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February 28, 2014

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NRC License SUA-1548, Docket No. 40-8964, Semi-Annual Effluent and Environmental Monitoring Report, July 1 through December 31, 2013

Dear Deputy Director:

In accordance with 10 CFR 40.65 and per License Condition No. 12.2 of Source Materials License SUA-1548, please find enclosed the Semi-Annual Effluent and Environmental Monitoring Report for the period July 1 through December 31, 2013. Copies of this report are also being forwarded to Mr. Douglas Mandeville, USNRC Headquarters and Mr. Tony Vogel, Division Director, Division of Nuclear Material Safety, Region IV.

If you have questions regarding the report, please contact me at (307) 316-7588 or by email at Josh_Leftwich@cameco.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Josh Leftwich", written over a horizontal line.

Josh Leftwich
Director, SHEQ
Cameco Resources

Attachments: Semi-Annual Effluent and Environmental Monitoring Report

KG/th

cc: Mr. Doug Mandeville, NRC w/att CERTIFIED MAIL #7012 3460 0000 8585 0302
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**POWER RESOURCES, INC.
D/B/A CAMECO RESOURCES**

**USNRC SOURCE MATERIAL LICENSE
NO. SUA-1548**

DOCKET NO. 40-8964

**SEMI-ANNUAL EFFLUENT AND
ENVIRONMENTAL MONITORING
REPORT**

FOR THE PERIOD

**JULY 1 THROUGH
DECEMBER 31, 2013**

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1 INJECTION RATES, RECOVERY RATES, AND INJECTION TRUNK-LINE PRESSURES FOR EACH SATELLITE FACILITY

Tables 1A through 1D of Attachment A contain injection and recovery rates and injection pressure data at the satellite facilities for the period of the report.

1.1 Satellite No. 1

Satellite No. 1 did not operate during the report period, as restoration activities in the A and B Wellfield are complete. An alternate concentration limit (ACL) license amendment for the completion of restoration of Mine Unit B was submitted May 22, 2013. On December 3, 2013, a public meeting was held to discuss NRC staff's acceptance review of Cameco Resources' (Cameco's) ACL request for Mine Unit B. Cameco is reviewing the discussion topics from the Mine Unit B ACL public meeting, evaluating NRC staff's comments and is in the process of drafting a proposed path forward. Therefore, no injection or recovery rates are available for the report period, as shown in Table 1A.

1.2 Satellites and Central Processing Plant

The operating information for Satellite No. 2, Satellite No. 3, Satellite SR-1, Satellite SR-2, and the Central Processing Plant (CPP) are contained in Tables 1B, 1C, and 1D. The injection rates listed are the total recovery rates minus the purge flow bleed. The bleed from Satellites No. 2 and No. 3 is treated for uranium, radium and selenium removal and pumped to Purge Storage Reservoir #2 (PSR-2) prior to land application at the Satellite No. 2 Land Application Facility (Irrigator #2). Waste water brine from the reverse osmosis (RO) system at Satellite No. 2 is disposed by either deep well injection through a permitted waste disposal well, or treated and pumped to PSR-2 for further land application at Irrigator #2. Bleed from Satellites SR-1 and SR-2, and the CPP is disposed by deep well injection through permitted waste disposal wells.

1.3 North Butte Satellite Facility

The operational data for North Butte Satellite is contained in Tables 1B, 1C, and 1D. The injection rates represent the total recovery rates minus the purge flow bleed. The bleed from the satellite is pumped to the deep disposal well for disposal or stored in the storage pond prior to deep disposal well disposal.

2 RESULTS OF EFFLUENT AND ENVIRONMENTAL MONITORING INCLUDING WATER QUALITY ANALYSES AND MONITORING REQUIRED BY THE WDEQ PERMIT FOR THE OPERATING IRRIGATION SYSTEMS

2.1 Stack Emission Surveys

All yellowcake processing activities (elution, drying and packaging) were conducted at the Smith Ranch CPP. The dryers at the CPP are zero emission vacuum dryers and do not require stack testing.

