Client Sample ID: PW-13/MW-29

Report Date: 10/07/15
Collection Date: 09/22/15 16:50
DateReceived: 09/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	15.7	pCi/L		3.6		E900.0	09/30/15 22:25 / trs
Gross Alpha precision (±)	4.8	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Alpha MDC	3.6	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta	13.2	pCi/L		4.9		E900.0	09/30/15 22:25 / trs
Gross Beta precision (±)	3.2	pCi/L				E900.0	09/30/15 22:25 / trs
Gross Beta MDC	4.9	pCi/L				E900.0	09/30/15 22:25 / trs
Radium 226	3.2	pCi/L		0.12		E903.0	10/05/15 15:18 / dmf
Radium 226 precision (±)	0.67	pCi/L				E903.0	10/05/15 15:18 / dmf
Radium 226 MDC	0.12	pCi/L				E903.0	10/05/15 15:18 / dmf
Radium 228	1.8	pCi/L		1.5		RA-05	09/30/15 11:42 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	09/30/15 11:42 / plj
Radium 228 MDC	1.5	pCi/L				RA-05	09/30/15 11:42 / plj
Thorium 230	0.2	pCi/L		0.2		E908.0	10/05/15 14:29 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 14:29 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 14:29 / cng
DATA QUALITY							
A/C Balance (± 5)	-0.27	%				A1030 E	09/30/15 14:46 / sdw
Anions	13.9	meq/L				A1030 E	09/30/15 14:46 / sdw
Cations	13.8	meq/L				A1030 E	09/30/15 14:46 / sdw
Solids, Total Dissolved Calculated	900	mg/L				A1030 E	09/30/15 14:46 / sdw
TDS Balance (0.80 - 1.20)	1.03	unitless				A1030 E	09/30/15 14:46 / sdw

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 Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2310 B									Analytical Run: MANTECH_150930A	
Lab ID: ICV-8660		Initial Calibration Verification Standard							09/30/15 12:14	
Acidity, Total as CaCO3		ND	mg/L	5.0		0	0			
Lab ID: CCV-8741		Continuing Calibration Verification Standard							09/30/15 12:17	
Acidity, Total as CaCO3		ND	mg/L	5.0		0	0			
Method: A2310 B									Batch: R204810	
Lab ID: MBLK		Method Blank				Run: MANTECH_150930A			09/30/15 12:11	
Acidity, Total as CaCO3		1	mg/L	0.6						
Lab ID: LCS_150727		Laboratory Control Sample				Run: MANTECH_150930A			09/30/15 12:30	
Acidity, Total as CaCO3		1160	mg/L	5.0	96	80	120			
Lab ID: C15090769-002ADUP		Sample Duplicate				Run: MANTECH_150930A			09/30/15 12:54	
Acidity, Total as CaCO3		988	mg/L	5.0				2.0	20	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R204663
Lab ID: MBLK	3	Method Blank				Run: MANTECH_150925C				09/25/15 14:14
Alkalinity, Total as CaCO3		ND	mg/L	0.6						
Carbonate as CO3		ND	mg/L	1						
Bicarbonate as HCO3		ND	mg/L	1						
Lab ID: LCS_150317		Laboratory Control Sample				Run: MANTECH_150925C				09/25/15 14:28
Alkalinity, Total as CaCO3		241	mg/L	5.0	97	90	110			
Lab ID: C15090768-002AMS		Sample Matrix Spike				Run: MANTECH_150925C				09/25/15 15:48
Alkalinity, Total as CaCO3		744	mg/L	5.2	92	80	120			
Lab ID: C15090769-008ADUP	3	Sample Duplicate				Run: MANTECH_150925C				09/25/15 16:50
Alkalinity, Total as CaCO3		274	mg/L	5.0				5.2	10	
Carbonate as CO3		ND	mg/L	5.0					10	
Bicarbonate as HCO3		334	mg/L	5.0				5.2	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B										Batch: R204511
Lab ID: SC 2ND 1413		Laboratory Control Sample				Run: PHSC_101-C_150924A				09/24/15 08:45
Conductivity @ 25 C		1400	umhos/cm	5.0	99	90	110			
Lab ID: MBLK		Method Blank				Run: PHSC_101-C_150924A				09/24/15 09:05
Conductivity @ 25 C		3	umhos/cm	1						
Lab ID: C15090769-008ADUP		Sample Duplicate				Run: PHSC_101-C_150924A				09/24/15 10:00
Conductivity @ 25 C		1610	umhos/cm	5.0				0.0	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYAML 102

Report Date: 10/07/15
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**									Batch: TDS150924B	
Lab ID: **MB-1_150924B**		Method Blank				Run: BAL-18_150924B			09/24/15 11:18	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	9						
Lab ID: **LCS-2_150924B**		Laboratory Control Sample				Run: BAL-18_150924B			09/24/15 11:18	
Solids, Total Dissolved TDS @ 180 C		1140	mg/L	11	103	90	110			
Lab ID: **C15090769-008A DUP**		Sample Duplicate				Run: BAL-18_150924B			09/24/15 11:24	
Solids, Total Dissolved TDS @ 180 C		1240	mg/L	9.9				0.2	5	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MANTECH_150923A	
Lab ID: **CCV-8644**	Continuing Calibration Verification Standard								09/23/15 15:27	
Fluoride		1.92	mg/L	0.10	96	90	110			
Method: **A4500-F C**									Batch: R204515	
Lab ID: **MBLK**	Method Blank					Run: MANTECH_150923A			09/23/15 14:08	
Fluoride		ND	mg/L	0.01						
Lab ID: **LCS-8595**	Laboratory Control Sample					Run: MANTECH_150923A			09/23/15 14:10	
Fluoride		1.96	mg/L	0.10	98	90	110			
Lab ID: **C15090769-001AMS**	Sample Matrix Spike					Run: MANTECH_150923A			09/23/15 15:43	
Fluoride		1.89	mg/L	0.10	95	80	120			
Lab ID: **C15090769-001AMSD**	Sample Matrix Spike Duplicate					Run: MANTECH_150923A			09/23/15 15:45	
Fluoride		1.89	mg/L	0.10	95	80	120	0.0	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC_101-C_150924A	
Lab ID: **pH 6.86**	Initial Calibration Verification Standard								09/24/15 08:29	
pH		6.85	s.u.	0.010	100	98	102			
Lab ID: **pH 6.86**	Initial Calibration Verification Standard								09/24/15 12:24	
pH		6.92	s.u.	0.010	101	98	102			
Lab ID: **pH 6.86**	Initial Calibration Verification Standard								09/24/15 16:53	
pH		6.92	s.u.	0.010	101	98	102			
Method: **A4500-H B**									Batch: R204511	
Lab ID: **C15090769-008ADUP**	Sample Duplicate					Run: PHSC_101-C_150924A			09/24/15 10:00	
pH		5.70	s.u.	0.010				1.6	3	
Method: **A4500-H B**									Analytical Run: PHSC_101-C_150929A	
Lab ID: **pH 6.86**	Initial Calibration Verification Standard								09/29/15 08:27	
pH		6.84	s.u.	0.010	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								09/29/15 11:24	
pH		7.01	s.u.	0.010	100	98	102			
Lab ID: **pH 6.86**	Initial Calibration Verification Standard								09/29/15 15:42	
pH		6.82	s.u.	0.010	99	98	102			
Method: **A4500-H B**									Batch: R204712	
Lab ID: **C15090769-007ADUP**	Sample Duplicate					Run: PHSC_101-C_150929A			09/29/15 16:32	
pH		7.38	s.u.	0.010				0.3	3	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NH3 G									Analytical Run: TECHNICON_150925A	
Lab ID: CCV-18		Continuing Calibration Verification Standard							09/25/15 11:39	
Nitrogen, Ammonia as N		0.985	mg/L	0.050	99	90	110			
Lab ID: CCV-32		Continuing Calibration Verification Standard							09/25/15 12:02	
Nitrogen, Ammonia as N		0.999	mg/L	0.050	100	90	110			
Method: A4500-NH3 G									Batch: R204636	
Lab ID: MBLK-1		Method Blank				Run: TECHNICON_150925A			09/25/15 11:11	
Nitrogen, Ammonia as N		ND	mg/L	0.01						
Lab ID: LFB-3		Laboratory Fortified Blank				Run: TECHNICON_150925A			09/25/15 11:14	
Nitrogen, Ammonia as N		1.98	mg/L	0.050	101	90	110			
Lab ID: C15090769-002EMS		Sample Matrix Spike				Run: TECHNICON_150925A			09/25/15 12:07	
Nitrogen, Ammonia as N		580	mg/L	10	97	90	110			
Lab ID: C15090769-002EMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150925A			09/25/15 12:09	
Nitrogen, Ammonia as N		579	mg/L	10	97	90	110	0.2	10	
Lab ID: C15090772-002DMS		Sample Matrix Spike				Run: TECHNICON_150925A			09/25/15 12:31	
Nitrogen, Ammonia as N		1.89	mg/L	0.050	96	90	110			
Lab ID: C15090772-002DMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150925A			09/25/15 12:32	
Nitrogen, Ammonia as N		1.91	mg/L	0.050	97	90	110	1.1	10	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP4-C_150929A	
Lab ID: ICV	7	Initial Calibration Verification Standard							09/29/15 11:42	
Boron		1.01	mg/L	0.050	101	95	105			
Calcium		49.0	mg/L	1.0	98	95	105			
Iron		4.92	mg/L	0.030	98	95	105			
Magnesium		49.2	mg/L	1.0	98	95	105			
Potassium		49.5	mg/L	1.0	99	95	105			
Silicon		9.86	mg/L	0.10	99	95	105			
Sodium		50.2	mg/L	1.0	100	95	105			
Lab ID: ICSA	7	Interference Check Sample A							09/29/15 12:06	
Boron		0.00843	mg/L	0.050						
Calcium		454	mg/L	1.0	91	80	120			
Iron		174	mg/L	0.030	87	80	120			
Magnesium		495	mg/L	1.0	99	80	120			
Potassium		0.0101	mg/L	1.0						
Silicon		-0.0216	mg/L	0.10						
Sodium		0.524	mg/L	1.0						
Lab ID: ICSAB	7	Interference Check Sample AB							09/29/15 12:10	
Boron		0.0126	mg/L	0.050						
Calcium		456	mg/L	1.0	91	80	120			
Iron		174	mg/L	0.030	87	80	120			
Magnesium		497	mg/L	1.0	99	80	120			
Potassium		0.0152	mg/L	1.0						
Silicon		-0.0123	mg/L	0.10						
Sodium		0.444	mg/L	1.0						
Method: E200.7									Batch: R204761	
Lab ID: MB-150929A	7	Method Blank				Run: ICP4-C_150929A			09/29/15 12:30	
Boron		ND	mg/L	0.006						
Calcium		0.02	mg/L	0.003						
Iron		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.002						
Potassium		ND	mg/L	0.04						
Silicon		ND	mg/L	0.02						
Sodium		ND	mg/L	0.1						
Lab ID: LFB-150929A	7	Laboratory Fortified Blank				Run: ICP4-C_150929A			09/29/15 12:34	
Boron		0.957	mg/L	0.050	96	85	115			
Calcium		47.2	mg/L	1.0	94	85	115			
Iron		0.898	mg/L	0.030	90	85	115			
Magnesium		47.7	mg/L	1.0	95	85	115			
Potassium		50.7	mg/L	1.0	101	85	115			
Silicon		0.456	mg/L	0.10	101	85	115			
Sodium		47.1	mg/L	1.0	94	85	115			

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: R204761
Lab ID: C15090769-004BMS2	7	Sample Matrix Spike				Run: ICP4-C_150929A				09/29/15 22:30
Boron		1.97	mg/L	0.050	94	70	130			
Calcium		543	mg/L	1.0		70	130			A
Iron		2.58	mg/L	0.030	89	70	130			
Magnesium		167	mg/L	1.0	93	70	130			
Potassium		114	mg/L	1.0	93	70	130			
Silicon		10.8	mg/L	0.10		70	130			A
Sodium		177	mg/L	1.0	91	70	130			
Lab ID: C15090769-004BMSD	7	Sample Matrix Spike Duplicate				Run: ICP4-C_150929A				09/29/15 22:34
Boron		1.97	mg/L	0.050	93	70	130	0.3	20	
Calcium		543	mg/L	1.0		70	130	0.1	20	A
Iron		2.59	mg/L	0.030	90	70	130	0.4	20	
Magnesium		167	mg/L	1.0	93	70	130	0.1	20	
Potassium		115	mg/L	1.0	94	70	130	0.8	20	
Silicon		10.7	mg/L	0.10		70	130	0.3	20	A
Sodium		177	mg/L	1.0	91	70	130	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS2-C_150930A	
Lab ID: ICV	Initial Calibration Verification Standard								09/30/15 11:43	
Uranium		0.0472	mg/L	0.00030	94	90	110			
Method: E200.8									Batch: R204803	
Lab ID: LRB	Method Blank					Run: ICPMS2-C_150930A			09/30/15 12:32	
Uranium		0.0001	mg/L	8E-06						
Lab ID: LFB	Laboratory Fortified Blank					Run: ICPMS2-C_150930A			09/30/15 12:34	
Uranium		0.0512	mg/L	0.00030	102	85	115			
Lab ID: C15090860-008BMS4	Sample Matrix Spike					Run: ICPMS2-C_150930A			09/30/15 18:03	
Uranium		0.0514	mg/L	0.00030	103	70	130			
Lab ID: C15090860-008BMSD	Sample Matrix Spike Duplicate					Run: ICPMS2-C_150930A			09/30/15 18:05	
Uranium		0.0584	mg/L	0.0010	117	70	130	13	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS4-C_150925A	
Lab ID: ICV	20	Initial Calibration Verification Standard							09/25/15 12:49	
Aluminum		0.0494	mg/L	0.0010	99	90	110			
Arsenic		0.0495	mg/L	0.0010	99	90	110			
Barium		0.0480	mg/L	0.0010	96	90	110			
Beryllium		0.0496	mg/L	0.0010	99	90	110			
Cadmium		0.0491	mg/L	0.0010	98	90	110			
Chromium		0.0501	mg/L	0.0010	100	90	110			
Copper		0.0496	mg/L	0.0010	99	90	110			
Iron		0.977	mg/L	0.0010	98	90	110			
Lead		0.0490	mg/L	0.0010	98	90	110			
Magnesium		9.90	mg/L	0.0027	99	90	110			
Manganese		0.0482	mg/L	0.0010	97	90	110			
Mercury		0.00475	mg/L	0.0010	95	90	110			
Molybdenum		0.0480	mg/L	0.0010	96	90	110			
Nickel		0.0498	mg/L	0.0010	100	90	110			
Potassium		10.1	mg/L	0.0041	101	90	110			
Selenium		0.0499	mg/L	0.0010	100	90	110			
Sodium		9.63	mg/L	0.0043	96	90	110			
Uranium		0.0478	mg/L	0.00030	96	90	110			
Vanadium		0.0499	mg/L	0.0010	100	90	110			
Zinc		0.0513	mg/L	0.0010	103	90	110			
Method: E200.8									Batch: R204629	
Lab ID: LRB	20	Method Blank				Run: ICPMS4-C_150925A			09/25/15 13:35	
Aluminum		0.002	mg/L	0.0001						
Arsenic		ND	mg/L	5E-05						
Barium		ND	mg/L	9E-06						
Beryllium		ND	mg/L	3E-05						
Cadmium		ND	mg/L	7E-06						
Chromium		0.0001	mg/L	8E-05						
Copper		ND	mg/L	2E-05						
Iron		ND	mg/L	0.0003						
Lead		ND	mg/L	1.0E-05						
Magnesium		0.002	mg/L	0.0009						
Manganese		ND	mg/L	4E-05						
Mercury		4E-05	mg/L	3E-05						
Molybdenum		ND	mg/L	4E-05						
Nickel		ND	mg/L	0.0002						
Potassium		0.07	mg/L	0.02						
Selenium		ND	mg/L	3E-05						
Sodium		ND	mg/L	0.007						
Uranium		8E-06	mg/L	4E-06						
Vanadium		7E-05	mg/L	1E-05						
Zinc		0.0002	mg/L	8E-05						