The Central Processing Facility (CPF) at the Highland Uranium Project has been refurbished with a zero emission vacuum dryer, which will not require stack testing, and is on stand-by status.

2.2 Air Particulate, Radon, and Gamma Radiation Monitoring

2.2.1 *Smith Ranch-Highland*

Smith Ranch – Highland (SRH) maintains an air monitoring program at six locations on and around the licensed area. The air monitoring stations are used to monitor air particulates, passive radon gas, and passive gamma radiation. Two of these stations (AS-4 and AS-5) were previously used to monitor downwind conditions of the Highland CPF and were operated only when yellowcake processing operations were active at the Highland CPF. The stations were reactivated in January 2012 to monitor conditions during construction activities at the Highland CPF. One additional station (AS-6) will be used to monitor conditions downwind of the Reynolds Ranch Satellite Facility once the facility is constructed and becomes operational.

The air stations are located as follows:

- Air Station No. 1 (AS-1; Dave's Water Well): This station monitors background conditions, upwind of both the Smith Ranch and HUP wellfields and yellowcake processing facilities.
- Air Station No. 2 (AS-2; Smith Ranch Restricted Area): This station monitors conditions downwind of the Smith Ranch CPP Restricted Area Boundary.
- Air Station No. 3 (AS-3; Vollman Ranch): This station monitors the nearest downwind resident to the Smith Ranch CPP Restricted Area.
- Air Station No. 4 (AS-4; HUP Restricted Area): This station monitors conditions downwind of the HUP CPF Restricted Area Boundary.
- Air Station No. 5 (AS-5; Fowler Ranch): This station monitors the nearest

downwind resident to the HUP CPF Restricted Area.

- Air Station No. 6 (AS-6; Reynolds Ranch Satellite Area): This station will monitor conditions downwind of the Reynolds Ranch Satellite Facility once the facility is constructed and becomes operational.

Monitoring at station AS-6 was not conducted during the report period since the Reynolds Ranch Satellite Facility has not been constructed. Monitoring of conditions at AS-6 will commence during construction of the facility and before it becomes operational.

Table 2 shows the air particulate and radon data collected at stations AS-1 through AS-5 during the report period. Review of data collected during the report period shows that the concentrations of all parameters are significantly less than the 10 CFR 20, Appendix B, Effluent Concentration Limits.

Table 3 shows the gamma radiation data collected at stations AS-1 through AS-5 during the report period. Review of data collected during the report period shows that gamma radiation levels were within the range of previously reported values.

2.2.2 NB Satellite Facility

North Butte maintains an Air Monitoring Station program at five various locations on and around the licensed area. The air monitoring stations are used to monitor air particulates, passive radon gas, and passive gamma radiation. Two additional passive gamma and passive radon gas stations are included in the license area.

The air stations, passive gamma, and passive radon gas monitoring stations are located as follows:

- Air Station NB8 (Phister Ranch): This station monitors the nearest residence to North Butte Satellite Area.
- Air Station NB9 (West Air Station): This station monitors background conditions, upwind from the North Butte Satellite Area.
- Air Station NB11 (North Butte): This station monitors the north side of the North Butte Licensed Area.
- Air Station NB12 (North East Air Station): This station monitors downwind conditions from North Butte Satellite and Well Fields.
- Air Station NB13 (Anadarko Rd): This Station monitors the south side of the North Butte Licensed Area.

- Environmental Station (Fenceline): This station monitors passive radon gas and passive gamma radiation only.
- Environmental station (Fenceline on Christensen Rd): This station monitors passive radon gas and passive gamma radiation only.

Table 2 shows the air particulate and radon data collected at air stations NB8, NB9, NB11, NB12, and NB13. In addition to the five air stations there are two additional environmental stations with radon data only. Review of data collected during the report period shows that the concentrations of all parameters are significantly less than the 10 CFR 20, Appendix B, Effluent Concentration Limits.

Table 3 shows the gamma radiation data collected at the five air stations and the two environmental stations for the report period. Review of data collection during the report period shows that gamma radiation levels were comparable to upwind background values at station NB9 and the control badge.