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R204629
Lab ID: LFB	20	Laboratory Fortified Blank				Run: ICPMS4-C_150925A				09/25/15 13:41
Aluminum		0.0516	mg/L	0.0010	100	85	115			
Arsenic		0.0527	mg/L	0.0010	105	85	115			
Barium		0.0507	mg/L	0.0010	101	85	115			
Beryllium		0.0518	mg/L	0.0010	104	85	115			
Cadmium		0.0518	mg/L	0.0010	104	85	115			
Chromium		0.0525	mg/L	0.0010	105	85	115			
Copper		0.0522	mg/L	0.0010	104	85	115			
Iron		1.28	mg/L	0.0010	102	85	115			
Lead		0.0514	mg/L	0.0010	103	85	115			
Magnesium		12.1	mg/L	0.0027	97	85	115			
Manganese		0.0498	mg/L	0.0010	100	85	115			
Mercury		0.0102	mg/L	0.0010	102	85	115			
Molybdenum		0.0507	mg/L	0.0010	101	85	115			
Nickel		0.0522	mg/L	0.0010	104	85	115			
Potassium		12.4	mg/L	0.0041	98	85	115			
Selenium		0.0558	mg/L	0.0010	112	85	115			
Sodium		12.0	mg/L	0.0043	96	85	115			
Uranium		0.0492	mg/L	0.00030	98	85	115			
Vanadium		0.0526	mg/L	0.0010	105	85	115			
Zinc		0.0532	mg/L	0.0010	106	85	115			
Lab ID: C15090769-003BMS4	20	Sample Matrix Spike				Run: ICPMS4-C_150925A				09/25/15 21:23
Aluminum		0.519	mg/L	0.030	98	70	130			
Arsenic		0.547	mg/L	0.0010	109	70	130			
Barium		0.542	mg/L	0.050	105	70	130			
Beryllium		0.482	mg/L	0.0010	96	70	130			
Cadmium		0.518	mg/L	0.0010	104	70	130			
Chromium		0.529	mg/L	0.0050	105	70	130			
Copper		0.534	mg/L	0.0050	104	70	130			
Iron		14.2	mg/L	0.030	93	70	130			
Lead		0.532	mg/L	0.0010	106	70	130			
Magnesium		575	mg/L	1.0	102	70	130			
Manganese		15.0	mg/L	0.0010		70	130			A
Mercury		0.110	mg/L	0.00057	109	70	130			
Molybdenum		0.533	mg/L	0.0010	106	70	130			
Nickel		1.43	mg/L	0.0050	102	70	130			
Potassium		184	mg/L	1.0	101	70	130			
Selenium		0.560	mg/L	0.0010	111	70	130			
Sodium		512	mg/L	1.0	99	70	130			
Uranium		9.45	mg/L	0.00030		70	130			A
Vanadium		0.537	mg/L	0.010	107	70	130			
Zinc		0.578	mg/L	0.010	103	70	130			
Lab ID: C15090769-003BMSD	20	Sample Matrix Spike Duplicate				Run: ICPMS4-C_150925A				09/25/15 21:28
Aluminum		0.519	mg/L	0.030	98	70	130	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R204629	
Lab ID: C15090769-003BMSD	20	Sample Matrix Spike Duplicate				Run: ICPMS4-C_150925A			09/25/15 21:28	
Arsenic		0.544	mg/L	0.0010	109	70	130	0.5	20	
Barium		0.548	mg/L	0.050	106	70	130	1.1	20	
Beryllium		0.482	mg/L	0.0010	96	70	130	0.0	20	
Cadmium		0.531	mg/L	0.0010	106	70	130	2.5	20	
Chromium		0.524	mg/L	0.0050	104	70	130	1.0	20	
Copper		0.529	mg/L	0.0050	103	70	130	0.9	20	
Iron		14.0	mg/L	0.030	92	70	130	0.8	20	
Lead		0.538	mg/L	0.0010	107	70	130	1.0	20	
Magnesium		565	mg/L	1.0	94	70	130	1.7	20	
Manganese		15.1	mg/L	0.0010		70	130	0.6	20	A
Mercury		0.112	mg/L	0.00057	111	70	130	2.3	20	
Molybdenum		0.549	mg/L	0.0010	109	70	130	2.9	20	
Nickel		1.40	mg/L	0.0050	96	70	130	2.0	20	
Potassium		186	mg/L	1.0	102	70	130	1.0	20	
Selenium		0.560	mg/L	0.0010	111	70	130	0.0	20	
Sodium		506	mg/L	1.0	94	70	130	1.3	20	
Uranium		9.68	mg/L	0.00030		70	130	2.4	20	A
Vanadium		0.531	mg/L	0.010	106	70	130	1.0	20	
Zinc		0.574	mg/L	0.010	103	70	130	0.7	20	
Method: E200.8									Analytical Run: ICPMS4-C_150928A	
Lab ID: ICV	2	Initial Calibration Verification Standard							09/28/15 12:47	
Iron		0.985	mg/L	0.0010	98	90	110			
Manganese		0.0490	mg/L	0.0010	98	90	110			
Method: E200.8									Batch: 45814	
Lab ID: MB-45814	2	Method Blank				Run: ICPMS4-C_150928A			09/28/15 21:58	
Iron		ND	mg/L	0.0002						
Manganese		0.0001	mg/L	7E-05						
Lab ID: LCS3-45814	2	Laboratory Control Sample				Run: ICPMS4-C_150928A			09/28/15 22:03	
Iron		2.49	mg/L	0.030	100	85	115			
Manganese		2.40	mg/L	0.0010	96	85	115			
Lab ID: C15090769-010CMS3	2	Sample Matrix Spike				Run: ICPMS4-C_150928A			09/28/15 23:52	
Iron		4.27	mg/L	0.030	106	70	130			
Manganese		2.80	mg/L	0.0010	96	70	130			
Lab ID: C15090769-010CMSD	2	Sample Matrix Spike Duplicate				Run: ICPMS4-C_150928A			09/28/15 23:57	
Iron		4.45	mg/L	0.030	113	70	130	4.2	20	
Manganese		2.79	mg/L	0.0010	96	70	130	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC2-C_150928A	
Lab ID: ICV	2	Initial Calibration Verification Standard							09/28/15 10:53	
Chloride		9.87	mg/L	1.0	99	90	110			
Sulfate		39.3	mg/L	1.0	98	90	110			
Lab ID: CCV-092815-1	2	Continuing Calibration Verification Standard							09/28/15 11:48	
Chloride		9.72	mg/L	1.0	97	90	110			
Sulfate		38.6	mg/L	1.0	97	90	110			
Lab ID: CCV-092815-2	2	Continuing Calibration Verification Standard							09/28/15 15:48	
Chloride		9.71	mg/L	1.0	97	90	110			
Sulfate		38.7	mg/L	1.0	97	90	110			
Method: E300.0									Batch: R204744	
Lab ID: ICB	2	Method Blank				Run: IC2-C_150928A			09/28/15 11:11	
Chloride		0.02	mg/L	0.01						
Sulfate		0.08	mg/L	0.03						
Lab ID: LFB-092815-1	2	Laboratory Fortified Blank				Run: IC2-C_150928A			09/28/15 11:30	
Chloride		10.7	mg/L	1.0	107	90	110			
Sulfate		42.6	mg/L	1.0	106	90	110			
Lab ID: C15090829-001AMS	2	Sample Matrix Spike				Run: IC2-C_150928A			09/28/15 12:25	
Chloride		14.0	mg/L	1.0	114	90	110			S
Sulfate		67.9	mg/L	1.0	112	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
Lab ID: C15090829-001AMSD	2	Sample Matrix Spike Duplicate				Run: IC2-C_150928A			09/28/15 12:43	
Chloride		13.9	mg/L	1.0	113	90	110	0.6	20	S
Sulfate		67.8	mg/L	1.0	112	90	110	0.2	20	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
Lab ID: C15090769-006AMS	2	Sample Matrix Spike				Run: IC2-C_150928A			09/28/15 16:43	
Chloride		229	mg/L	1.0	110	90	110			
Sulfate		1810	mg/L	4.2	103	90	110			
Lab ID: C15090769-006AMSD	2	Sample Matrix Spike Duplicate				Run: IC2-C_150928A			09/28/15 17:01	
Chloride		232	mg/L	1.0	113	90	110	1.2	20	S
Sulfate		1820	mg/L	4.2	106	90	110	0.6	20	
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: FIA201-C_150925A	
Lab ID: CCV		Continuing Calibration Verification Standard							09/25/15 12:59	
Nitrogen, Nitrate+Nitrite as N		2.03	mg/L	0.10	101	90	110			
Method: E353.2									Batch: R204638	
Lab ID: MBLK		Method Blank				Run: FIA201-C_150925A			09/25/15 12:40	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.007						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA201-C_150925A			09/25/15 12:41	
Nitrogen, Nitrate+Nitrite as N		1.88	mg/L	0.10	96	90	110			
Lab ID: C15090829-001CMS		Sample Matrix Spike				Run: FIA201-C_150925A			09/25/15 12:47	
Nitrogen, Nitrate+Nitrite as N		1.96	mg/L	0.10	98	90	110			
Lab ID: C15090829-001CMSD		Sample Matrix Spike Duplicate				Run: FIA201-C_150925A			09/25/15 12:48	
Nitrogen, Nitrate+Nitrite as N		1.88	mg/L	0.10	94	90	110	4.2	10	
Lab ID: C15090769-005EMS		Sample Matrix Spike				Run: FIA201-C_150925A			09/25/15 13:02	
Nitrogen, Nitrate+Nitrite as N		9.36	mg/L	0.20	80	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
Lab ID: C15090769-005EMSD		Sample Matrix Spike Duplicate				Run: FIA201-C_150925A			09/25/15 13:04	
Nitrogen, Nitrate+Nitrite as N		9.38	mg/L	0.20	81	90	110	0.2	10	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-2135
Lab ID: Th230-GrAB-2135		Laboratory Control Sample				Run: G5000W_150929A				09/30/15 22:24
Gross Alpha		107	pCi/L		107	80	120			
Lab ID: Sr90-GrAB-2135		Laboratory Control Sample				Run: G5000W_150929A				09/30/15 22:24
Gross Beta		176	pCi/L		90	80	120			
Lab ID: MB-GrAB-2135	6	Method Blank				Run: G5000W_150929A				09/30/15 22:24
Gross Alpha		0.03	pCi/L							U
Gross Alpha precision (±)		0.7	pCi/L							
Gross Alpha MDC		1	pCi/L							
Gross Beta		-0.1	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C15090764-004DMS		Sample Matrix Spike				Run: G5000W_150929A				09/30/15 22:24
Gross Alpha		274	pCi/L		31	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the Duplicate RPD are acceptable the batch is approved.										
Lab ID: C15090764-004DMS		Sample Matrix Spike				Run: G5000W_150929A				09/30/15 22:24
Gross Beta		358	pCi/L		97	70	130			
Lab ID: C15090769-004DDUP	6	Sample Duplicate				Run: G5000W_150929A				09/30/15 22:24
Gross Alpha		18.4	pCi/L					20	102.9	
Gross Alpha precision (±)		9.93	pCi/L							
Gross Alpha MDC		10.6	pCi/L							
Gross Beta		31.4	pCi/L					16	62.4	
Gross Beta precision (±)		7.86	pCi/L							
Gross Beta MDC		11.7	pCi/L							

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-2136
Lab ID: Th230-GrAB-2136		Laboratory Control Sample				Run: G542M_150929B				09/30/15 22:25
Gross Alpha		113	pCi/L		111	80	120			
Lab ID: Sr90-GrAB-2136		Laboratory Control Sample				Run: G542M_150929B				09/30/15 22:25
Gross Beta		185	pCi/L		95	80	120			
Lab ID: MB-GrAB-2136	6	Method Blank				Run: G542M_150929B				09/30/15 22:25
Gross Alpha		1	pCi/L							
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		1	pCi/L							
Gross Beta		0.1	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C15090837-001FDUP	6	Sample Duplicate				Run: G542M_150929B				09/30/15 22:25
Gross Alpha		22.1	pCi/L					0.2	56.1	
Gross Alpha precision (±)		5.01	pCi/L							
Gross Alpha MDC		1.89	pCi/L							
Gross Beta		7.50	pCi/L					13	55.8	
Gross Beta precision (±)		1.64	pCi/L							
Gross Beta MDC		2.88	pCi/L							
Lab ID: C15090839-001FMS		Sample Matrix Spike				Run: G542M_150929B				09/30/15 22:25
Gross Alpha		198	pCi/L		87	70	130			
Lab ID: C15090839-001FMS		Sample Matrix Spike				Run: G542M_150929B				09/30/15 22:25
Gross Beta		201	pCi/L		95	70	130			

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-7837
Lab ID: LCS-RA226-7837		Laboratory Control Sample				Run: TENNELEC-3_150924D				10/05/15 12:50
Radium 226		10	pCi/L		98	80	120			
Lab ID: MB-RA226-7837	3	Method Blank				Run: TENNELEC-3_150924D				10/05/15 12:50
Radium 226		0.08	pCi/L							U
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C15090764-002DMS		Sample Matrix Spike				Run: TENNELEC-3_150924D				10/05/15 12:50
Radium 226		20	pCi/L		89	70	130			
Lab ID: C15090764-002DMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_150924D				10/05/15 12:50
Radium 226		20	pCi/L		90	70	130	0.3	49	

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0									Batch: RA-TH-ISO-2330	
Lab ID: LCS-RA-TH-ISO-2330		Laboratory Control Sample				Run: EGG-ORTEC_151001A			10/05/15 09:56	
Thorium 230		6.1	pCi/L		91	80	120			
Lab ID: C15090769-010DMS		Sample Matrix Spike				Run: EGG-ORTEC_151001A			10/05/15 14:29	
Thorium 230		14	pCi/L		99	70	130			
Lab ID: C15090769-010DMSD		Sample Matrix Spike Duplicate				Run: EGG-ORTEC_151001A			10/05/15 14:29	
Thorium 230		12	pCi/L		85	70	130	15	48	
Lab ID: MB-RA-TH-ISO-2330	3	Method Blank				Run: EGG-ORTEC_151001A			10/05/15 14:29	
Thorium 230		0.2	pCi/L							U
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/07/15
Project: WYAML 102
Work Order: C15090769

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-5045
Lab ID: LCS-228-RA226-7837		Laboratory Control Sample				Run: TENNELEC-3_150924C				09/30/15 10:07
Radium 228		8.3	pCi/L		94	80	120			
Lab ID: MB-RA226-7837	3	Method Blank				Run: TENNELEC-3_150924C				09/30/15 10:07
Radium 228		1	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C15090769-001DMS		Sample Matrix Spike				Run: TENNELEC-3_150924C				09/30/15 10:07
Radium 228		14.5	pCi/L		90	70	130			
Lab ID: C15090769-001DMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_150924C				09/30/15 10:07
Radium 228		15.1	pCi/L		94	70	130	4.4	53.5	

Qualifiers:

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

Work Order Receipt Checklist

Lidstone and Associates

C15090769

Login completed by: Dorian Quis
Date Received: 9/23/2015

Reviewed by: BL2000\tparke
Received by: amm

Reviewed Date: 9/30/2015
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	3.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Lidstone and Associates	Project Name, PWS, Permit, Etc.: WYAML02	Sample Origin State: WY	EPA/State Compliance: Yes ☐ No ☒
Report Mail Address (Required): 4025 Automation Way Bldg E Fort Collins CO 80525 ☒ No Hard Copy Email: gas@lidstone.com	Contact Name: Greg Steed Phone/Fax: 970-223-4705 Cell: 970-819-1783		Sampler: (Please Print) AEM
	Invoice Contact & Phone: melinda culver mcc@lidstone.com	Purchase Order:	Quote/Bottle Order: 47286

Invoice Address (Required): Same

☐ No Hard Copy Email:

Special Report/Formats:
☐ DW ☒ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: csv
☐ State: ☐ LEVEL IV
☐ Other: ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Lab Courier
Cooler ID(s): VARIOUS
Receipt Temp 3.4 °C
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	2015 DEQ Guideline	Dissolved Be	Thorium 230	
1	ANC-B	9-21-15	12:30	W	X	X	X	
2	R-4	9-21-15	11:50	W	X	X	X	
3	MW-2	9-21-15	13:00	W	X	X	X	C15090769
4	MW-11	9-21-15	12:55	W	X	X	X	
5	MW-4	9-21-15	14:50	W	X	X	X	
6	MW-13	9-21-15	16:30	W	X	X	X	
7	MW-6	9-21-15	19:15	W	X	X	X	
8	MW-14A	9-22-15	15:45	W	X	X	X	
9	PW-12	9/22/15	15:30	W	X	X	X	
10	PW-13	9/22/15	16:50	W	X	X	X	

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): Greg Steed	Date/Time: 9-22-15 18:30	Signature:	Received by (print): Daniel Lashbrook	Date/Time: 9/22/15 1840 Signature:
Relinquished by (print): Daniel Lashbrook	Date/Time: 9/22/15 20:55	Signature:	Received by (print):	Date/Time: Signature:
Sample Disposal: Return to Client:		Lab Disposal: X	Received by Laboratory:	Date/Time: 9/23/15 8:00 Signature:

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.

ANALYTICAL SUMMARY REPORT

October 23, 2015

Lidstone and Associates
4025 Automation Way Unit E
Fort Collins, CO 80525

Work Order: C15090859

Project Name: WYDEQ104

Energy Laboratories, Inc. Casper WY received the following 15 samples for Lidstone and Associates on 9/25/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C15090859-001	South Willow Spring	09/23/15 17:05	09/25/15	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Conductivity Sample Filtering Fluoride E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha, Gross Beta Radium 226, Dissolved Radium 228, Dissolved Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated
C15090859-002	PW-9/MW-26	09/23/15 9:30	09/25/15	Aqueous	Same As Above
C15090859-003	PW-6/MW-23	09/23/15 9:40	09/25/15	Aqueous	Same As Above
C15090859-004	PW-5/MW-22	09/23/15 11:00	09/25/15	Aqueous	Same As Above
C15090859-005	MW-15	09/23/15 12:30	09/25/15	Aqueous	Same As Above
C15090859-006	MW-16	09/23/15 13:30	09/25/15	Aqueous	Same As Above
C15090859-007	PW-8/MW-25	09/23/15 14:50	09/25/15	Aqueous	Same As Above
C15090859-008	MW-9	09/23/15 18:35	09/25/15	Aqueous	Same As Above
C15090859-009	PW-1/MW-18	09/23/15 17:25	09/25/15	Aqueous	Same As Above
C15090859-010	PW-3/MW-20	09/23/15 18:30	09/25/15	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

C15090859-011	MW-12	09/22/15 19:20	09/25/15	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Conductivity Fluoride E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha, Gross Beta Radium 226, Dissolved Radium 228, Dissolved Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated
C15090859-012	PW-2/MW-19	09/24/15 9:45	09/25/15	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Conductivity Sample Filtering Fluoride E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha, Gross Beta Radium 226, Dissolved Radium 228, Dissolved Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated
C15090859-013	PW-4/MW-21	09/24/15 11:35	09/25/15	Aqueous	Same As Above
C15090859-014	PW-7/MW-24	09/24/15 10:30	09/25/15	Aqueous	Same As Above
C15090859-015	PW-15/MW-31	09/24/15 12:00	09/25/15	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. 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 test results, please call.

Report Approved By:

CLIENT: Lidstone and Associates
Project: WYDEQ104
Work Order: C15090859

Report Date: 10/23/15

CASE NARRATIVE

RADIOCHEMISTRY ANALYSIS
Per client request, results less than MDC (or precision if no MDC), are reported as <MDC (or <precision). Actual instrument results are available by request.

TH230 ANALYSIS
USNRC Regulatory Guide 4.14 provides guidance on Minimum Detectable Concentrations (MDC) that should be achieved in samples for this radionuclide. The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis. Please consult with your local regulatory agency prior to using these results for compliance purposes.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-001
Client Sample ID: South Willow Spring

Report Date: 10/23/15
Collection Date: 09/23/15 17:05
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 19:53 / wc
Bicarbonate as HCO3	335	mg/L		5		A2320 B	09/28/15 19:53 / wc
Calcium	321	mg/L		1		E200.7	10/02/15 15:18 / sf
Chloride	71	mg/L		1		E300.0	09/29/15 01:00 / wc
Fluoride	0.4	mg/L		0.1		A4500-F C	09/25/15 12:49 / wc
Magnesium	92	mg/L		1		E200.7	10/02/15 15:18 / sf
Nitrogen, Ammonia as N	10.9	mg/L	D	0.2		A4500-NH3 G	09/29/15 12:40 / lr
Nitrogen, Nitrate+Nitrite as N	0.8	mg/L		0.1		E353.2	09/29/15 16:09 / lr
Potassium	34	mg/L		1		E200.8	09/29/15 00:12 / smm
Silica	33.9	mg/L		0.2		E200.7	10/02/15 15:18 / sf
Sodium	173	mg/L		1		E200.7	10/02/15 15:18 / sf
Sulfate	1260	mg/L	D	4		E300.0	09/29/15 01:00 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	2670	umhos/cm		5		A2510 B	09/25/15 12:11 / lmc
pH	7.97	s.u.	H	0.01		A4500-H B	09/25/15 12:11 / lmc
Solids, Total Dissolved TDS @ 180 C	2170	mg/L		20		A2540 C	09/28/15 09:37 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 00:12 / smm
Arsenic	0.009	mg/L		0.001		E200.8	09/29/15 00:12 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 00:12 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 00:12 / smm
Boron	0.1	mg/L		0.1		E200.7	10/02/15 15:18 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 00:12 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 00:12 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 00:12 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 00:12 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 00:12 / smm
Manganese	0.40	mg/L		0.01		E200.8	09/29/15 00:12 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 00:12 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 00:12 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 00:12 / smm
Selenium	0.042	mg/L		0.001		E200.8	09/29/15 00:12 / smm
Uranium	0.200	mg/L		0.0003		E200.8	09/30/15 17:09 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 00:12 / smm
Zinc	ND	mg/L		0.01		E200.8	09/29/15 00:12 / smm
METALS - TOTAL							
Iron	0.04	mg/L		0.03		E200.7	10/01/15 22:09 / sf
Manganese	0.38	mg/L		0.01		E200.7	10/01/15 22:09 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-001
Client Sample ID: South Willow Spring

Report Date: 10/23/15
Collection Date: 09/23/15 17:05
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	179	pCi/L		5.9		E900.0	10/02/15 01:46 / trs
Gross Alpha precision (±)	36.7	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Alpha MDC	5.9	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta	47.2	pCi/L		8.9		E900.0	10/02/15 01:46 / trs
Gross Beta precision (±)	7.2	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta MDC	8.9	pCi/L				E900.0	10/02/15 01:46 / trs
Radium 226	0.32	pCi/L		0.17		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.15	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	1.1	pCi/L		1.1		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	0.7	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.1	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	10/05/15 11:24 / cng
Thorium 230 precision (±)	0.08	pCi/L				E908.0	10/05/15 11:24 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 11:24 / cng
DATA QUALITY							
A/C Balance (± 5)	-1.74	%				A1030 E	10/06/15 09:39 / sf
Anions	33.9	meq/L				A1030 E	10/06/15 09:39 / sf
Cations	32.7	meq/L				A1030 E	10/06/15 09:39 / sf
Solids, Total Dissolved Calculated	2200	mg/L				A1030 E	10/06/15 09:39 / sf
TDS Balance (0.80 - 1.20)	1.00	unitless				A1030 E	10/06/15 09:39 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-002
Client Sample ID: PW-9/MW-26

Report Date: 10/23/15
Collection Date: 09/23/15 09:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 20:01 / wc
Bicarbonate as HCO3	201	mg/L		5		A2320 B	09/28/15 20:01 / wc
Calcium	57	mg/L		1		E200.7	10/02/15 15:22 / sf
Chloride	13	mg/L		1		E300.0	09/29/15 01:55 / wc
Fluoride	0.7	mg/L		0.1		A4500-F C	09/29/15 12:23 / wc
Magnesium	18	mg/L		1		E200.7	10/02/15 15:22 / sf
Nitrogen, Ammonia as N	0.46	mg/L		0.05		A4500-NH3 G	09/29/15 12:45 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:10 / lr
Potassium	12	mg/L		1		E200.8	09/29/15 00:17 / smm
Silica	11.5	mg/L		0.2		E200.7	10/02/15 15:22 / sf
Sodium	249	mg/L		1		E200.7	10/02/15 15:22 / sf
Sulfate	553	mg/L	D	2		E300.0	09/29/15 01:55 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1500	umhos/cm		5		A2510 B	09/25/15 12:20 / lmc
pH	7.98	s.u.	H	0.01		A4500-H B	09/25/15 12:20 / lmc
Solids, Total Dissolved TDS @ 180 C	1030	mg/L		10		A2540 C	09/28/15 09:38 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 00:17 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/29/15 00:17 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 00:17 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 00:17 / smm
Boron	0.5	mg/L		0.1		E200.7	10/02/15 15:22 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 00:17 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 00:17 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 00:17 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 00:17 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 00:17 / smm
Manganese	0.12	mg/L		0.01		E200.8	09/29/15 00:17 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 00:17 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 00:17 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 00:17 / smm
Selenium	0.012	mg/L		0.001		E200.8	09/29/15 00:17 / smm
Uranium	0.0072	mg/L		0.0003		E200.8	09/30/15 17:21 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 00:17 / smm
Zinc	ND	mg/L		0.01		E200.8	09/29/15 00:17 / smm
METALS - TOTAL							
Iron	4.68	mg/L		0.03		E200.7	10/01/15 22:13 / sf
Manganese	0.20	mg/L		0.01		E200.7	10/01/15 22:13 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-002
Client Sample ID: PW-9/MW-26

Report Date: 10/23/15
Collection Date: 09/23/15 09:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	14.6	pCi/L		2.6		E900.0	10/02/15 01:47 / trs
Gross Alpha precision (±)	3.8	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Alpha MDC	2.6	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Beta	9.7	pCi/L		4.2		E900.0	10/02/15 01:47 / trs
Gross Beta precision (±)	2.8	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Beta MDC	4.2	pCi/L				E900.0	10/02/15 01:47 / trs
Radium 226	1.1	pCi/L		0.22		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.32	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.22	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	<1.5	pCi/L	U	1.5		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.5	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	0.3	pCi/L		0.2		E908.0	10/05/15 11:24 / cng
Thorium 230 precision (±)	0.2	pCi/L				E908.0	10/05/15 11:24 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 11:24 / cng
DATA QUALITY							
A/C Balance (± 5)	0.79	%				A1030 E	10/06/15 09:39 / sf
Anions	15.2	meq/L				A1030 E	10/06/15 09:39 / sf
Cations	15.4	meq/L				A1030 E	10/06/15 09:39 / sf
Solids, Total Dissolved Calculated	1000	mg/L				A1030 E	10/06/15 09:39 / sf
TDS Balance (0.80 - 1.20)	1.02	unitless				A1030 E	10/06/15 09:39 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-003
Client Sample ID: PW-6/MW-23

Report Date: 10/23/15
Collection Date: 09/23/15 09:40
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 20:16 / wc
Bicarbonate as HCO3	321	mg/L		5		A2320 B	09/28/15 20:16 / wc
Calcium	269	mg/L		1		E200.7	10/02/15 15:26 / sf
Chloride	45	mg/L		1		E300.0	09/29/15 02:14 / wc
Fluoride	0.8	mg/L		0.1		A4500-F C	09/29/15 12:31 / wc
Magnesium	54	mg/L		1		E200.7	10/02/15 15:26 / sf
Nitrogen, Ammonia as N	0.32	mg/L		0.05		A4500-NH3 G	09/29/15 12:47 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:11 / lr
Potassium	21	mg/L		1		E200.8	09/29/15 00:22 / smm
Silica	42.3	mg/L		0.2		E200.7	10/02/15 15:26 / sf
Sodium	211	mg/L		1		E200.7	10/02/15 15:26 / sf
Sulfate	980	mg/L	D	2		E300.0	09/29/15 02:14 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	2320	umhos/cm		5		A2510 B	09/25/15 12:24 / lmc
pH	7.07	s.u.	H	0.01		A4500-H B	09/25/15 12:24 / lmc
Solids, Total Dissolved TDS @ 180 C	1860	mg/L		20		A2540 C	09/28/15 09:38 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 00:22 / smm
Arsenic	0.010	mg/L		0.001		E200.8	09/29/15 00:22 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 00:22 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 00:22 / smm
Boron	0.4	mg/L		0.1		E200.7	10/02/15 15:26 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 00:22 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 00:22 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 00:22 / smm
Iron	0.51	mg/L		0.03		E200.8	09/29/15 00:22 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 00:22 / smm
Manganese	0.36	mg/L		0.01		E200.8	09/29/15 00:22 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 00:22 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 00:22 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 00:22 / smm
Selenium	0.006	mg/L		0.001		E200.8	09/29/15 00:22 / smm
Uranium	0.115	mg/L		0.0003		E200.8	09/30/15 17:23 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 00:22 / smm
Zinc	ND	mg/L		0.01		E200.8	09/29/15 00:22 / smm
METALS - TOTAL							
Iron	0.73	mg/L		0.03		E200.7	10/01/15 22:17 / sf
Manganese	0.35	mg/L		0.01		E200.7	10/01/15 22:17 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-003
Client Sample ID: PW-6/MW-23

Report Date: 10/23/15
Collection Date: 09/23/15 09:40
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	96.1	pCi/L		4.4		E900.0	10/02/15 01:47 / trs
Gross Alpha precision (±)	20.2	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Alpha MDC	4.4	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Beta	25.0	pCi/L		7.5		E900.0	10/02/15 01:47 / trs
Gross Beta precision (±)	5.1	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Beta MDC	7.5	pCi/L				E900.0	10/02/15 01:47 / trs
Radium 226	1.1	pCi/L		0.17		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.30	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	2.7	pCi/L		1.1		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.1	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	10/05/15 11:24 / cng
Thorium 230 precision (±)	0.07	pCi/L				E908.0	10/05/15 11:24 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 11:24 / cng
DATA QUALITY							
A/C Balance (± 5)	1.32	%				A1030 E	10/06/15 09:39 / sf
Anions	27.0	meq/L				A1030 E	10/06/15 09:39 / sf
Cations	27.7	meq/L				A1030 E	10/06/15 09:39 / sf
Solids, Total Dissolved Calculated	1800	mg/L				A1030 E	10/06/15 09:39 / sf
TDS Balance (0.80 - 1.20)	1.04	unitless				A1030 E	10/06/15 09:39 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-004
Client Sample ID: PW-5/MW-22

Report Date: 10/23/15
Collection Date: 09/23/15 11:00
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 20:24 / wc
Bicarbonate as HCO3	187	mg/L		5		A2320 B	09/28/15 20:24 / wc
Calcium	428	mg/L		1		E200.7	10/22/15 14:11 / sf
Chloride	81	mg/L		1		E300.0	09/29/15 02:32 / wc
Fluoride	0.9	mg/L		0.1		A4500-F C	09/29/15 12:34 / wc
Magnesium	117	mg/L		1		E200.7	10/02/15 15:30 / sf
Nitrogen, Ammonia as N	0.09	mg/L		0.05		A4500-NH3 G	09/29/15 12:49 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:13 / lr
Potassium	32	mg/L		1		E200.8	09/29/15 00:28 / smm
Silica	22.6	mg/L		0.2		E200.7	10/02/15 15:30 / sf
Sodium	439	mg/L		1		E200.7	10/02/15 15:30 / sf
Sulfate	2260	mg/L	D	4		E300.0	09/29/15 02:32 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	3990	umhos/cm		5		A2510 B	09/25/15 12:28 / lmc
pH	7.60	s.u.	H	0.01		A4500-H B	09/25/15 12:28 / lmc
Solids, Total Dissolved TDS @ 180 C	3530	mg/L		40		A2540 C	09/28/15 09:39 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 00:28 / smm
Arsenic	0.002	mg/L		0.001		E200.8	09/29/15 00:28 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 00:28 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 00:28 / smm
Boron	0.3	mg/L		0.1		E200.7	10/02/15 15:30 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 00:28 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 00:28 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 00:28 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 00:28 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 00:28 / smm
Manganese	0.29	mg/L		0.01		E200.8	09/29/15 00:28 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 00:28 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 00:28 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 00:28 / smm
Selenium	0.021	mg/L		0.001		E200.8	09/29/15 00:28 / smm
Uranium	0.155	mg/L		0.0003		E200.8	09/30/15 17:26 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 00:28 / smm
Zinc	0.11	mg/L		0.01		E200.8	09/29/15 00:28 / smm
METALS - TOTAL							
Iron	3.25	mg/L		0.03		E200.7	10/01/15 22:37 / sf
Manganese	0.19	mg/L		0.01		E200.7	10/01/15 22:37 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-004
Client Sample ID: PW-5 /MW-22

Report Date: 10/23/15
Collection Date: 09/23/15 11:00
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	121	pCi/L		11.5		E900.0	10/02/15 01:46 / trs
Gross Alpha precision (±)	28.3	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Alpha MDC	11.5	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta	34.9	pCi/L		14.7		E900.0	10/02/15 01:46 / trs
Gross Beta precision (±)	8.1	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta MDC	14.7	pCi/L				E900.0	10/02/15 01:46 / trs
Radium 226	1.3	pCi/L		0.17		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.36	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	2.0	pCi/L		1.1		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	0.8	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.1	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	10/05/15 11:24 / cng
Thorium 230 precision (±)	0.09	pCi/L				E908.0	10/05/15 11:24 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 11:24 / cng
DATA QUALITY							
A/C Balance (± 5)	-1.54	%				A1030 E	10/23/15 11:01 / sf
Anions	52.5	meq/L				A1030 E	10/23/15 11:01 / sf
Cations	50.9	meq/L				A1030 E	10/23/15 11:01 / sf
Solids, Total Dissolved Calculated	3500	mg/L				A1030 E	10/23/15 11:01 / sf
TDS Balance (0.80 - 1.20)	1.01	unitless				A1030 E	10/23/15 11:01 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-005
Client Sample ID: MW-15

Report Date: 10/23/15
Collection Date: 09/23/15 12:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 20:32 / wc
Bicarbonate as HCO3	328	mg/L		5		A2320 B	09/28/15 20:32 / wc
Calcium	468	mg/L		1		E200.7	10/22/15 14:15 / sf
Chloride	106	mg/L		1		E300.0	09/29/15 02:51 / wc
Fluoride	0.4	mg/L		0.1		A4500-F C	09/29/15 12:37 / wc
Magnesium	101	mg/L		1		E200.7	10/02/15 15:34 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	09/29/15 12:50 / lr
Nitrogen, Nitrate+Nitrite as N	1.1	mg/L		0.1		E353.2	09/29/15 16:14 / lr
Potassium	36	mg/L		1		E200.8	09/29/15 00:33 / smm
Silica	55.1	mg/L		0.2		E200.7	10/02/15 15:34 / sf
Sodium	216	mg/L		1		E200.7	10/02/15 15:34 / sf
Sulfate	1680	mg/L	D	4		E300.0	09/29/15 02:51 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	3270	umhos/cm		5		A2510 B	09/25/15 12:33 / lmc
pH	7.23	s.u.	H	0.01		A4500-H B	09/25/15 12:33 / lmc
Solids, Total Dissolved TDS @ 180 C	2890	mg/L		20		A2540 C	09/28/15 09:39 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 00:33 / smm
Arsenic	0.009	mg/L		0.001		E200.8	09/29/15 00:33 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 00:33 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 00:33 / smm
Boron	0.1	mg/L		0.1		E200.7	10/02/15 15:34 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 00:33 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 00:33 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 00:33 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 00:33 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 00:33 / smm
Manganese	ND	mg/L		0.01		E200.8	09/29/15 00:33 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 00:33 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 00:33 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 00:33 / smm
Selenium	0.006	mg/L		0.001		E200.8	09/29/15 00:33 / smm
Uranium	0.323	mg/L		0.0003		E200.8	09/30/15 17:28 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 00:33 / smm
Zinc	ND	mg/L		0.01		E200.8	09/29/15 00:33 / smm
METALS - TOTAL							
Iron	ND	mg/L		0.03		E200.7	10/01/15 22:41 / sf
Manganese	ND	mg/L		0.01		E200.7	10/01/15 22:41 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-005
Client Sample ID: MW-15

Report Date: 10/23/15
Collection Date: 09/23/15 12:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	205	pCi/L		7.6		E900.0	10/02/15 01:46 / trs
Gross Alpha precision (±)	42.1	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Alpha MDC	7.6	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta	47.2	pCi/L		12.2		E900.0	10/02/15 01:46 / trs
Gross Beta precision (±)	8.6	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta MDC	12.2	pCi/L				E900.0	10/02/15 01:46 / trs
Radium 226	1.0	pCi/L		0.17		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.28	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	3.4	pCi/L		1.1		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	1	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.1	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.5	pCi/L	U	0.5		E908.0	10/05/15 11:24 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	10/05/15 11:24 / cng
Thorium 230 MDC	0.5	pCi/L				E908.0	10/05/15 11:24 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.63	%				A1030 E	10/23/15 11:01 / sf
Anions	43.4	meq/L				A1030 E	10/23/15 11:01 / sf
Cations	42.0	meq/L				A1030 E	10/23/15 11:01 / sf
Solids, Total Dissolved Calculated	2800	mg/L				A1030 E	10/23/15 11:01 / sf
TDS Balance (0.80 - 1.20)	1.02	unitless				A1030 E	10/23/15 11:01 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-006
Client Sample ID: MW-16

Report Date: 10/23/15
Collection Date: 09/23/15 13:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 20:40 / wc
Bicarbonate as HCO3	336	mg/L		5		A2320 B	09/28/15 20:40 / wc
Calcium	409	mg/L		1		E200.7	10/22/15 14:19 / sf
Chloride	90	mg/L		1		E300.0	09/29/15 03:09 / wc
Fluoride	0.4	mg/L		0.1		A4500-F C	09/29/15 12:39 / wc
Magnesium	86	mg/L		1		E200.7	10/02/15 15:38 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	09/29/15 12:52 / lr
Nitrogen, Nitrate+Nitrite as N	4.3	mg/L	D	0.5		E353.2	09/29/15 16:17 / lr
Potassium	32	mg/L		1		E200.8	09/29/15 00:59 / smm
Silica	49.7	mg/L		0.2		E200.7	10/02/15 15:38 / sf
Sodium	193	mg/L		1		E200.7	10/02/15 15:38 / sf
Sulfate	1430	mg/L	D	4		E300.0	09/29/15 03:09 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	2910	umhos/cm		5		A2510 B	09/25/15 12:37 / lmc
pH	7.21	s.u.	H	0.01		A4500-H B	09/25/15 12:37 / lmc
Solids, Total Dissolved TDS @ 180 C	2500	mg/L		20		A2540 C	09/28/15 09:40 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 00:59 / smm
Arsenic	0.010	mg/L		0.001		E200.8	09/29/15 00:59 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 00:59 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 00:59 / smm
Boron	0.1	mg/L		0.1		E200.7	10/02/15 15:38 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 00:59 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 00:59 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 00:59 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 00:59 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 00:59 / smm
Manganese	ND	mg/L		0.01		E200.8	09/29/15 00:59 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 00:59 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 00:59 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 00:59 / smm
Selenium	0.003	mg/L		0.001		E200.8	09/29/15 00:59 / smm
Uranium	0.299	mg/L		0.0003		E200.8	09/30/15 17:31 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 00:59 / smm
Zinc	0.02	mg/L		0.01		E200.8	09/29/15 00:59 / smm
METALS - TOTAL							
Iron	ND	mg/L		0.03		E200.7	10/01/15 22:45 / sf
Manganese	ND	mg/L		0.01		E200.7	10/01/15 22:45 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-006
Client Sample ID: MW-16

Report Date: 10/23/15
Collection Date: 09/23/15 13:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	210	pCi/L		6.9		E900.0	10/02/15 01:46 / trs
Gross Alpha precision (±)	42.9	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Alpha MDC	6.9	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta	41.8	pCi/L		13.0		E900.0	10/02/15 01:46 / trs
Gross Beta precision (±)	8.1	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta MDC	13.0	pCi/L				E900.0	10/02/15 01:46 / trs
Radium 226	1.2	pCi/L		0.17		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.32	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	2.3	pCi/L		1.1		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.1	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.6	pCi/L	U	0.6		E908.0	10/05/15 11:24 / cng
Thorium 230 precision (±)	0.2	pCi/L				E908.0	10/05/15 11:24 / cng
Thorium 230 MDC	0.6	pCi/L				E908.0	10/05/15 11:24 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.95	%				A1030 E	10/23/15 11:01 / sf
Anions	38.1	meq/L				A1030 E	10/23/15 11:01 / sf
Cations	36.7	meq/L				A1030 E	10/23/15 11:01 / sf
Solids, Total Dissolved Calculated	2500	mg/L				A1030 E	10/23/15 11:01 / sf
TDS Balance (0.80 - 1.20)	1.00	unitless				A1030 E	10/23/15 11:01 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-007
Client Sample ID: PW-8/MW-25

Report Date: 10/23/15
Collection Date: 09/23/15 14:50
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 20:48 / wc
Bicarbonate as HCO3	462	mg/L		5		A2320 B	09/28/15 20:48 / wc
Calcium	435	mg/L		1		E200.7	10/02/15 15:58 / sf
Chloride	153	mg/L	D	2		E300.0	09/29/15 03:27 / wc
Fluoride	0.6	mg/L		0.1		A4500-F C	09/29/15 12:42 / wc
Magnesium	188	mg/L		1		E200.7	10/02/15 15:58 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	09/29/15 12:54 / lr
Nitrogen, Nitrate+Nitrite as N	7.2	mg/L	D	0.5		E353.2	09/29/15 16:20 / lr
Potassium	51	mg/L		1		E200.8	09/29/15 01:04 / smm
Silica	49.2	mg/L		0.2		E200.7	10/02/15 15:58 / sf
Sodium	651	mg/L		1		E200.7	10/02/15 15:58 / sf
Sulfate	2630	mg/L	D	8		E300.0	09/29/15 03:27 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	5250	umhos/cm		5		A2510 B	09/25/15 12:42 / lmc
pH	7.29	s.u.	H	0.01		A4500-H B	09/25/15 12:42 / lmc
Solids, Total Dissolved TDS @ 180 C	4510	mg/L		40		A2540 C	09/28/15 09:40 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 01:04 / smm
Arsenic	0.008	mg/L		0.001		E200.8	09/29/15 01:04 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 01:04 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 01:04 / smm
Boron	0.6	mg/L		0.1		E200.7	10/02/15 15:58 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 01:04 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 01:04 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 01:04 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 01:04 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 01:04 / smm
Manganese	0.07	mg/L		0.01		E200.8	09/29/15 01:04 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 01:04 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 01:04 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 01:04 / smm
Selenium	0.085	mg/L		0.001		E200.8	09/29/15 01:04 / smm
Uranium	1.42	mg/L	D	0.0005		E200.8	09/30/15 17:33 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 01:04 / smm
Zinc	0.02	mg/L		0.01		E200.8	09/29/15 01:04 / smm
METALS - TOTAL							
Iron	3.54	mg/L		0.03		E200.7	10/01/15 22:49 / sf
Manganese	0.07	mg/L		0.01		E200.7	10/01/15 22:49 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-007
Client Sample ID: PW-8/MW-25

Report Date: 10/23/15
Collection Date: 09/23/15 14:50
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	793	pCi/L		14.0		E900.0	10/02/15 01:46 / trs
Gross Alpha precision (±)	157	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Alpha MDC	14.0	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta	103	pCi/L		18.8		E900.0	10/02/15 01:46 / trs
Gross Beta precision (±)	14.2	pCi/L				E900.0	10/02/15 01:46 / trs
Gross Beta MDC	18.8	pCi/L				E900.0	10/02/15 01:46 / trs
Radium 226	1.6	pCi/L		0.18		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.39	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.18	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	3.0	pCi/L		1.2		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	1	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	10/05/15 11:24 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 11:24 / cng
Thorium 230 MDC	0.3	pCi/L				E908.0	10/05/15 11:24 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-0.34	%				A1030 E	10/06/15 09:40 / sf
Anions	67.3	meq/L				A1030 E	10/06/15 09:40 / sf
Cations	66.8	meq/L				A1030 E	10/06/15 09:40 / sf
Solids, Total Dissolved Calculated	4400	mg/L				A1030 E	10/06/15 09:40 / sf
TDS Balance (0.80 - 1.20)	1.02	unitless				A1030 E	10/06/15 09:40 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-008
Client Sample ID: MW-9

Report Date: 10/23/15
Collection Date: 09/23/15 18:35
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 20:56 / wc
Bicarbonate as HCO3	267	mg/L		5		A2320 B	09/28/15 20:56 / wc
Calcium	220	mg/L		1		E200.7	10/02/15 16:02 / sf
Chloride	17	mg/L		1		E300.0	09/29/15 03:46 / wc
Fluoride	0.4	mg/L		0.1		A4500-F C	09/29/15 12:45 / wc
Magnesium	62	mg/L		1		E200.7	10/02/15 16:02 / sf
Nitrogen, Ammonia as N	0.25	mg/L		0.05		A4500-NH3 G	09/29/15 12:55 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:22 / lr
Potassium	20	mg/L		1		E200.8	09/29/15 01:09 / smm
Silica	15.8	mg/L		0.2		E200.7	10/02/15 16:02 / sf
Sodium	88	mg/L		1		E200.7	10/02/15 16:02 / sf
Sulfate	697	mg/L	D	2		E300.0	09/29/15 03:46 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1680	umhos/cm		5		A2510 B	09/25/15 12:45 / lmc
pH	7.33	s.u.	H	0.01		A4500-H B	09/25/15 12:45 / lmc
Solids, Total Dissolved TDS @ 180 C	1320	mg/L		10		A2540 C	09/28/15 09:40 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 01:09 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/29/15 01:09 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 01:09 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 01:09 / smm
Boron	0.3	mg/L		0.1		E200.7	10/02/15 16:02 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 01:09 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 01:09 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 01:09 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 01:09 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 01:09 / smm
Manganese	0.09	mg/L		0.01		E200.8	09/29/15 01:09 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 01:09 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 01:09 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 01:09 / smm
Selenium	ND	mg/L		0.001		E200.8	09/29/15 01:09 / smm
Uranium	0.0025	mg/L		0.0003		E200.8	09/30/15 17:36 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 01:09 / smm
Zinc	ND	mg/L		0.01		E200.8	09/29/15 01:09 / smm
METALS - TOTAL							
Iron	21.3	mg/L		0.03		E200.7	10/01/15 22:53 / sf
Manganese	0.37	mg/L		0.01		E200.7	10/01/15 22:53 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-008
Client Sample ID: MW-9