2.3 Water Sampling Data

2.3.1 SRH Groundwater and Surface Water Monitoring Stations

During the report period, monitoring was completed at 18 water wells and 10 stock ponds throughout the permit area. Water samples are collected from the water wells and stock ponds on a quarterly basis for analysis of uranium and radium-226. Table 4 provides the analytical data for samples collected during the report period. A review of data collected during the report period shows that five water wells (GW-5, GW-8, GW-13, GW-16 and GW-19) did not run during the report period. Water well, GW-19, was removed by the landowner sometime in the 4th quarter 2012 and can no longer be sampled. A review of data collected from the available water wells shows that the concentrations of uranium and radium-226 are well below the 10 CFR 20, Appendix B, Effluent Concentration Limits of $3.0\text{E-}07$ $\mu\text{Ci/mL}$ and $6.0\text{E-}08$ $\mu\text{Ci/mL}$, respectively.

2.3.2 NB Groundwater and Surface Water Monitoring Stations

During the report period, monitoring was completed at two impoundments, eight surface water sites, and two wells throughout the permit area. Water samples are collected from the water wells, impoundments, and surface water sites on a quarterly basis for analysis of Suspended and Dissolved Natural Uranium, Thorium 230, Radium 226, Polonium 210, and Lead 210. Table 4 provides the analytical data for samples collected during the report period. A review of data collected during the report period shows that during the third quarter there were two (2) water wells (Beck and Brown #5) that were sampled, however there were two (2) impoundments (NBI2 and NBI6) and all eight surface water sites (NBSWS1, NBSWS2, NBSU1, NBSU2, NBSD1, NBSD2, NBSU4, and NBSD3) that

were dry and there was no water available for sampling. During the fourth quarter there were two (2) water wells, one (1) impoundment (NBI6), and one (1) surface water site (NBSU-4) with sufficient water for sampling. All other sample sites were recorded as dry. A review of data collected from the available water wells, surface water site, and impoundment show that the concentrations of Suspended and Dissolved Natural Uranium, Thorium 230, Radium 226, Polonium 210, and Lead 210 are less than the 10 CFR 20, Appendix B, Effluent Concentration Limits.

2.4 SRH Wastewater Land Application Facilities Monitoring

2.4.1 *Soil and Vegetation Sampling*

In accordance with License Condition 12.2 for the Satellite No. 1 and Satellite No. 2 Wastewater Land Application Facilities, soil and vegetation sampling of the irrigation areas is conducted in late summer of each year. The soil and vegetation data are collected to monitor and evaluate any adverse effects to the irrigation areas. The 2013 soil and vegetation sampling at the irrigation areas were performed in August.

Soil data from the Satellite No. 1 and Satellite No. 2 Wastewater Land Application Facilities are provided in Tables 5 and 6, respectively. Comparison of data from the report period over previous year's data shows a slight increase in the concentrations of uranium from the Satellite No.2 area; while radium concentrations showed little change. Uranium and radium concentrations are somewhat elevated at the Satellite No. 1 area over the previous year. The approved license applications for the facilities predicted that, at the end of operations, uranium concentrations in soil would be elevated above baseline, while radium concentrations would remain near baseline.

Vegetation data from the Satellite No. 1 and Satellite No. 2 Wastewater Land Application Facilities are provided in Tables 7A and 7B, respectively. Comparison of data from the report period over the previous year's data shows uranium and radium-226 concentrations at higher levels.

Cameco is in the process of evaluating the results of the 2013 soil and vegetation monitoring program to determine whether the apparent increases may have been caused by a change in sampling and/or analytical techniques, sampling and/or analytical error or attributed to higher levels of precipitation that occurred during 2013.

2.4.2 Irrigation Fluid

Cameco monitors the treated irrigation fluid that is disposed of at both irrigation facilities per the approved license application. Grab samples are collected at the discharge of PSR-2 during each month of operation and analyzed for various parameters. As noted in Table 8, Irrigator No. 1 did not operate during the report period.