Report Date: 10/23/15
Collection Date: 09/23/15 18:35
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	15.5	pCi/L		3.6		E900.0	10/02/15 01:47 / trs
Gross Alpha precision (±)	4.3	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Alpha MDC	3.6	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Beta	19.2	pCi/L		5.9		E900.0	10/02/15 01:47 / trs
Gross Beta precision (±)	4.4	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Beta MDC	5.9	pCi/L				E900.0	10/02/15 01:47 / trs
Radium 226	1.7	pCi/L		0.17		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.41	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	3.6	pCi/L		1.1		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	1.2	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.1	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.6	pCi/L	U	0.6		E908.0	10/05/15 11:25 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	10/05/15 11:25 / cng
Thorium 230 MDC	0.6	pCi/L				E908.0	10/05/15 11:25 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	2.67	%				A1030 E	10/06/15 09:40 / sf
Anions	19.4	meq/L				A1030 E	10/06/15 09:40 / sf
Cations	20.5	meq/L				A1030 E	10/06/15 09:40 / sf
Solids, Total Dissolved Calculated	1200	mg/L				A1030 E	10/06/15 09:40 / sf
TDS Balance (0.80 - 1.20)	1.06	unitless				A1030 E	10/06/15 09:40 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-009
Client Sample ID: PW-1/MW-18

Report Date: 10/23/15
Collection Date: 09/23/15 17:25
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 21:04 / wc
Bicarbonate as HCO3	423	mg/L		5		A2320 B	09/28/15 21:04 / wc
Calcium	437	mg/L		1		E200.7	10/02/15 16:06 / sf
Chloride	112	mg/L	D	2		E300.0	09/29/15 04:04 / wc
Fluoride	0.8	mg/L		0.1		A4500-F C	09/29/15 12:47 / wc
Magnesium	155	mg/L		1		E200.7	10/02/15 16:06 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	09/29/15 12:57 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:23 / lr
Potassium	48	mg/L		1		E200.8	09/29/15 01:15 / smm
Silica	58.6	mg/L		0.2		E200.7	10/02/15 16:06 / sf
Sodium	797	mg/L		1		E200.7	10/02/15 16:06 / sf
Sulfate	2890	mg/L	D	8		E300.0	09/29/15 04:04 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	5620	umhos/cm		5		A2510 B	09/25/15 12:49 / lmc
pH	7.36	s.u.	H	0.01		A4500-H B	09/25/15 12:49 / lmc
Solids, Total Dissolved TDS @ 180 C	*4850*	*mg/L*		*40*		*A2540 C*	*09/28/15 09:40 / mag*
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 01:15 / smm
Arsenic	0.010	mg/L		0.001		E200.8	09/29/15 01:15 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 01:15 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 01:15 / smm
Boron	0.5	mg/L		0.1		E200.7	10/02/15 16:06 / sf
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 01:15 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 01:15 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 01:15 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 01:15 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 01:15 / smm
Manganese	ND	mg/L		0.01		E200.8	09/29/15 01:15 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 01:15 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 01:15 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 01:15 / smm
Selenium	0.036	mg/L		0.001		E200.8	09/29/15 01:15 / smm
Uranium	0.564	mg/L	D	0.0005		E200.8	09/30/15 17:38 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 01:15 / smm
Zinc	ND	mg/L		0.01		E200.8	09/29/15 01:15 / smm
METALS - TOTAL							
Iron	0.64	mg/L		0.03		E200.7	10/01/15 22:57 / sf
Manganese	0.01	mg/L		0.01		E200.7	10/01/15 22:57 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-009
Client Sample ID: PW-1/MW-18

Report Date: 10/23/15
Collection Date: 09/23/15 17:25
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	405	pCi/L		14.3		E900.0	10/02/15 01:47 / trs
Gross Alpha precision (±)	82.7	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Alpha MDC	14.3	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Beta	66.8	pCi/L		19.2		E900.0	10/02/15 01:47 / trs
Gross Beta precision (±)	11.9	pCi/L				E900.0	10/02/15 01:47 / trs
Gross Beta MDC	19.2	pCi/L				E900.0	10/02/15 01:47 / trs
Radium 226	0.50	pCi/L		0.17		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.16	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	1.5	pCi/L		1.1		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.1	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	10/05/15 11:25 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 11:25 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 11:25 / cng
DATA QUALITY							
A/C Balance (± 5)	0.15	%				A1030 E	10/06/15 09:40 / sf
Anions	70.2	meq/L				A1030 E	10/06/15 09:40 / sf
Cations	70.4	meq/L				A1030 E	10/06/15 09:40 / sf
Solids, Total Dissolved Calculated	4700	mg/L				A1030 E	10/06/15 09:40 / sf
TDS Balance (0.80 - 1.20)	1.03	unitless				A1030 E	10/06/15 09:40 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-010
Client Sample ID: PW-3/MW-20

Report Date: 10/23/15
Collection Date: 09/23/15 18:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 21:13 / wc
Bicarbonate as HCO3	694	mg/L		5		A2320 B	09/28/15 21:13 / wc
Calcium	39	mg/L		1		E200.7	10/02/15 16:18 / sf
Chloride	21	mg/L		1		E300.0	09/29/15 04:23 / wc
Fluoride	0.6	mg/L		0.1		A4500-F C	09/29/15 12:50 / wc
Magnesium	18	mg/L		1		E200.7	10/02/15 16:18 / sf
Nitrogen, Ammonia as N	1.22	mg/L		0.05		A4500-NH3 G	09/29/15 12:59 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:24 / lr
Potassium	9	mg/L		1		E200.8	09/29/15 02:48 / smm
Silica	10.9	mg/L		0.2		E200.8	09/29/15 02:48 / smm
Sodium	746	mg/L		1		E200.7	10/02/15 16:18 / sf
Sulfate	1220	mg/L	D	4		E300.0	09/29/15 04:23 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	3360	umhos/cm		5		A2510 B	09/25/15 12:53 / lmc
pH	7.76	s.u.	H	0.01		A4500-H B	09/25/15 12:53 / lmc
Solids, Total Dissolved TDS @ 180 C	2380	mg/L		20		A2540 C	09/28/15 09:41 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 02:48 / smm
Arsenic	0.004	mg/L		0.001		E200.8	09/29/15 02:48 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 02:48 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 02:48 / smm
Boron	1.9	mg/L		0.1		E200.8	09/29/15 02:48 / smm
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 02:48 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 02:48 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 02:48 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 02:48 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 02:48 / smm
Manganese	0.14	mg/L		0.01		E200.8	09/29/15 02:48 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 02:48 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 02:48 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 02:48 / smm
Selenium	ND	mg/L		0.001		E200.8	09/29/15 02:48 / smm
Uranium	0.0045	mg/L		0.0003		E200.8	09/29/15 02:48 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 02:48 / smm
Zinc	0.01	mg/L		0.01		E200.8	09/29/15 02:48 / smm
METALS - TOTAL							
Iron	3.02	mg/L		0.03		E200.7	10/01/15 23:09 / sf
Manganese	0.20	mg/L		0.01		E200.7	10/01/15 23:09 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-010
Client Sample ID: PW-3/MW-20

Report Date: 10/23/15
Collection Date: 09/23/15 18:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	11.3	pCi/L		8.7		E900.0	10/02/15 02:11 / trs
Gross Alpha precision (±)	7.8	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Alpha MDC	8.7	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta	<12.4	pCi/L	U	12.4		E900.0	10/02/15 02:11 / trs
Gross Beta precision (±)	6.1	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta MDC	12.4	pCi/L				E900.0	10/02/15 02:11 / trs
Radium 226	0.72	pCi/L		0.18		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	0.20	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.18	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	2.3	pCi/L		1.2		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	10/05/15 11:25 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 11:25 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 11:25 / cng
DATA QUALITY							
A/C Balance (± 5)	-1.59	%				A1030 E	10/06/15 09:40 / sf
Anions	37.4	meq/L				A1030 E	10/06/15 09:40 / sf
Cations	36.2	meq/L				A1030 E	10/06/15 09:40 / sf
Solids, Total Dissolved Calculated	2400	mg/L				A1030 E	10/06/15 09:40 / sf
TDS Balance (0.80 - 1.20)	0.99	unitless				A1030 E	10/06/15 09:40 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-011
Client Sample ID: MW-12

Report Date: 10/23/15
Collection Date: 09/22/15 19:20
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 21:20 / wc
Bicarbonate as HCO3	461	mg/L		5		A2320 B	09/28/15 21:20 / wc
Calcium	607	mg/L		1		E200.7	10/01/15 19:03 / sf
Chloride	180	mg/L		1		E300.0	09/29/15 05:36 / wc
Fluoride	0.2	mg/L		0.1		A4500-F C	09/29/15 12:53 / wc
Magnesium	85	mg/L		1		E200.7	10/01/15 19:03 / sf
Nitrogen, Ammonia as N	0.31	mg/L		0.05		A4500-NH3 G	09/29/15 13:04 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:25 / lr
Potassium	26	mg/L		1		E200.8	09/29/15 02:53 / smm
Silica	22.1	mg/L		0.2		E200.8	09/29/15 02:53 / smm
Sodium	200	mg/L		1		E200.7	10/01/15 19:03 / sf
Sulfate	1700	mg/L	D	4		E300.0	09/29/15 05:36 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	3600	umhos/cm		5		A2510 B	09/25/15 12:57 / lmc
pH	6.56	s.u.	H	0.01		A4500-H B	09/25/15 12:57 / lmc
Solids, Total Dissolved TDS @ 180 C	3220	mg/L		40		A2540 C	09/28/15 09:41 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 02:53 / smm
Arsenic	0.007	mg/L		0.001		E200.8	09/29/15 02:53 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 02:53 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 02:53 / smm
Boron	ND	mg/L		0.1		E200.8	09/29/15 02:53 / smm
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 02:53 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 02:53 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 02:53 / smm
Iron	0.79	mg/L		0.03		E200.8	09/29/15 02:53 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 02:53 / smm
Manganese	0.73	mg/L		0.01		E200.8	09/29/15 02:53 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 02:53 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 02:53 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 02:53 / smm
Selenium	ND	mg/L		0.001		E200.8	09/29/15 02:53 / smm
Uranium	5.94	mg/L		0.0003		E200.8	09/29/15 02:53 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 02:53 / smm
Zinc	ND	mg/L		0.01		E200.8	09/29/15 02:53 / smm
METALS - TOTAL							
Iron	1.16	mg/L		0.03		E200.7	10/01/15 23:13 / sf
Manganese	0.71	mg/L		0.01		E200.7	10/01/15 23:13 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-011
Client Sample ID: MW-12

Report Date: 10/23/15
Collection Date: 09/22/15 19:20
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	3620	pCi/L		12.2		E900.0	10/02/15 02:11 / trs
Gross Alpha precision (±)	703	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Alpha MDC	12.2	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta	562	pCi/L		14.1		E900.0	10/02/15 02:11 / trs
Gross Beta precision (±)	58.0	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta MDC	14.1	pCi/L				E900.0	10/02/15 02:11 / trs
Radium 226	29	pCi/L		0.18		E903.0	10/07/15 06:47 / dmf
Radium 226 precision (±)	5.5	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 226 MDC	0.18	pCi/L				E903.0	10/07/15 06:47 / dmf
Radium 228	27.1	pCi/L		1.2		RA-05	10/02/15 10:56 / plj
Radium 228 precision (±)	5.1	pCi/L				RA-05	10/02/15 10:56 / plj
Radium 228 MDC	1.2	pCi/L				RA-05	10/02/15 10:56 / plj
Thorium 230	<0.5	pCi/L	U	0.5		E908.0	10/05/15 11:25 / cng
Thorium 230 precision (±)	0.3	pCi/L				E908.0	10/05/15 11:25 / cng
Thorium 230 MDC	0.5	pCi/L				E908.0	10/05/15 11:25 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.50	%				A1030 E	10/03/15 15:01 / sec
Anions	48.1	meq/L				A1030 E	10/03/15 15:01 / sec
Cations	46.7	meq/L				A1030 E	10/03/15 15:01 / sec
Solids, Total Dissolved Calculated	3100	mg/L				A1030 E	10/03/15 15:01 / sec
TDS Balance (0.80 - 1.20)	1.05	unitless				A1030 E	10/03/15 15:01 / sec

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-012
Client Sample ID: PW-2/MW-19

Report Date: 10/23/15
Collection Date: 09/24/15 09:45
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 21:53 / wc
Bicarbonate as HCO3	1360	mg/L		5		A2320 B	09/28/15 21:53 / wc
Calcium	38	mg/L		1		E200.7	10/02/15 16:22 / sf
Chloride	180	mg/L	D	2		E300.0	09/29/15 06:32 / wc
Fluoride	0.6	mg/L		0.1		A4500-F C	09/29/15 13:02 / wc
Magnesium	21	mg/L		1		E200.7	10/02/15 16:22 / sf
Nitrogen, Ammonia as N	1.56	mg/L		0.05		A4500-NH3 G	09/29/15 13:09 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:26 / lr
Potassium	10	mg/L		1		E200.8	09/29/15 02:58 / smm
Silica	10.0	mg/L		0.2		E200.8	09/29/15 02:58 / smm
Sodium	1190	mg/L		1		E200.7	10/02/15 16:22 / sf
Sulfate	1400	mg/L	D	8		E300.0	09/29/15 06:32 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	5090	umhos/cm		5		A2510 B	09/25/15 13:06 / lmc
pH	7.54	s.u.	H	0.01		A4500-H B	09/25/15 13:06 / lmc
Solids, Total Dissolved TDS @ 180 C	3610	mg/L		40		A2540 C	09/28/15 09:41 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 02:58 / smm
Arsenic	0.001	mg/L		0.001		E200.8	09/29/15 02:58 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 02:58 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 02:58 / smm
Boron	2.3	mg/L		0.1		E200.8	09/29/15 02:58 / smm
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 02:58 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 02:58 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 02:58 / smm
Iron	0.04	mg/L		0.03		E200.8	09/29/15 02:58 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 02:58 / smm
Manganese	0.07	mg/L		0.01		E200.8	09/29/15 02:58 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 02:58 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 02:58 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 02:58 / smm
Selenium	ND	mg/L		0.001		E200.8	09/29/15 02:58 / smm
Uranium	0.0097	mg/L		0.0003		E200.8	09/29/15 02:58 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 02:58 / smm
Zinc	0.03	mg/L		0.01		E200.8	09/29/15 02:58 / smm
METALS - TOTAL							
Iron	4.83	mg/L		0.03		E200.7	10/02/15 00:05 / sf
Manganese	0.11	mg/L		0.01		E200.7	10/02/15 00:05 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-012
Client Sample ID: PW-2 /MW-19

Report Date: 10/23/15
Collection Date: 09/24/15 09:45
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	21.8	pCi/L		15.6		E900.0	10/02/15 02:11 / trs
Gross Alpha precision (±)	14.0	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Alpha MDC	15.6	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta	<18.3	pCi/L	U	18.3		E900.0	10/02/15 02:11 / trs
Gross Beta precision (±)	9.1	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta MDC	18.3	pCi/L				E900.0	10/02/15 02:11 / trs
Radium 226	0.90	pCi/L		0.17		E903.0	10/07/15 08:24 / dmf
Radium 226 precision (±)	0.20	pCi/L				E903.0	10/07/15 08:24 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 08:24 / dmf
Radium 228	<1.4	pCi/L	U	1.4		RA-05	10/02/15 12:29 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	10/02/15 12:29 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	10/02/15 12:29 / plj
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	10/05/15 11:25 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 11:25 / cng
Thorium 230 MDC	0.3	pCi/L				E908.0	10/05/15 11:25 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-0.66	%				A1030 E	10/06/15 09:41 / sf
Anions	56.6	meq/L				A1030 E	10/06/15 09:41 / sf
Cations	55.8	meq/L				A1030 E	10/06/15 09:41 / sf
Solids, Total Dissolved Calculated	3500	mg/L				A1030 E	10/06/15 09:41 / sf
TDS Balance (0.80 - 1.20)	1.03	unitless				A1030 E	10/06/15 09:41 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-013
Client Sample ID: PW-4/MW-21

Report Date: 10/23/15
Collection Date: 09/24/15 11:35
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 22:10 / wc
Bicarbonate as HCO3	222	mg/L		5		A2320 B	09/28/15 22:10 / wc
Calcium	244	mg/L		1		E200.7	10/02/15 16:26 / sf
Chloride	46	mg/L		1		E300.0	09/29/15 06:50 / wc
Fluoride	0.3	mg/L		0.1		A4500-F C	09/29/15 13:05 / wc
Magnesium	69	mg/L		1		E200.7	10/02/15 16:26 / sf
Nitrogen, Ammonia as N	0.34	mg/L		0.05		A4500-NH3 G	09/29/15 13:10 / lr
Nitrogen, Nitrate+Nitrite as N	0.5	mg/L		0.1		E353.2	09/29/15 16:27 / lr
Potassium	27	mg/L		1		E200.8	09/29/15 03:04 / smm
Silica	28.3	mg/L		0.2		E200.8	09/29/15 03:04 / smm
Sodium	270	mg/L		1		E200.7	10/02/15 16:26 / sf
Sulfate	1270	mg/L	D	4		E300.0	09/29/15 06:50 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	2580	umhos/cm		5		A2510 B	09/25/15 13:10 / lmc
pH	6.66	s.u.	H	0.01		A4500-H B	09/25/15 13:10 / lmc
Solids, Total Dissolved TDS @ 180 C	*2110*	*mg/L*		*20*		*A2540 C*	*09/28/15 09:42 / mag*
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 03:04 / smm
Arsenic	ND	mg/L		0.001		E200.8	09/29/15 03:04 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 03:04 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 03:04 / smm
Boron	0.3	mg/L		0.1		E200.8	09/29/15 03:04 / smm
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 03:04 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 03:04 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 03:04 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 03:04 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 03:04 / smm
Manganese	1.17	mg/L		0.01		E200.8	09/29/15 03:04 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 03:04 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 03:04 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 03:04 / smm
Selenium	ND	mg/L		0.001		E200.8	09/29/15 03:04 / smm
Uranium	0.0065	mg/L		0.0003		E200.8	09/29/15 03:04 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 03:04 / smm
Zinc	0.07	mg/L		0.01		E200.8	09/29/15 03:04 / smm
METALS - TOTAL							
Iron	20.6	mg/L		0.03		E200.7	10/02/15 00:09 / sf
Manganese	1.48	mg/L		0.01		E200.7	10/02/15 00:09 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-013
Client Sample ID: PW-4 /MW-21

Report Date: 10/23/15
Collection Date: 09/24/15 11:35
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	10.2	pCi/L		7.3		E900.0	10/02/15 02:11 / trs
Gross Alpha precision (±)	6.7	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Alpha MDC	7.3	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta	27.6	pCi/L		9.3		E900.0	10/02/15 02:11 / trs
Gross Beta precision (±)	6.5	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta MDC	9.3	pCi/L				E900.0	10/02/15 02:11 / trs
Radium 226	1.3	pCi/L		0.18		E903.0	10/07/15 08:24 / dmf
Radium 226 precision (±)	0.34	pCi/L				E903.0	10/07/15 08:24 / dmf
Radium 226 MDC	0.18	pCi/L				E903.0	10/07/15 08:24 / dmf
Radium 228	1.8	pCi/L		1.4		RA-05	10/02/15 12:29 / plj
Radium 228 precision (±)	0.9	pCi/L				RA-05	10/02/15 12:29 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	10/02/15 12:29 / plj
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	10/05/15 11:25 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 11:25 / cng
Thorium 230 MDC	0.2	pCi/L				E908.0	10/05/15 11:25 / cng
DATA QUALITY							
A/C Balance (± 5)	-1.99	%				A1030 E	10/06/15 09:41 / sf
Anions	31.5	meq/L				A1030 E	10/06/15 09:41 / sf
Cations	30.3	meq/L				A1030 E	10/06/15 09:41 / sf
Solids, Total Dissolved Calculated	2100	mg/L				A1030 E	10/06/15 09:41 / sf
TDS Balance (0.80 - 1.20)	1.01	unitless				A1030 E	10/06/15 09:41 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-014
Client Sample ID: PW-7/MW-24

Report Date: 10/23/15
Collection Date: 09/24/15 10:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 22:27 / wc
Bicarbonate as HCO3	467	mg/L		5		A2320 B	09/28/15 22:27 / wc
Calcium	392	mg/L		1		E200.7	10/02/15 16:30 / sf
Chloride	56	mg/L	D	5		E300.0	09/29/15 07:09 / wc
Fluoride	1.1	mg/L		0.1		A4500-F C	09/29/15 13:13 / wc
Magnesium	345	mg/L		1		E200.7	10/02/15 16:30 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	09/29/15 13:12 / lr
Nitrogen, Nitrate+Nitrite as N	0.3	mg/L		0.1		E353.2	09/29/15 16:28 / lr
Potassium	15	mg/L		1		E200.8	09/29/15 03:09 / smm
Silica	17.3	mg/L		0.2		E200.8	09/29/15 03:09 / smm
Sodium	1280	mg/L	D	2		E200.7	10/02/15 16:30 / sf
Sulfate	4680	mg/L	D	20		E300.0	09/29/15 07:09 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	7850	umhos/cm		5		A2510 B	09/25/15 13:14 / lmc
pH	7.26	s.u.	H	0.01		A4500-H B	09/25/15 13:14 / lmc
Solids, Total Dissolved TDS @ 180 C	7280	mg/L		100		A2540 C	09/28/15 09:42 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 03:09 / smm
Arsenic	0.001	mg/L		0.001		E200.8	09/29/15 03:09 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 03:09 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 03:09 / smm
Boron	1.3	mg/L		0.1		E200.8	09/29/15 03:09 / smm
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 03:09 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 03:09 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 03:09 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 03:09 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 03:09 / smm
Manganese	0.13	mg/L		0.01		E200.8	09/29/15 03:09 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 03:09 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 03:09 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 03:09 / smm
Selenium	0.014	mg/L		0.001		E200.8	09/29/15 03:09 / smm
Uranium	0.0395	mg/L		0.0003		E200.8	09/29/15 03:09 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 03:09 / smm
Zinc	0.05	mg/L		0.01		E200.8	09/29/15 03:09 / smm
METALS - TOTAL							
Iron	1.77	mg/L		0.03		E200.7	10/02/15 00:13 / sf
Manganese	0.15	mg/L		0.01		E200.7	10/02/15 00:13 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-014
Client Sample ID: PW-7/MW-24

Report Date: 10/23/15
Collection Date: 09/24/15 10:30
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	52.5	pCi/L		33.0		E900.0	10/02/15 02:11 / trs
Gross Alpha precision (±)	30.0	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Alpha MDC	33.0	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta	<30.3	pCi/L	U	30.3		E900.0	10/02/15 02:11 / trs
Gross Beta precision (±)	13.0	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta MDC	30.3	pCi/L				E900.0	10/02/15 02:11 / trs
Radium 226	0.94	pCi/L		0.21		E903.0	10/07/15 08:24 / dmf
Radium 226 precision (±)	0.24	pCi/L				E903.0	10/07/15 08:24 / dmf
Radium 226 MDC	0.21	pCi/L				E903.0	10/07/15 08:24 / dmf
Radium 228	<1.7	pCi/L	U	1.7		RA-05	10/02/15 12:29 / plj
Radium 228 precision (±)	1.0	pCi/L				RA-05	10/02/15 12:29 / plj
Radium 228 MDC	1.7	pCi/L				RA-05	10/02/15 12:29 / plj
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	10/05/15 16:36 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 16:36 / cng
Thorium 230 MDC	0.3	pCi/L				E908.0	10/05/15 16:36 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.31	%				A1030 E	10/06/15 09:41 / sf
Anions	107	meq/L				A1030 E	10/06/15 09:41 / sf
Cations	104	meq/L				A1030 E	10/06/15 09:41 / sf
Solids, Total Dissolved Calculated	7000	mg/L				A1030 E	10/06/15 09:41 / sf
TDS Balance (0.80 - 1.20)	1.04	unitless				A1030 E	10/06/15 09:41 / sf

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.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-015
Client Sample ID: PW-15/MW-31

Report Date: 10/23/15
Collection Date: 09/24/15 12:00
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Carbonate as CO3	ND	mg/L		5		A2320 B	09/28/15 22:35 / wc
Bicarbonate as HCO3	363	mg/L		5		A2320 B	09/28/15 22:35 / wc
Calcium	428	mg/L		1		E200.7	10/02/15 16:34 / sf
Chloride	33	mg/L	D	2		E300.0	09/29/15 07:27 / wc
Fluoride	0.5	mg/L		0.1		A4500-F C	09/29/15 13:16 / wc
Magnesium	257	mg/L		1		E200.7	10/02/15 16:34 / sf
Nitrogen, Ammonia as N	0.30	mg/L		0.05		A4500-NH3 G	09/29/15 13:14 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	09/29/15 16:29 / lr
Potassium	25	mg/L		1		E200.8	09/29/15 03:14 / smm
Silica	18.8	mg/L		0.2		E200.8	09/29/15 03:14 / smm
Sodium	520	mg/L		1		E200.7	10/02/15 16:34 / sf
Sulfate	2900	mg/L	D	8		E300.0	09/29/15 07:27 / wc
PHYSICAL PROPERTIES							
Conductivity @ 25 C	4890	umhos/cm		5		A2510 B	09/25/15 13:17 / lmc
pH	7.32	s.u.	H	0.01		A4500-H B	09/25/15 13:17 / lmc
Solids, Total Dissolved TDS @ 180 C	4510	mg/L		40		A2540 C	09/28/15 09:43 / mag
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	09/29/15 03:14 / smm
Arsenic	0.005	mg/L		0.001		E200.8	09/29/15 03:14 / smm
Barium	ND	mg/L		0.1		E200.8	09/29/15 03:14 / smm
Beryllium	ND	mg/L		0.001		E200.8	09/29/15 03:14 / smm
Boron	0.7	mg/L		0.1		E200.8	09/29/15 03:14 / smm
Cadmium	ND	mg/L		0.005		E200.8	09/29/15 03:14 / smm
Chromium	ND	mg/L		0.05		E200.8	09/29/15 03:14 / smm
Copper	ND	mg/L		0.01		E200.8	09/29/15 03:14 / smm
Iron	ND	mg/L		0.03		E200.8	09/29/15 03:14 / smm
Lead	ND	mg/L		0.001		E200.8	09/29/15 03:14 / smm
Manganese	3.30	mg/L		0.01		E200.8	09/29/15 03:14 / smm
Mercury	ND	mg/L		0.001		E200.8	09/29/15 03:14 / smm
Molybdenum	ND	mg/L		0.1		E200.8	09/29/15 03:14 / smm
Nickel	ND	mg/L		0.05		E200.8	09/29/15 03:14 / smm
Selenium	ND	mg/L		0.001		E200.8	09/29/15 03:14 / smm
Uranium	0.0170	mg/L		0.0003		E200.8	09/29/15 03:14 / smm
Vanadium	ND	mg/L		0.1		E200.8	09/29/15 03:14 / smm
Zinc	0.01	mg/L		0.01		E200.8	09/29/15 03:14 / smm
METALS - TOTAL							
Iron	1.65	mg/L		0.03		E200.7	10/02/15 00:17 / sf
Manganese	3.42	mg/L		0.01		E200.7	10/02/15 00:17 / sf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Project: WYDEQ104
Lab ID: C15090859-015
Client Sample ID: PW-15/MW-31

Report Date: 10/23/15
Collection Date: 09/24/15 12:00
DateReceived: 09/25/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Gross Alpha	15.6	pCi/L		14.9		E900.0	10/02/15 02:11 / trs
Gross Alpha precision (±)	13.0	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Alpha MDC	14.9	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta	19.8	pCi/L		19.4		E900.0	10/02/15 02:11 / trs
Gross Beta precision (±)	11.4	pCi/L				E900.0	10/02/15 02:11 / trs
Gross Beta MDC	19.4	pCi/L				E900.0	10/02/15 02:11 / trs
Radium 226	1.2	pCi/L		0.17		E903.0	10/07/15 08:24 / dmf
Radium 226 precision (±)	0.31	pCi/L				E903.0	10/07/15 08:24 / dmf
Radium 226 MDC	0.17	pCi/L				E903.0	10/07/15 08:24 / dmf
Radium 228	<1.4	pCi/L	U	1.4		RA-05	10/02/15 12:29 / plj
Radium 228 precision (±)	0.8	pCi/L				RA-05	10/02/15 12:29 / plj
Radium 228 MDC	1.4	pCi/L				RA-05	10/02/15 12:29 / plj
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	10/05/15 16:36 / cng
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/05/15 16:36 / cng
Thorium 230 MDC	0.3	pCi/L				E908.0	10/05/15 16:36 / cng
- See Case Narrative regarding Th230 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-1.11	%				A1030 E	10/06/15 09:42 / sf
Anions	67.3	meq/L				A1030 E	10/06/15 09:42 / sf
Cations	65.8	meq/L				A1030 E	10/06/15 09:42 / sf
Solids, Total Dissolved Calculated	4400	mg/L				A1030 E	10/06/15 09:42 / sf
TDS Balance (0.80 - 1.20)	1.03	unitless				A1030 E	10/06/15 09:42 / sf

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.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2320 B**										Batch: R204716
Lab ID: **MBLK**	2	Method Blank				Run: MANTECH_150928B			09/28/15 17:40	
Carbonate as CO3		ND	mg/L	1						
Bicarbonate as HCO3		ND	mg/L	1						
Lab ID: **C15090859-002ADUP**	2	Sample Duplicate				Run: MANTECH_150928B			09/28/15 20:08	
Carbonate as CO3		ND	mg/L	5.0					10	
Bicarbonate as HCO3		201	mg/L	5.0				0.1	10	
Lab ID: **C15090859-012ADUP**	2	Sample Duplicate				Run: MANTECH_150928B			09/28/15 22:03	
Carbonate as CO3		ND	mg/L	5.0					10	
Bicarbonate as HCO3		1360	mg/L	5.0				0.0	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B									Analytical Run: PHSC_101-C_150925A	
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							09/25/15 10:48	
Conductivity @ 25 C		1420	umhos/cm	5.0	100	90	110			
Method: A2510 B									Batch: R204582	
Lab ID: SC 2ND 1413		Laboratory Control Sample				Run: PHSC_101-C_150925A			09/25/15 08:52	
Conductivity @ 25 C		1390	umhos/cm	5.0	98	90	110			
Lab ID: MBLK		Method Blank				Run: PHSC_101-C_150925A			09/25/15 09:17	
Conductivity @ 25 C		1	umhos/cm	1						
Lab ID: C15090859-001ADUP		Sample Duplicate				Run: PHSC_101-C_150925A			09/25/15 12:15	
Conductivity @ 25 C		2670	umhos/cm	5.0				0.0	10	
Lab ID: C15090859-011ADUP		Sample Duplicate				Run: PHSC_101-C_150925A			09/25/15 13:02	
Conductivity @ 25 C		3600	umhos/cm	5.0				0.2	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: TDS150928A
Lab ID: **MB-1_150928A**		Method Blank				Run: BAL-18_150928A				09/28/15 09:36
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	9						
Lab ID: **LCS-2_150928A**		Laboratory Control Sample				Run: BAL-18_150928A				09/28/15 09:36
Solids, Total Dissolved TDS @ 180 C		1130	mg/L	11	102	90	110			
Lab ID: **C15090859-010A DUP**		Sample Duplicate				Run: BAL-18_150928A				09/28/15 09:41
Solids, Total Dissolved TDS @ 180 C		2410	mg/L	20				1.1	5	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C									Analytical Run: MANTECH_150925A	
Lab ID: CCV-8644		Continuing Calibration Verification Standard							09/25/15 11:58	
Fluoride		2.00	mg/L	0.10	100	90	110			
Lab ID: CCV-8644		Continuing Calibration Verification Standard							09/25/15 12:51	
Fluoride		2.04	mg/L	0.10	102	90	110			
Method: A4500-F C									Batch: R204621	
Lab ID: MBLK		Method Blank				Run: MANTECH_150925A			09/25/15 09:46	
Fluoride		ND	mg/L	0.01						
Lab ID: LCS-8595		Laboratory Control Sample				Run: MANTECH_150925A			09/25/15 09:49	
Fluoride		2.00	mg/L	0.10	100	90	110			
Lab ID: C15090805-006AMS		Sample Matrix Spike				Run: MANTECH_150925A			09/25/15 12:17	
Fluoride		2.04	mg/L	0.10	99	80	120			
Lab ID: C15090805-006AMSD		Sample Matrix Spike Duplicate				Run: MANTECH_150925A			09/25/15 12:20	
Fluoride		2.00	mg/L	0.10	97	80	120	2.0	10	
Method: A4500-F C									Analytical Run: MANTECH_150929A	
Lab ID: CCV-8644		Continuing Calibration Verification Standard							09/29/15 12:21	
Fluoride		2.04	mg/L	0.10	102	90	110			
Lab ID: CCV-8644		Continuing Calibration Verification Standard							09/29/15 12:55	
Fluoride		2.04	mg/L	0.10	102	90	110			
Method: A4500-F C									Batch: R204749	
Lab ID: MBLK		Method Blank				Run: MANTECH_150929A			09/29/15 12:15	
Fluoride		ND	mg/L	0.01						
Lab ID: LCS-8595		Laboratory Control Sample				Run: MANTECH_150929A			09/29/15 12:18	
Fluoride		2.00	mg/L	0.10	100	90	110			
Lab ID: C15090859-002AMS		Sample Matrix Spike				Run: MANTECH_150929A			09/29/15 12:26	
Fluoride		2.72	mg/L	0.10	103	80	120			
Lab ID: C15090859-002AMSD		Sample Matrix Spike Duplicate				Run: MANTECH_150929A			09/29/15 12:29	
Fluoride		2.67	mg/L	0.10	100	80	120	1.9	10	
Lab ID: C15090859-013AMS		Sample Matrix Spike				Run: MANTECH_150929A			09/29/15 13:08	
Fluoride		2.29	mg/L	0.10	100	80	120			
Lab ID: C15090859-013AMSD		Sample Matrix Spike Duplicate				Run: MANTECH_150929A			09/29/15 13:10	
Fluoride		2.33	mg/L	0.10	102	80	120	1.7	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC_101-C_150925A	
Lab ID: **pH 6.86**	Initial Calibration Verification Standard								09/25/15 08:36	
pH		6.81	s.u.	0.010	99	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								09/25/15 10:45	
pH		7.06	s.u.	0.010	101	98	102			
Lab ID: **pH 6.86**	Initial Calibration Verification Standard								09/25/15 12:04	
pH		6.91	s.u.	0.010	101	98	102			
Method: **A4500-H B**										Batch: R204582
Lab ID: **C15090859-001ADUP**	Sample Duplicate					Run: PHSC_101-C_150925A			09/25/15 12:15	
pH		7.94	s.u.	0.010				0.4	3	
Lab ID: **C15090859-011ADUP**	Sample Duplicate					Run: PHSC_101-C_150925A			09/25/15 13:02	
pH		6.57	s.u.	0.010				0.2	3	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NH3 G									Analytical Run: TECHNICON_150929A	
Lab ID: CCV-54		Continuing Calibration Verification Standard							09/29/15 12:37	
Nitrogen, Ammonia as N		1.05	mg/L	0.050	105	90	110			
Lab ID: CCV-68		Continuing Calibration Verification Standard							09/29/15 13:00	
Nitrogen, Ammonia as N		1.01	mg/L	0.050	101	90	110			
Method: A4500-NH3 G									Batch: R204746	
Lab ID: MBLK-1		Method Blank				Run: TECHNICON_150929A			09/29/15 11:08	
Nitrogen, Ammonia as N		ND	mg/L	0.01						
Lab ID: LFB-3		Laboratory Fortified Blank				Run: TECHNICON_150929A			09/29/15 11:12	
Nitrogen, Ammonia as N		1.95	mg/L	0.050	99	90	110			
Lab ID: C15090859-001EMS		Sample Matrix Spike				Run: TECHNICON_150929A			09/29/15 11:15	
Nitrogen, Ammonia as N		19.8	mg/L	0.25	101	90	110			
Lab ID: C15090859-001EMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150929A			09/29/15 11:17	
Nitrogen, Ammonia as N		19.8	mg/L	0.25	101	90	110	0.0	10	
Lab ID: C15090859-011EMS		Sample Matrix Spike				Run: TECHNICON_150929A			09/29/15 11:39	
Nitrogen, Ammonia as N		2.30	mg/L	0.050	102	90	110			
Lab ID: C15090859-011EMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150929A			09/29/15 11:40	
Nitrogen, Ammonia as N		2.40	mg/L	0.050	107	90	110	4.3	10	
Lab ID: C15090859-001EMS		Sample Matrix Spike				Run: TECHNICON_150929A			09/29/15 12:42	
Nitrogen, Ammonia as N		19.7	mg/L	0.25	92	90	110			
Lab ID: C15090859-001EMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150929A			09/29/15 12:44	
Nitrogen, Ammonia as N		19.8	mg/L	0.25	93	90	110	0.5	10	
Lab ID: C15090859-011EMS		Sample Matrix Spike				Run: TECHNICON_150929A			09/29/15 13:05	
Nitrogen, Ammonia as N		2.34	mg/L	0.050	104	90	110			
Lab ID: C15090859-011EMSD		Sample Matrix Spike Duplicate				Run: TECHNICON_150929A			09/29/15 13:07	
Nitrogen, Ammonia as N		2.40	mg/L	0.050	106	90	110	2.5	10	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP4-C_151001A	
Lab ID: ICV	5	Initial Calibration Verification Standard							10/01/15 13:30	
Calcium		49.2	mg/L	1.0	98	95	105			
Iron		4.94	mg/L	0.030	99	95	105			
Magnesium		49.4	mg/L	1.0	99	95	105			
Manganese		4.79	mg/L	0.010	96	95	105			
Sodium		49.8	mg/L	1.0	100	95	105			
Lab ID: ICSA	5	Interference Check Sample A							10/01/15 13:53	
Calcium		455	mg/L	1.0	91	80	120			
Iron		174	mg/L	0.030	87	80	120			
Magnesium		498	mg/L	1.0	100	80	120			
Manganese		-0.0225	mg/L	0.010						
Sodium		-0.185	mg/L	1.0						
Lab ID: ICSAB	5	Interference Check Sample AB							10/01/15 13:58	
Calcium		456	mg/L	1.0	91	80	120			
Iron		175	mg/L	0.030	87	80	120			
Magnesium		499	mg/L	1.0	100	80	120			
Manganese		0.441	mg/L	0.010	88	80	120			
Sodium		-0.257	mg/L	1.0						
Method: E200.7									Batch: 45835	
Lab ID: MB-45835	2	Method Blank				Run: ICP4-C_151001A			10/01/15 22:01	
Iron		ND	mg/L	0.003						
Manganese		ND	mg/L	0.002						
Lab ID: LCS3-45835	2	Laboratory Control Sample				Run: ICP4-C_151001A			10/01/15 22:05	
Iron		2.61	mg/L	0.030	104	85	115			
Manganese		2.56	mg/L	0.0012	102	85	115			
Lab ID: C15090859-009CMS3	2	Sample Matrix Spike				Run: ICP4-C_151001A			10/01/15 23:01	
Iron		3.16	mg/L	0.030	101	70	130			
Manganese		2.38	mg/L	0.0023	95	70	130			
Lab ID: C15090859-009CMSD	2	Sample Matrix Spike Duplicate				Run: ICP4-C_151001A			10/01/15 23:05	
Iron		3.13	mg/L	0.030	100	70	130	1.0	20	
Manganese		2.39	mg/L	0.0023	95	70	130	0.1	20	
Lab ID: C15090866-004BMS3	2	Sample Matrix Spike				Run: ICP4-C_151001A			10/02/15 00:25	
Iron		3.23	mg/L	0.030	105	70	130			
Manganese		3.20	mg/L	0.0012	102	70	130			
Lab ID: C15090866-004BMSD	2	Sample Matrix Spike Duplicate				Run: ICP4-C_151001A			10/02/15 00:29	
Iron		3.22	mg/L	0.030	104	70	130	0.3	20	
Manganese		3.18	mg/L	0.0012	101	70	130	0.5	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: R204876
Lab ID: MB-151001A	3	Method Blank				Run: ICP4-C_151001A				10/01/15 14:17
Calcium		0.01	mg/L	0.003						
Magnesium		ND	mg/L	0.002						
Sodium		ND	mg/L	0.1						
Lab ID: LFB-151001A	3	Laboratory Fortified Blank				Run: ICP4-C_151001A				10/01/15 14:21
Calcium		46.6	mg/L	1.0	93	85	115			
Magnesium		46.8	mg/L	1.0	94	85	115			
Sodium		48.0	mg/L	1.0	96	85	115			
Lab ID: C15090839-001AMS2	3	Sample Matrix Spike				Run: ICP4-C_151001A				10/01/15 18:47
Calcium		105	mg/L	1.0	94	70	130			
Magnesium		100.0	mg/L	1.0	94	70	130			
Sodium		214	mg/L	1.0	90	70	130			
Lab ID: C15090839-001AMSD	3	Sample Matrix Spike Duplicate				Run: ICP4-C_151001A				10/01/15 18:51
Calcium		105	mg/L	1.0	95	70	130	0.6	20	
Magnesium		100	mg/L	1.0	94	70	130	0.4	20	
Sodium		215	mg/L	1.0	91	70	130	0.4	20	
Lab ID: C15090939-001CMS2	3	Sample Matrix Spike				Run: ICP4-C_151001A				10/01/15 21:15
Calcium		224	mg/L	1.0	90	70	130			
Magnesium		175	mg/L	1.0	93	70	130			
Sodium		101	mg/L	1.0	94	70	130			
Lab ID: C15090939-001CMSD	3	Sample Matrix Spike Duplicate				Run: ICP4-C_151001A				10/01/15 21:18
Calcium		225	mg/L	1.0	90	70	130	0.3	20	
Magnesium		175	mg/L	1.0	93	70	130	0.1	20	
Sodium		100	mg/L	1.0	93	70	130	1.0	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP4-C_151002A	
Lab ID: ICV	4	Initial Calibration Verification Standard							10/02/15 13:19	
Boron		1.02	mg/L	0.050	102	95	105			
Calcium		47.9	mg/L	1.0	96	95	105			
Magnesium		48.1	mg/L	1.0	96	95	105			
Sodium		51.2	mg/L	1.0	102	95	105			
Lab ID: ICSA	4	Interference Check Sample A							10/02/15 13:42	
Boron		0.00659	mg/L	0.050						
Calcium		473	mg/L	1.0	95	80	120			
Magnesium		504	mg/L	1.0	101	80	120			
Sodium		0.641	mg/L	1.0						
Lab ID: ICSAB	4	Interference Check Sample AB							10/02/15 13:47	
Boron		0.0111	mg/L	0.050						
Calcium		477	mg/L	1.0	95	80	120			
Magnesium		508	mg/L	1.0	102	80	120			
Sodium		0.510	mg/L	1.0						
Method: E200.7									Batch: R204948	
Lab ID: MB-151002A	4	Method Blank				Run: ICP4-C_151002A			10/02/15 14:06	
Boron		ND	mg/L	0.006						
Calcium		0.006	mg/L	0.003						
Magnesium		ND	mg/L	0.002						
Sodium		0.1	mg/L	0.1						
Lab ID: LFB-151002A	4	Laboratory Fortified Blank				Run: ICP4-C_151002A			10/02/15 14:10	
Boron		0.934	mg/L	0.050	93	85	115			
Calcium		46.8	mg/L	1.0	94	85	115			
Magnesium		49.2	mg/L	1.0	98	85	115			
Sodium		49.6	mg/L	1.0	99	85	115			
Lab ID: C15090859-009BMS2	4	Sample Matrix Spike				Run: ICP4-C_151002A			10/02/15 16:10	
Boron		5.08	mg/L	0.078	91	70	130			
Calcium		654	mg/L	1.0	85	70	130			
Magnesium		401	mg/L	1.0	97	70	130			
Sodium		997	mg/L	1.2	78	70	130			
Lab ID: C15090859-009BMSD	4	Sample Matrix Spike Duplicate				Run: ICP4-C_151002A			10/02/15 16:14	
Boron		5.10	mg/L	0.078	91	70	130	0.4	20	
Calcium		655	mg/L	1.0	86	70	130	0.2	20	
Magnesium		402	mg/L	1.0	97	70	130	0.3	20	
Sodium		1000	mg/L	1.2	80	70	130	0.5	20	

Qualifiers:

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MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP4-C_151022A	
Lab ID: ICV		Initial Calibration Verification Standard							10/22/15 12:13	
Calcium		49.8	mg/L	1.0	100	95	105			
Lab ID: ICSA		Interference Check Sample A							10/22/15 12:38	
Calcium		460	mg/L	1.0	92	80	120			
Lab ID: ICSAB		Interference Check Sample AB							10/22/15 12:43	
Calcium		458	mg/L	1.0	92	80	120			
Lab ID: ICSA		Interference Check Sample A							10/23/15 00:09	
Calcium		461	mg/L	1.0	92	80	120			
Lab ID: ICSAB		Interference Check Sample AB							10/23/15 00:14	
Calcium		458	mg/L	1.0	92	80	120			
Method: E200.7									Batch: R205689	
Lab ID: MB-151022A		Method Blank				Run: ICP4-C_151022A			10/22/15 13:04	
Calcium		0.02	mg/L	0.003						
Lab ID: LFB-151022A		Laboratory Fortified Blank				Run: ICP4-C_151022A			10/22/15 13:08	
Calcium		47.1	mg/L	1.0	94	85	115			
Lab ID: C15090860-002BMS2		Sample Matrix Spike				Run: ICP4-C_151022A			10/22/15 14:27	
Calcium		789	mg/L	1.0	85	70	130			
Lab ID: C15090860-002BMSD		Sample Matrix Spike Duplicate				Run: ICP4-C_151022A			10/22/15 14:31	
Calcium		788	mg/L	1.0	85	70	130	0.1	20	
Lab ID: C15100677-003BMS2		Sample Matrix Spike				Run: ICP4-C_151022A			10/22/15 18:36	
Calcium		614	mg/L	1.0	89	70	130			
Lab ID: C15100677-003BMSD		Sample Matrix Spike Duplicate				Run: ICP4-C_151022A			10/22/15 18:40	
Calcium		618	mg/L	1.0	90	70	130	0.5	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS2-C_150930A	
Lab ID: ICV		Initial Calibration Verification Standard							09/30/15 11:43	
Uranium		0.0472	mg/L	0.00030	94	90	110			
Method: E200.8									Batch: R204803	
Lab ID: LRB		Method Blank				Run: ICPMS2-C_150930A			09/30/15 12:32	
Uranium		0.0001	mg/L	8E-06						
Lab ID: LFB		Laboratory Fortified Blank				Run: ICPMS2-C_150930A			09/30/15 12:34	
Uranium		0.0512	mg/L	0.00030	102	85	115			
Lab ID: C15090859-009BMS4		Sample Matrix Spike				Run: ICPMS2-C_150930A			09/30/15 17:41	
Uranium		0.845	mg/L	0.00050	113	70	130			
Lab ID: C15090859-009BMSD		Sample Matrix Spike Duplicate				Run: ICPMS2-C_150930A			09/30/15 17:53	
Uranium		0.842	mg/L	0.00050	112	70	130	0.3	20	

Qualifiers:

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MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS4-C_150928A	
Lab ID: ICV	18	Initial Calibration Verification Standard							09/28/15 12:47	
Aluminum		0.0498	mg/L	0.0010	100	90	110			
Arsenic		0.0496	mg/L	0.0010	99	90	110			
Barium		0.0488	mg/L	0.0010	98	90	110			
Beryllium		0.0490	mg/L	0.0010	98	90	110			
Cadmium		0.0482	mg/L	0.0010	96	90	110			
Chromium		0.0491	mg/L	0.0010	98	90	110			
Copper		0.0500	mg/L	0.0010	100	90	110			
Iron		0.985	mg/L	0.0010	98	90	110			
Lead		0.0491	mg/L	0.0010	98	90	110			
Manganese		0.0490	mg/L	0.0010	98	90	110			
Mercury		0.00479	mg/L	0.0010	96	90	110			
Molybdenum		0.0477	mg/L	0.0010	95	90	110			
Nickel		0.0507	mg/L	0.0010	101	90	110			
Potassium		10.0	mg/L	0.0041	100	90	110			
Selenium		0.0482	mg/L	0.0010	97	90	110			
Uranium		0.0463	mg/L	0.00030	93	90	110			
Vanadium		0.0495	mg/L	0.0010	99	90	110			
Zinc		0.0496	mg/L	0.0010	99	90	110			
Method: E200.8									Batch: R204691	
Lab ID: LRB	18	Method Blank				Run: ICPMS4-C_150928A			09/28/15 13:34	
Aluminum		0.0004	mg/L	0.0001						
Arsenic		ND	mg/L	5E-05						
Barium		1E-05	mg/L	9E-06						
Beryllium		ND	mg/L	3E-05						
Cadmium		ND	mg/L	7E-06						
Chromium		ND	mg/L	8E-05						
Copper		3E-05	mg/L	2E-05						
Iron		ND	mg/L	0.0003						
Lead		ND	mg/L	1.0E-05						
Manganese		6E-05	mg/L	4E-05						
Mercury		3E-05	mg/L	3E-05						
Molybdenum		0.0002	mg/L	4E-05						
Nickel		ND	mg/L	0.0002						
Potassium		0.04	mg/L	0.02						
Selenium		ND	mg/L	3E-05						
Uranium		5E-05	mg/L	4E-06						
Vanadium		6E-05	mg/L	1E-05						
Zinc		0.001	mg/L	8E-05						
Lab ID: LFB	18	Laboratory Fortified Blank				Run: ICPMS4-C_150928A			09/28/15 14:04	
Aluminum		0.0548	mg/L	0.0010	109	85	115			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R204691
Lab ID: LFB	18	Laboratory Fortified Blank				Run: ICPMS4-C_150928A				09/28/15 14:04
Arsenic		0.0528	mg/L	0.0010	106	85	115			
Barium		0.0520	mg/L	0.0010	104	85	115			
Beryllium		0.0537	mg/L	0.0010	107	85	115			
Cadmium		0.0521	mg/L	0.0010	104	85	115			
Chromium		0.0535	mg/L	0.0010	107	85	115			
Copper		0.0534	mg/L	0.0010	107	85	115			
Iron		1.35	mg/L	0.0010	108	85	115			
Lead		0.0514	mg/L	0.0010	103	85	115			
Manganese		0.0534	mg/L	0.0010	107	85	115			
Mercury		0.00918	mg/L	0.0010	91	85	115			
Molybdenum		0.0524	mg/L	0.0010	104	85	115			
Nickel		0.0530	mg/L	0.0010	106	85	115			
Potassium		13.1	mg/L	0.0041	105	85	115			
Selenium		0.0519	mg/L	0.0010	104	85	115			
Uranium		0.0488	mg/L	0.00030	97	85	115			
Vanadium		0.0537	mg/L	0.0010	107	85	115			
Zinc		0.0537	mg/L	0.0010	105	85	115			
Lab ID: C15090859-009BMS4	18	Sample Matrix Spike				Run: ICPMS4-C_150928A				09/29/15 01:20
Aluminum		0.249	mg/L	0.030	91	70	130			
Arsenic		0.282	mg/L	0.0010	109	70	130			
Barium		0.282	mg/L	0.050	107	70	130			
Beryllium		0.228	mg/L	0.0010	91	70	130			
Cadmium		0.256	mg/L	0.0010	102	70	130			
Chromium		0.262	mg/L	0.0050	104	70	130			
Copper		0.257	mg/L	0.0050	102	70	130			
Iron		6.54	mg/L	0.030	105	70	130			
Lead		0.265	mg/L	0.0010	106	70	130			
Manganese		0.258	mg/L	0.0010	101	70	130			
Mercury		0.0528	mg/L	0.00028	106	70	130			
Molybdenum		0.277	mg/L	0.0010	108	70	130			
Nickel		0.256	mg/L	0.0050	101	70	130			
Potassium		108	mg/L	1.0	97	70	130			
Selenium		0.314	mg/L	0.0010	111	70	130			
Uranium		0.822	mg/L	0.00030	129	70	130			
Vanadium		0.273	mg/L	0.010	107	70	130			
Zinc		0.267	mg/L	0.010	104	70	130			
Lab ID: C15090859-009BMSD	18	Sample Matrix Spike Duplicate				Run: ICPMS4-C_150928A				09/29/15 01:25
Aluminum		0.262	mg/L	0.030	96	70	130	4.8	20	
Arsenic		0.283	mg/L	0.0010	109	70	130	0.3	20	
Barium		0.288	mg/L	0.050	109	70	130	2.0	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R204691
Lab ID: C15090859-009BMSD	18	Sample Matrix Spike Duplicate				Run: ICPMS4-C_150928A				09/29/15 01:25
Beryllium		0.231	mg/L	0.0010	93	70	130	1.7	20	
Cadmium		0.259	mg/L	0.0010	104	70	130	1.4	20	
Chromium		0.264	mg/L	0.0050	104	70	130	0.9	20	
Copper		0.259	mg/L	0.0050	103	70	130	0.9	20	
Iron		6.57	mg/L	0.030	105	70	130	0.4	20	
Lead		0.264	mg/L	0.0010	106	70	130	0.4	20	
Manganese		0.261	mg/L	0.0010	103	70	130	1.2	20	
Mercury		0.0529	mg/L	0.00028	106	70	130	0.1	20	
Molybdenum		0.279	mg/L	0.0010	108	70	130	0.7	20	
Nickel		0.255	mg/L	0.0050	101	70	130	0.2	20	
Potassium		110	mg/L	1.0	100	70	130	1.6	20	
Selenium		0.308	mg/L	0.0010	109	70	130	2.1	20	
Uranium		0.815	mg/L	0.00030	126	70	130	0.9	20	
Vanadium		0.276	mg/L	0.010	108	70	130	1.1	20	
Zinc		0.266	mg/L	0.010	103	70	130	0.5	20	
Lab ID: C15090860-004BMS4	18	Sample Matrix Spike				Run: ICPMS4-C_150928A				09/29/15 04:01
Aluminum		0.0542	mg/L	0.030	104	70	130			
Arsenic		0.0606	mg/L	0.0010	110	70	130			
Barium		0.105	mg/L	0.050	110	70	130			
Beryllium		0.0488	mg/L	0.0010	98	70	130			
Cadmium		0.0522	mg/L	0.0010	104	70	130			
Chromium		0.0544	mg/L	0.0050	108	70	130			
Copper		0.0543	mg/L	0.0050	108	70	130			
Iron		1.34	mg/L	0.030	107	70	130			
Lead		0.0533	mg/L	0.0010	107	70	130			
Manganese		0.0590	mg/L	0.0010	104	70	130			
Mercury		0.0109	mg/L	0.00010	109	70	130			
Molybdenum		0.0570	mg/L	0.0010	103	70	130			
Nickel		0.0574	mg/L	0.0050	109	70	130			
Potassium		33.5	mg/L	1.0	105	70	130			
Selenium		0.0606	mg/L	0.0010	115	70	130			
Uranium		0.173	mg/L	0.00030	145	70	130			S
Vanadium		0.0549	mg/L	0.010	109	70	130			
Zinc		0.0554	mg/L	0.010	110	70	130			
Lab ID: C15090860-004BMSD	18	Sample Matrix Spike Duplicate				Run: ICPMS4-C_150928A				09/29/15 04:06
Aluminum		0.0542	mg/L	0.030	104	70	130	0.1	20	
Arsenic		0.0600	mg/L	0.0010	109	70	130	1.0	20	
Barium		0.104	mg/L	0.050	108	70	130	0.7	20	
Beryllium		0.0484	mg/L	0.0010	97	70	130	0.8	20	
Cadmium		0.0520	mg/L	0.0010	104	70	130	0.3	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R204691	
Lab ID: C15090860-004BMSD	18	*Sample Matrix Spike Duplicate*				Run: ICPMS4-C_150928A			*09/29/15 04:06*	
Chromium		0.0533	mg/L	0.0050	106	70	130	2.1	20	
Copper		0.0536	mg/L	0.0050	106	70	130	1.4	20	
Iron		1.06	mg/L	0.030	84	70	130	24	20	R
Lead		0.0539	mg/L	0.0010	108	70	130	1.1	20	
Manganese		0.0576	mg/L	0.0010	102	70	130	2.3	20	
Mercury		0.0113	mg/L	0.00010	113	70	130	3.4	20	
Molybdenum		0.0566	mg/L	0.0010	102	70	130	0.6	20	
Nickel		0.0562	mg/L	0.0050	107	70	130	2.1	20	
Potassium		33.0	mg/L	1.0	101	70	130	1.4	20	
Selenium		0.0472	mg/L	0.0010	89	70	130	25	20	R
Uranium		0.175	mg/L	0.00030	148	70	130	1.0	20	S
Vanadium		0.0536	mg/L	0.010	107	70	130	2.5	20	
Zinc		0.0535	mg/L	0.010	106	70	130	3.5	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
S - Spike recovery outside of advisory limits.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC2-C_150928A	
Lab ID: ICV	2	Initial Calibration Verification Standard							09/28/15 10:53	
Chloride		9.87	mg/L	1.0	99	90	110			
Sulfate		39.3	mg/L	1.0	98	90	110			
Lab ID: CCV-092815-4	2	Continuing Calibration Verification Standard							09/29/15 00:23	
Chloride		9.71	mg/L	1.0	97	90	110			
Sulfate		38.9	mg/L	1.0	97	90	110			
Lab ID: CCV-092815-5	2	Continuing Calibration Verification Standard							09/29/15 04:41	
Chloride		9.72	mg/L	1.0	97	90	110			
Sulfate		38.9	mg/L	1.0	97	90	110			
Method: E300.0									Batch: R204744	
Lab ID: ICB	2	Method Blank				Run: IC2-C_150928A			09/28/15 11:11	
Chloride		0.02	mg/L	0.01						
Sulfate		0.08	mg/L	0.03						
Lab ID: LFB-092815-1	2	Laboratory Fortified Blank				Run: IC2-C_150928A			09/28/15 11:30	
Chloride		10.7	mg/L	1.0	107	90	110			
Sulfate		42.6	mg/L	1.0	106	90	110			
Lab ID: C15090859-001AMS	2	Sample Matrix Spike				Run: IC2-C_150928A			09/29/15 01:18	
Chloride		175	mg/L	1.0	104	90	110			
Sulfate		1660	mg/L	4.2	98	90	110			
Lab ID: C15090859-001AMSD	2	Sample Matrix Spike Duplicate				Run: IC2-C_150928A			09/29/15 01:37	
Chloride		175	mg/L	1.0	104	90	110	0.2	20	
Sulfate		1640	mg/L	4.2	95	90	110	0.6	20	
Lab ID: LFB-092815-2	2	Laboratory Fortified Blank				Run: IC2-C_150928A			09/29/15 05:18	
Chloride		9.90	mg/L	1.0	99	90	110			
Sulfate		39.6	mg/L	1.0	99	90	110			
Lab ID: C15090859-011AMS	2	Sample Matrix Spike				Run: IC2-C_150928A			09/29/15 05:55	
Chloride		290	mg/L	1.0	110	90	110			
Sulfate		2150	mg/L	4.2		90	110			A
Lab ID: C15090859-011AMSD	2	Sample Matrix Spike Duplicate				Run: IC2-C_150928A			09/29/15 06:14	
Chloride		289	mg/L	1.0	109	90	110	0.5	20	
Sulfate		2130	mg/L	4.2		90	110	0.8	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: FIA201-C_150929A	
Lab ID: CCV		Continuing Calibration Verification Standard							09/29/15 15:59	
Nitrogen, Nitrate+Nitrite as N		1.84	mg/L	0.10	92	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard							09/29/15 16:15	
Nitrogen, Nitrate+Nitrite as N		1.98	mg/L	0.10	99	90	110			
Method: E353.2									Batch: R204780	
Lab ID: MBLK		Method Blank				Run: FIA201-C_150929A			09/29/15 15:09	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.007						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA201-C_150929A			09/29/15 15:10	
Nitrogen, Nitrate+Nitrite as N		1.97	mg/L	0.10	101	90	110			
Lab ID: C15090839-002CMS		Sample Matrix Spike				Run: FIA201-C_150929A			09/29/15 16:03	
Nitrogen, Nitrate+Nitrite as N		1.97	mg/L	0.10	95	90	110			
Lab ID: C15090839-002CMSD		Sample Matrix Spike Duplicate				Run: FIA201-C_150929A			09/29/15 16:04	
Nitrogen, Nitrate+Nitrite as N		2.00	mg/L	0.10	96	90	110	1.5	10	
Lab ID: C15090859-006EMS		Sample Matrix Spike				Run: FIA201-C_150929A			09/29/15 16:18	
Nitrogen, Nitrate+Nitrite as N		13.2	mg/L	0.50	91	90	110			
Lab ID: C15090859-006EMSD		Sample Matrix Spike Duplicate				Run: FIA201-C_150929A			09/29/15 16:19	
Nitrogen, Nitrate+Nitrite as N		13.3	mg/L	0.50	92	90	110	0.8	10	
Lab ID: C15090860-001EMS		Sample Matrix Spike				Run: FIA201-C_150929A			09/29/15 16:34	
Nitrogen, Nitrate+Nitrite as N		1.85	mg/L	0.10	94	90	110			
Lab ID: C15090860-001EMSD		Sample Matrix Spike Duplicate				Run: FIA201-C_150929A			09/29/15 16:35	
Nitrogen, Nitrate+Nitrite as N		1.82	mg/L	0.10	93	90	110	1.6	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-2141
Lab ID: Th230-GrAB-2141		Laboratory Control Sample				Run: G542M_150930A				10/02/15 02:11
Gross Alpha		85.6	pCi/L		86	80	120			
Lab ID: Sr90-GrAB-2141		Laboratory Control Sample				Run: G542M_150930A				10/02/15 02:11
Gross Beta		181	pCi/L		93	80	120			
Lab ID: MB-GrAB-2141	6	Method Blank				Run: G542M_150930A				10/02/15 02:11
Gross Alpha		-0.5	pCi/L							U
Gross Alpha precision (±)		0.7	pCi/L							
Gross Alpha MDC		1	pCi/L							
Gross Beta		-1	pCi/L							U
Gross Beta precision (±)		2	pCi/L							
Gross Beta MDC		3	pCi/L							
Lab ID: C15090859-013DDUP	6	Sample Duplicate				Run: G542M_150930A				10/02/15 02:11
Gross Alpha		8.25	pCi/L					22	149.1	
Gross Alpha precision (±)		6.23	pCi/L							
Gross Alpha MDC		7.37	pCi/L							
Gross Beta		29.2	pCi/L					5.6	57.1	
Gross Beta precision (±)		6.88	pCi/L							
Gross Beta MDC		9.72	pCi/L							
Lab ID: C15090860-003DMS		Sample Matrix Spike				Run: G542M_150930A				10/02/15 02:11
Gross Alpha		101	pCi/L		92	70	130			
Lab ID: C15090860-003DMS		Sample Matrix Spike				Run: G542M_150930A				10/02/15 02:11
Gross Beta		199	pCi/L		97	70	130			

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: GrAB-2140
Lab ID: Th230-GrAB-2140		Laboratory Control Sample				Run: TENNELEC-3_150930A				10/02/15 01:46
Gross Alpha		99.3	pCi/L		97	80	120			
Lab ID: Sr90-GrAB-2140		Laboratory Control Sample				Run: TENNELEC-3_150930A				10/02/15 01:46
Gross Beta		188	pCi/L		97	80	120			
Lab ID: MB-GrAB-2140	6	Method Blank				Run: TENNELEC-3_150930A				10/02/15 01:46
Gross Alpha		2	pCi/L							
Gross Alpha precision (±)		1	pCi/L							
Gross Alpha MDC		1.0	pCi/L							
Gross Beta		-1	pCi/L							U
Gross Beta precision (±)		1	pCi/L							
Gross Beta MDC		2	pCi/L							
Lab ID: C15090859-002DMS		Sample Matrix Spike				Run: TENNELEC-3_150930A				10/02/15 01:47
Gross Alpha		141	pCi/L		81	70	130			
Lab ID: C15090859-002DMS		Sample Matrix Spike				Run: TENNELEC-3_150930A				10/02/15 01:47
Gross Beta		320	pCi/L		102	70	130			
Lab ID: C15090859-008DDUP	6	Sample Duplicate				Run: TENNELEC-3_150930A				10/02/15 01:47
Gross Alpha		16.6	pCi/L					6.9	64.3	
Gross Alpha precision (±)		4.42	pCi/L							
Gross Alpha MDC		3.26	pCi/L							
Gross Beta		16.7	pCi/L					14	57.6	
Gross Beta precision (±)		4.16	pCi/L							
Gross Beta MDC		5.68	pCi/L							

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-7844
Lab ID: LCS-RA226-7844		Laboratory Control Sample				Run: G5000W_150929C				10/07/15 06:47
Radium 226		9.8	pCi/L		92	80	120			
Lab ID: MB-RA226-7844	3	Method Blank				Run: G5000W_150929C				10/07/15 06:47
Radium 226		0.3	pCi/L							
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C15090859-003DMS		Sample Matrix Spike				Run: G5000W_150929C				10/07/15 06:47
Radium 226		20	pCi/L		91	70	130			
Lab ID: C15090859-003DMSD		Sample Matrix Spike Duplicate				Run: G5000W_150929C				10/07/15 06:47
Radium 226		17	pCi/L		78	70	130	15	49.3	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0									Batch: RA-TH-ISO-2327	
Lab ID: LCS-RA-TH-ISO-2327		Laboratory Control Sample				Run: ALPHANALYST_150929B			10/05/15 11:24	
Thorium 230		6.6	pCi/L		100	80	120			
Lab ID: C15090859-015DMS		Sample Matrix Spike				Run: ALPHANALYST_150929B			10/05/15 16:36	
Thorium 230		14	pCi/L		96	70	130			
Lab ID: C15090859-015DMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_150929B			10/05/15 16:36	
Thorium 230		14	pCi/L		98	70	130	3.0	48	
Lab ID: MB-RA-TH-ISO-2327	3	Method Blank				Run: ALPHANALYST_150929B			10/05/15 16:36	
Thorium 230		0.02	pCi/L							U
Thorium 230 precision (±)		0.09	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Lidstone and Associates
Report Date: 10/23/15
Project: WYDEQ104
Work Order: C15090859

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-5049
Lab ID: LCS-228-RA226-7844		Laboratory Control Sample				Run: TENNELEC-3_150929C				10/02/15 10:56
Radium 228		8.6	pCi/L		108	80	120			
Lab ID: MB-RA226-7844	3	Method Blank				Run: TENNELEC-3_150929C				10/02/15 10:56
Radium 228		0.5	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C15090859-004DMS		Sample Matrix Spike				Run: TENNELEC-3_150929C				10/02/15 10:56
Radium 228		17.9	pCi/L		106	70	130			
Lab ID: C15090859-004DMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_150929C				10/02/15 10:56
Radium 228		16.3	pCi/L		96	70	130	9.4	51.5	

Qualifiers:

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

Work Order Receipt Checklist

Lidstone and Associates

C15090859

Login completed by: Dorian Quis
Reviewed by: BL2000\cwagner
Reviewed Date: 9/29/2015

Date Received: 9/25/2015
Received by: amm
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	3.7°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Lidstone & Assoc

Project Name, PWS, Permit, Etc.: WYDEQ104

Sample Origin State: WY

EPA/State Compliance: Yes ☐ No ☒

Report Mail Address (Required): 4025 Automation Way Bldg E, Fort Collins, CO 80525

Contact Name: Greg Steed

Phone/Fax: 970-223-4705

Cell: 970-819-1783

Sampler: (Please Print) AEM, GHS

☒ No Hard Copy Email: ghs@lidstone.com

Invoice Contact & Phone: Melinda Culver

Purchase Order:

Quote/Bottle Order: 47286

Invoice Address (Required): Same

☐ No Hard Copy Email:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: ☐ Other: ☒ EDD/EDT (Electronic Data) Format: CSV ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	2005 DEQ Guideline		Dissolved Rb		Thorium 230							SEE ATTACHED
1 South Willow Spring	9-23-15	17:05	W	X		X		X							
2 ~~MW-5~~ PW-9	9-23-15	9:30	W	X		X		X							
3 ~~PW-8~~ PW-6	9-23-15	9:40	W	X		X		X							
4 PW-5	9-23-15	11:00	W	X		X		X							
5 MW-15	9-23-15	12:30	W	X		X		X							
6 MW-16	9-23-15	13:30	W	X		X		X							
7 PW-8	9-23-15	14:50	W	X		X		X							
8 MW-9	9-23-15	18:35	W	X		X		X							
9 PW-1	9-23-15	17:25	W	X		X		X							
10 PW-3	9-23-15	18:30	W	X		X		X							

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: No field filtering

C15090859

Shipped by: hand

Cooler ID(s): Various

Receipt Temp 5.0, 3.7, 6-3 °C

On Ice: (Y) N

Custody Seal On Bottle Y N On Cooler Y N

Intact Y N

Signature Match Y N

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Greg Steed	9-24-15 / 18:00		Steve Dukes	9/24/15 1800	
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
					9/25/15 8:00

Sample Disposal: Return to Client: Lab Disposal:

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

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Lidstone and Assoc.	Project Name, PWS, Permit, Etc.: WYDEQ104	Sample Origin State: WY	EPA/State Compliance: Yes ☐ No ☒
Report Mail Address (Required): 4025 Automation Way Bldg E Fort Collins, CO 80525 ☐ No Hard Copy Email:	Contact Name: Greg Steed Phone/Fax: 970-223-4705 Cell: 970-819-1783		Sampler: (Please Print) JVG
	Invoice Contact & Phone: Melinda Culver	Purchase Order:	Quote/Bottle Order: 47286
Invoice Address (Required): same ☐ No Hard Copy Email:			

Special Report/Formats:
☐ DW ☐ POTW/WWTP ☐ State: ☐ Other: ☒ EDD/EDT (Electronic Data) Format: CSV ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	WQBS DEQ Guideline 8	Dissolved Be	Thorium 230	SEE ATTACHED
1	MW-12	9-22-15	19:20	W	X	X	X	
2	PW-2	9-24-15	9:45	W	X	X	X	
3	PW-4	9-24-15	11:35	W	X	X	X	
4	PW-7	9-24-15	10:30	W	X	X	X	
5	PW-15	9-24-15	12:00	W	X	X	X	
6								
7								
8								
9								
10								

Standard Turnaround (TAT) — RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:
- field filtered
- Not field filtered
- C15090859

Shipped by: hand
Cooler ID(s): Various
Receipt Temp: 5.0 5.7 6.3 5.6 °C
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Greg Steed	9-24-15 / 18:00			9/24/15 1808	
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
				9/25/15	8:00

Sample Disposal: Return to Client: ____ Lab Disposal: X

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This will be clearly notated on your analytical report.

Appendix G

Well Recovery Test Analysis Report



Lidstone and Associates, Inc.
A Wenck Company
4025 Automation Way, Bldg. E
Fort Collins, CO 80525
www.lidstone.com

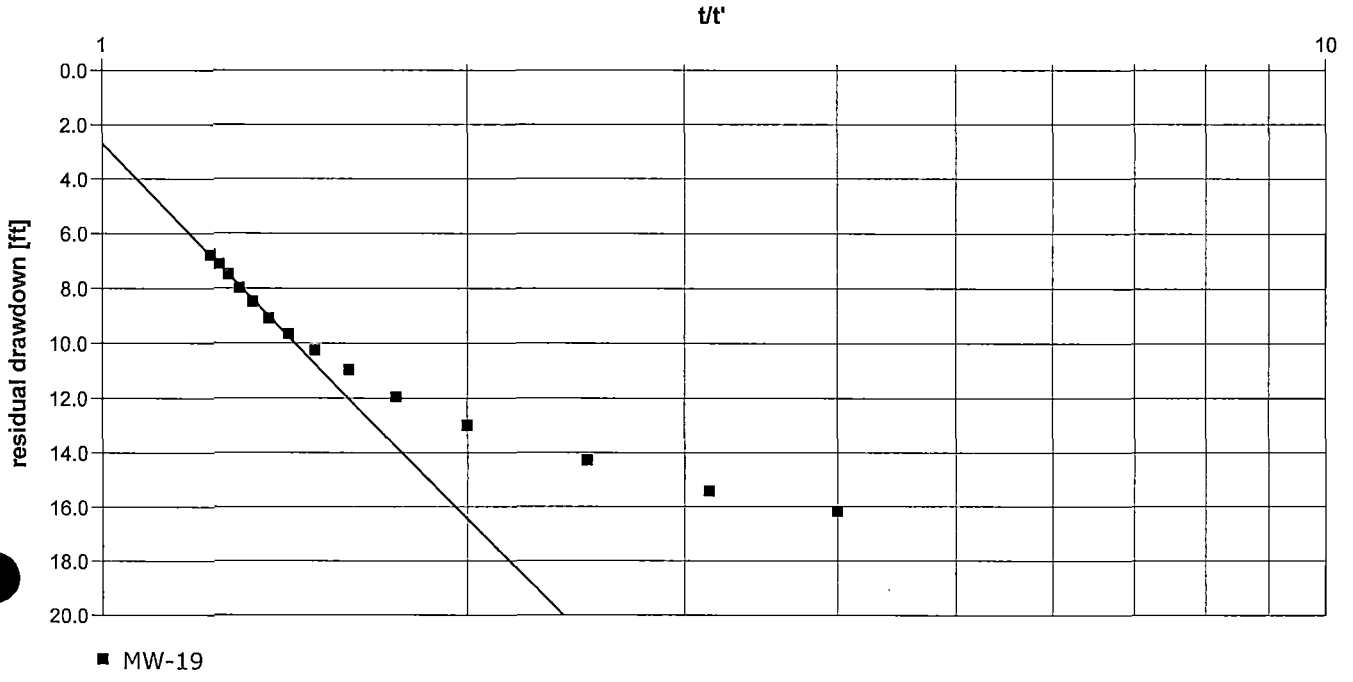
Pumping Test Analysis Report

Project: ANC Tailings

Number: WYDEQ104

Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-19 Recovery Test	Pumping Well: MW-19
Test Conducted by: John Goin		Test Date: 8/4/2015
Analysis Performed by: M. Stacy	Theis Recovery	Analysis Date: 8/24/2015
Aquifer Thickness:	Discharge: variable, average rate 1.03 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Radial Distance to PW [m]	
MW-19	5.94×10^{0}	0.03	

Lidstone and Associates, Inc.
A Wenck Company
4025 Automation Way, Bldg. E
Fort Collins, CO 80525
www.lidstone.com

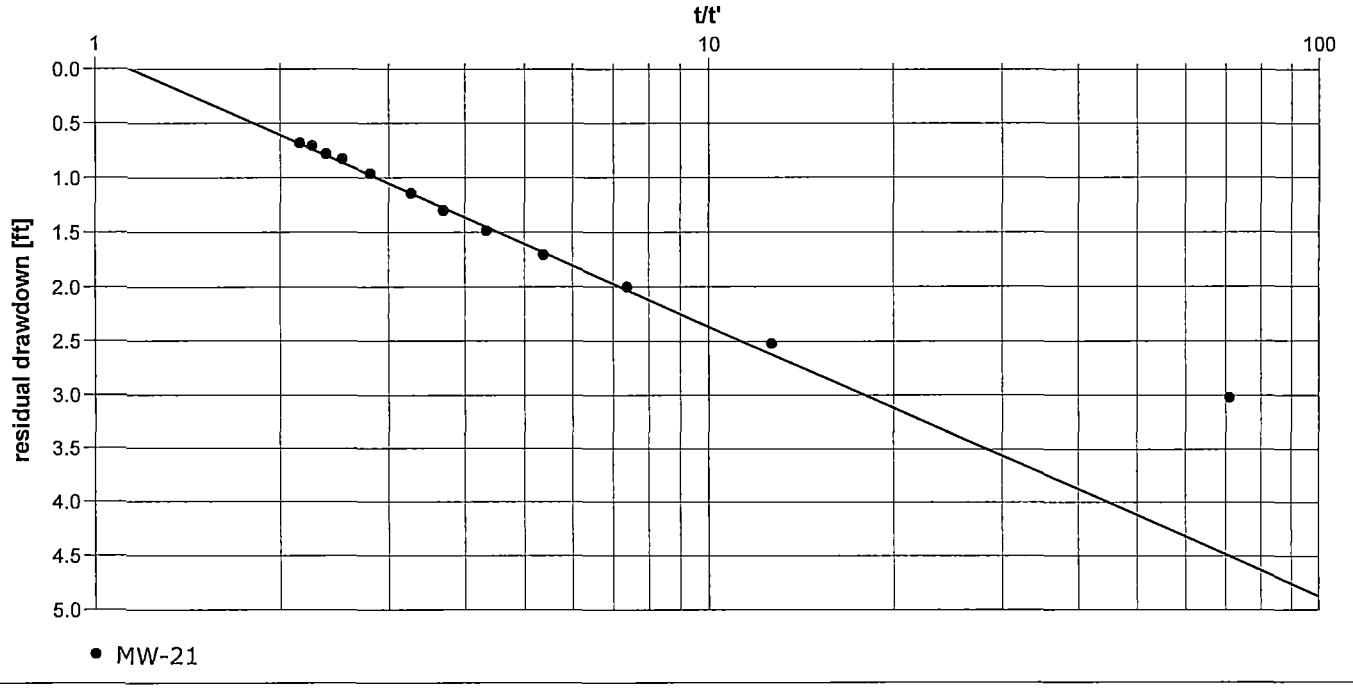
Pumping Test Analysis Report

Project: ANC Tailings

Number: WYDEQ104

Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-21 Recovery Test	Pumping Well: MW-21
Test Conducted by: John Goin		Test Date: 8/4/2015
Analysis Performed by: M. Stacy	Theis Recovery	Analysis Date: 8/24/2015
Aquifer Thickness: 6.71 ft	Discharge: variable, average rate 0.14 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]	
MW-21	1.47×10^{1}	2.19×10^{0}	0.03	

Lidstone and Associates, Inc.
A Wenck Company
4025 Automation Way, Bldg. E
Fort Collins, CO 80525
www.lidstone.com

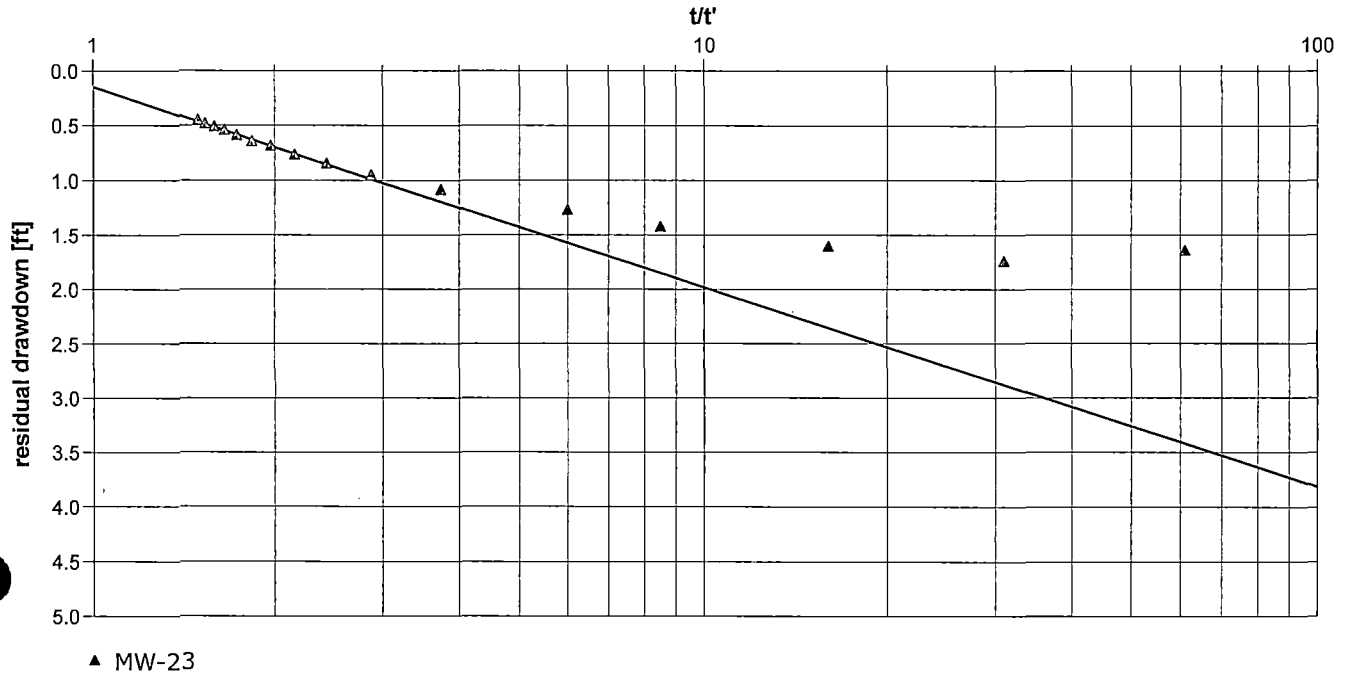
Pumping Test Analysis Report

Project: ANC Tailings

Number: WYDEQ104

Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-23 Recovery Test	Pumping Well: MW-23
Test Conducted by: John Goin		Test Date: 8/5/2015
Analysis Performed by: M. Stacy	Theis Recovery	Analysis Date: 8/24/2015
Aquifer Thickness: 7.75 ft	Discharge: variable, average rate 0.56 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]	
MW-23	8.06×10^{1}	1.04×10^{1}	0.03	

Lidstone and Associates, Inc.
A Wenck Company
4025 Automation Way, Bldg. E
Fort Collins, CO 80525
www.lidstone.com

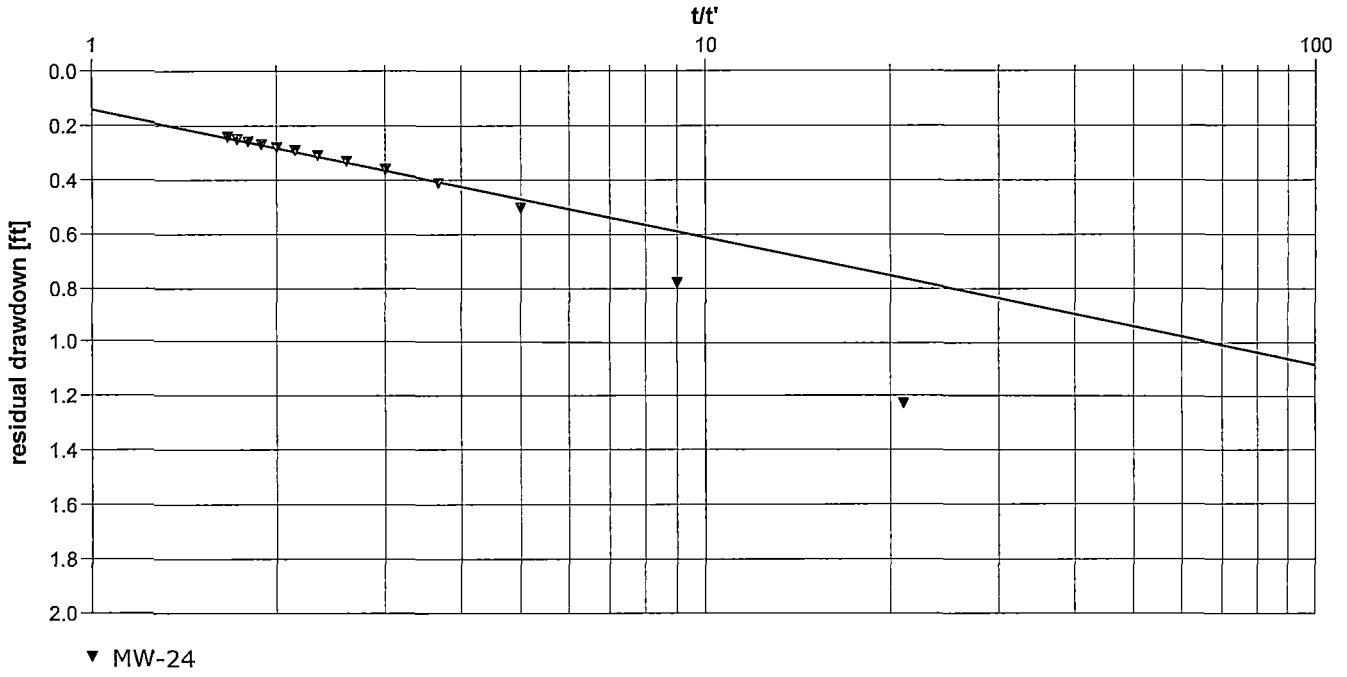
Pumping Test Analysis Report

Project: ANC Tailings

Number: WYDEQ104

Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-24 Recovery Test	Pumping Well: MW-24
Test Conducted by: John Goin		Test Date: 8/4/2015
Analysis Performed by: M. Stacy	Theis Recovery	Analysis Date: 8/24/2015
Aquifer Thickness: 2.07 ft	Discharge: variable, average rate 0.28 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]
MW-24	1.57×10^{2}	7.59×10^{1}	0.03

Lidstone and Associates, Inc.
A Wenck Company
4025 Automation Way, Bldg. E
Fort Collins, CO 80525
www.lidstone.com

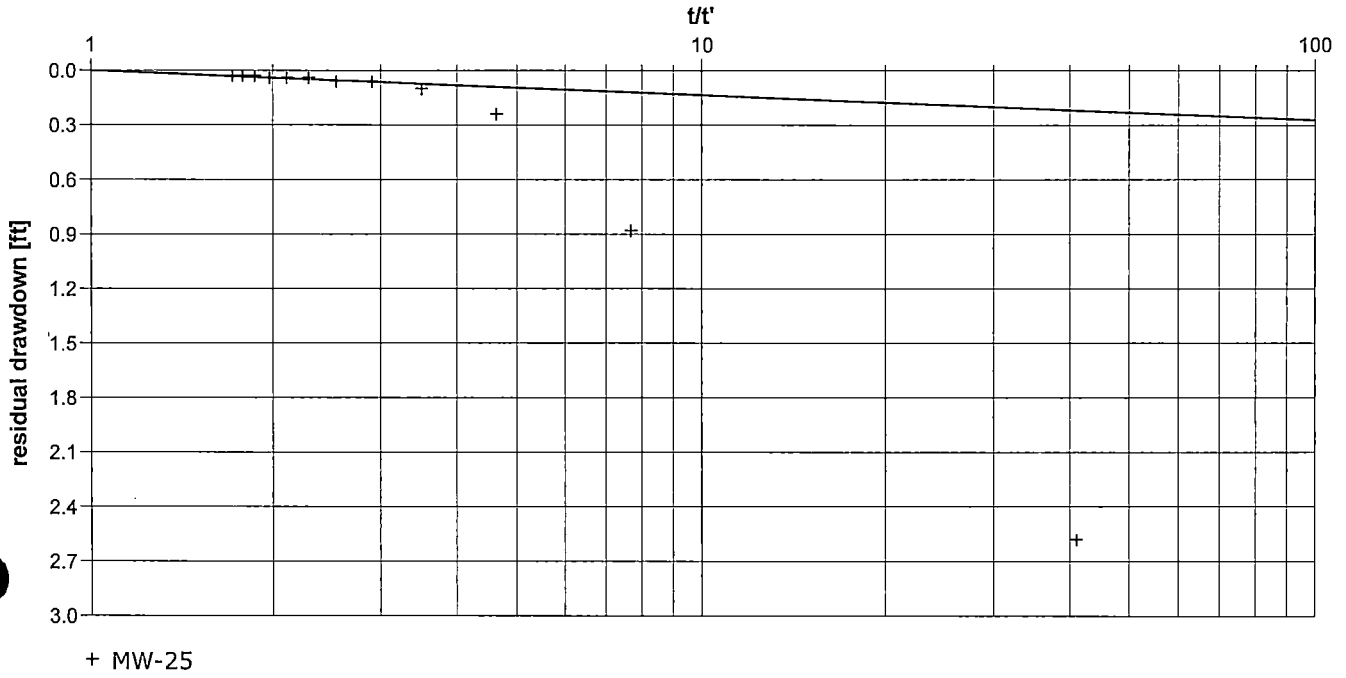
Pumping Test Analysis Report

Project: ANC Tailings

Number: WYDEQ104

Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-25 Recovery Test	Pumping Well: MW-25
Test Conducted by: John Goin		Test Date: 8/5/2015
Analysis Performed by: M. Stacy	Theis Recovery	Analysis Date: 8/24/2015
Aquifer Thickness: 8.98 ft	Discharge: variable, average rate 0.44 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]	
MW-25	8.46×10^{2}	9.43×10^{1}	0.03	

Lidstone and Associates, Inc.
A Wenck Company
4025 Automation Way, Bldg. E
Fort Collins, CO 80525
www.lidstone.com

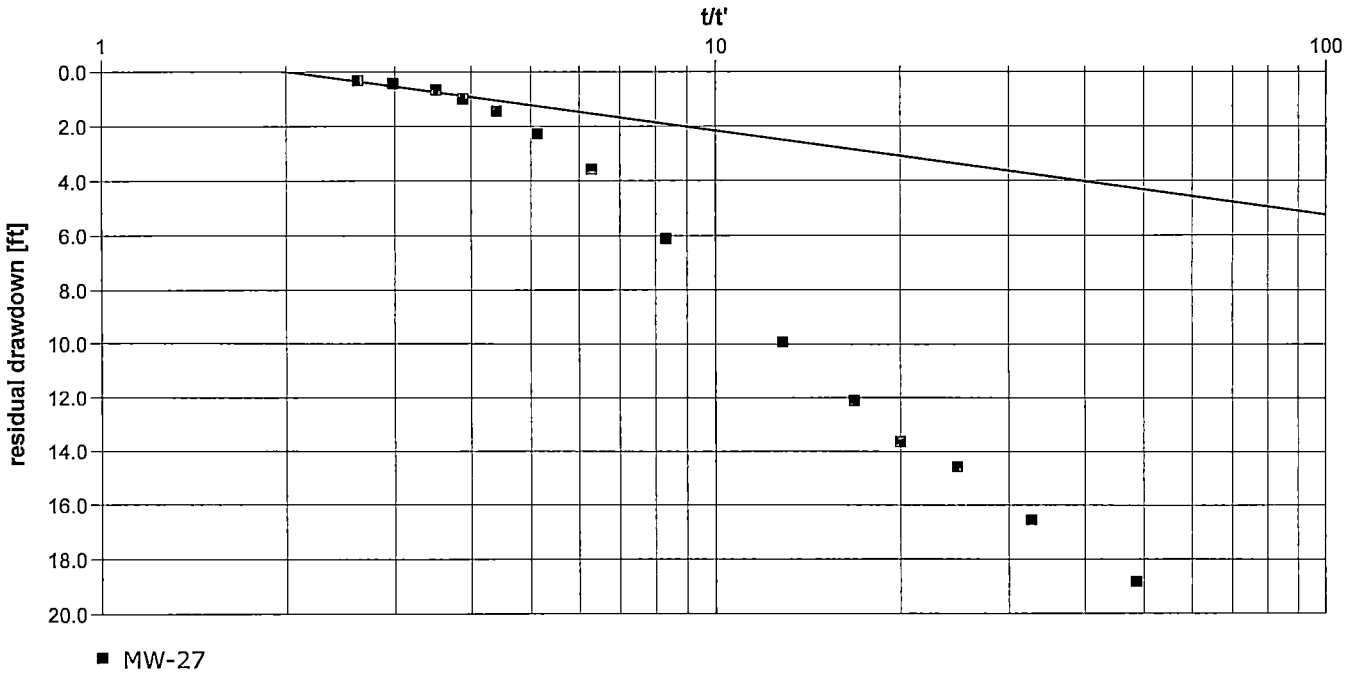
Pumping Test Analysis Report

Project: ANC Tailings

Number: WYDEQ104

Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-27 Recovery Test	Pumping Well: MW-27
Test Conducted by: John Goin		Test Date: 8/6/2015
Analysis Performed by: M. Stacy	Theis Recovery	Analysis Date: 8/24/2015
Aquifer Thickness: 13.00 ft	Discharge: variable, average rate 0.5 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]	
MW-27	4.26×10^{1}	3.28×10^{0}	0.03	

Lidstone and Associates, Inc.
A Wenck Company
4025 Automation Way, Bldg. E
Fort Collins, CO 80525
www.lidstone.com

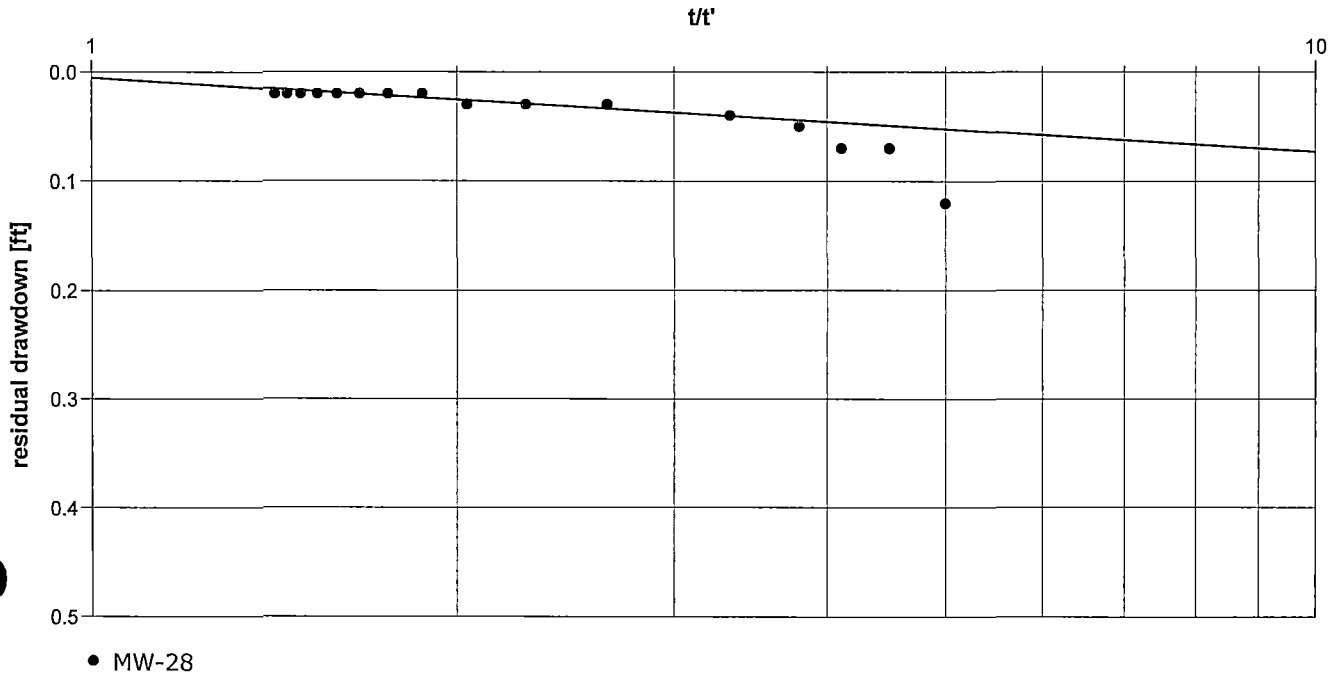
Pumping Test Analysis Report

Project: ANC Tailings

Number: WYDEQ104

Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-28 Recovery Test	Pumping Well: MW-28
Test Conducted by: John Goin		Test Date: 8/6/2015
Analysis Performed by: M. Stacy	Theis Recovery	Analysis Date: 8/24/2015
Aquifer Thickness: 20.00 ft	Discharge: variable, average rate 1.125 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]	
MW-28	4.37×10^3	2.19×10^2	0.03	

Lidstone and Associates, Inc.
A Wenck Company
4025 Automation Way, Bldg. E
Fort Collins, CO 80525
www.lidstone.com

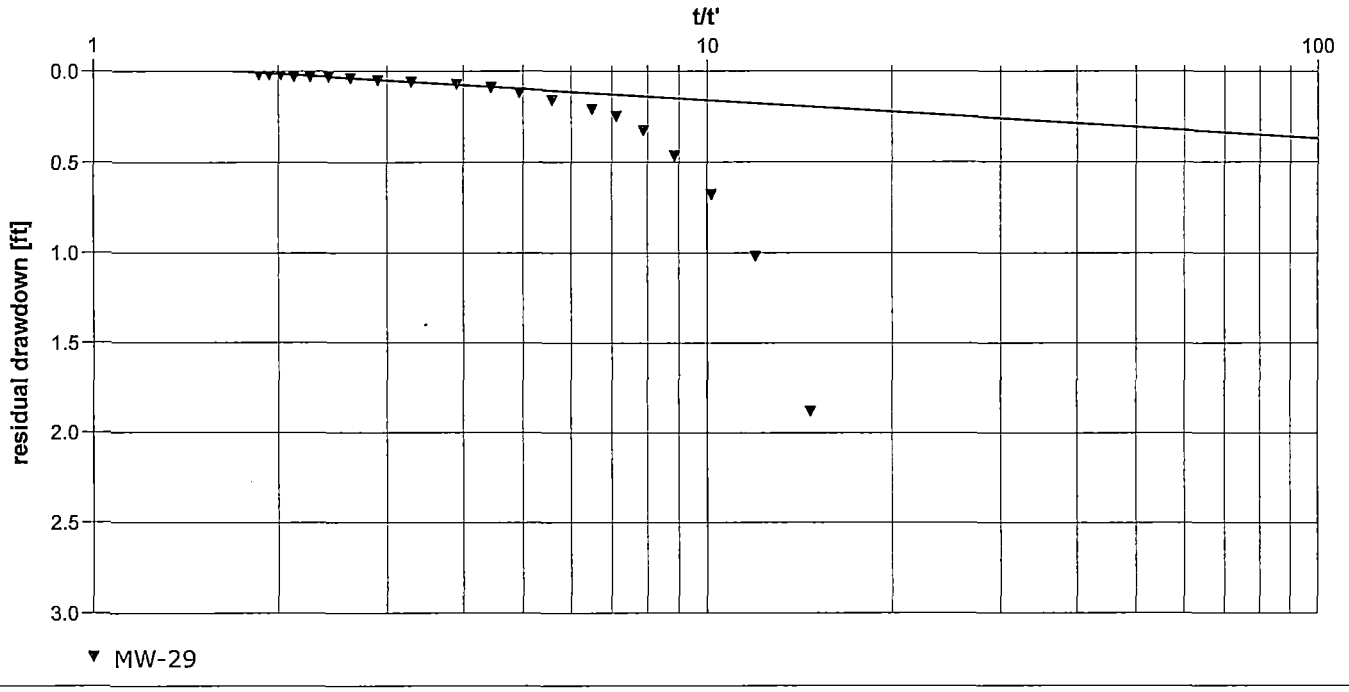
Pumping Test Analysis Report

Project: ANC Tailings

Number: WYDEQ104

Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-29 Recovery Test	Pumping Well: MW-29
Test Conducted by: John Goin		Test Date: 9/22/2015
Analysis Performed by: M. Stacy	Recovery Test	Analysis Date: 9/29/2015
Aquifer Thickness: 15.12 ft	Discharge: variable, average rate 1.31 [U.S. gal/min]	

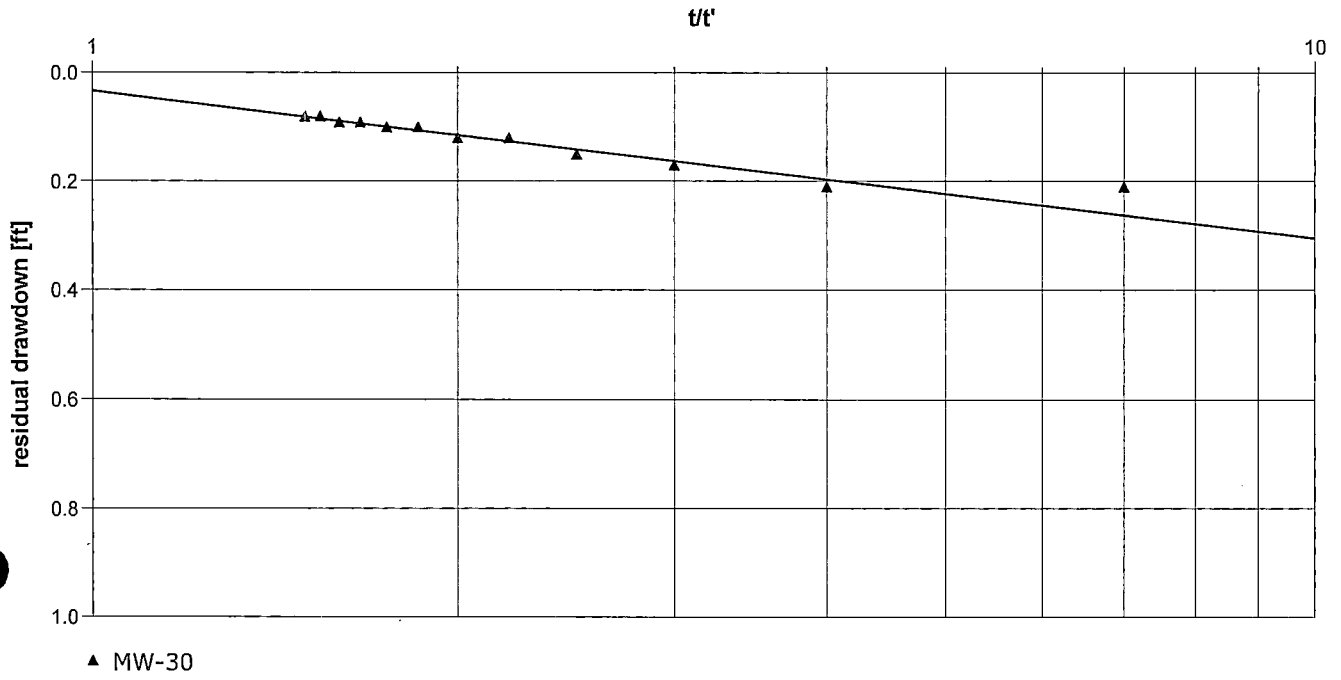


Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]	
MW-29	1.64×10^3	1.08×10^2	0.03	

Lidstone and Associates, Inc. A Wenck Company 4025 Automation Way, Bldg. E Fort Collins, CO 80525 www.lidstone.com	**Pumping Test Analysis Report** Project: ANC Tailings Number: WYDEQ104 Client: Wyoming Department of Environmental Quality

Location: Gas Hills, WY	Pumping Test: MW-30 Recovery Test	Pumping Well: MW-30
Test Conducted by: John Goin		Test Date: 8/3/2015
Analysis Performed by: M. Stacy	Theis Recovery	Analysis Date: 8/25/2015
Aquifer Thickness: 16.53 ft	Discharge: variable, average rate 0.875 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]	
MW-30	8.50×10^{2}	5.14×10^{1}	0.03	