Irrigation fluid data collected at Irrigator No. 2 is provided in Table 9. A review of the data indicates that the concentrations of uranium in the monthly grab samples were less than the 10 CFR 20, Appendix B, Effluent Concentration Limit of $3.0 \text{ E-}7 \text{ } \mu\text{Ci/ml}$. The concentrations of radium-226 were below the 10 CFR 20, Appendix B, Effluent Concentration Limit of $6.0\text{E-}08 \text{ } \mu\text{Ci/ml}$.

2.4.3 Radium Treatment Systems

Cameco collects grab samples each month to ensure that the radium-226 treatment systems are adequately treating wastewater from Satellites No. 2 and No. 3 prior to discharge into PSR-2. No samples were collected from the Satellite No. 1 radium treatment system since Satellite No. 1 did not operate during the report period. The monthly radium-226 grab samples for Satellite No. 2 and No. 3 are collected at the discharge point of the selenium treatment plant. Review of the monitoring data provided in Table 10 shows that radium-226 concentrations were less than the 10 CFR 20, Appendix B, Effluent Concentration Limit of $6.00\text{E-}8 \text{ } \mu\text{Ci/ml}$.

2.4.4 Soil Water Samples

In accordance with approved license application, Cameco collects soil water samples at the irrigation areas in June of each year and analyzes them for various parameters. A discussion of soil water monitoring for 2013 was presented in the previous Semi-Annual Effluent and Environmental Monitoring Report.

2.4.5 Satellite No. 1 Purge Storage Reservoir Monitor Well

A shallow monitor well, located southwest of the Satellite No. 1 Purge Storage Reservoir (PSR-1) is monitored at least weekly for potential seepage from the reservoir. There was no evidence of seepage during the report period. PSR-1 was dry for the entire period and it is not anticipated that water will be diverted to PSR-1 in the near future.

2.4.6 Satellite No. 2 Purge Storage Reservoir Shallow Wells

Shallow Wells No. 1 and No. 2 are located adjacent to the south and east sides of the reservoir, respectively. Water levels are measured on a quarterly basis and ground water samples are required on a semi-annual basis from the two shallow monitoring wells located adjacent to PSR-2. Cameco conducts quarterly sampling of both wells. In addition, twelve new monitoring wells were installed around the perimeter of PSR-2 for supplemental internal investigation regarding PSR-2. The wells are designated MW-1S through MW-12S. Monitoring of the wells was conducted in August and November 2013. Table 11 contains the data for samples collected during the report period.

3 SAFETY AND ENVIRONMENTAL EVALUATIONS

All safety and environmental evaluations made by the Safety and Environmental Review Panel (SERP) and resulting changed pages to the Operations Plan and Reclamation Plan of the approved license must be submitted on an annual basis. During the period January 1 through December 31, 2013 Cameco completed the following Safety and Environmental Evaluations

1. SERP No. 04/12-4: Approval of Health Physics Technician (Approved 2/21/2013)
The SERP approved a Health Physics Technician in Training as a Health Physics Technician. The qualifications and training met the requirements outlined in NRC Regulatory Guide 8.31 for a Health Physics Technician.
2. SERP No. 10/12-2: North Butte Operating Plan (Approved 11/8/2012)
The SERP clarified information in the North Butte Operating Plan on September 6, 2013.
3. SERP 1/13-1: Approval of Mine Unit 10 Wellfield Start-up (Approved 1/2/2013)
The SERP approved the commencement of uranium recovery activities in the Mine Unit 10 Wellfield, as required by Source Materials License SUA 1548, Condition 10.1.9
4. SERP 1/13-3: Approval of Bale Burner Pilot Project (Approved 2/20/2013)
The SERP approved a pilot project to burn hay bales from vegetation harvested at the Satellite No. 2 Land Application Facility. If the project is successful, it will aid in disposal of harvested material previously stored at the Land Application Facility.
5. SERP 4/13-1: Approval of North Butte Satellite Facility Organization Chart (Approved 5/28/2013)
The SERP approved new organizational structure at the North Butte Facility, as

required by Source Materials License SUA-1548. The approval resulted in a change to Figure 9-1 of the NRC Operations Plan, and a copy of the changed page is included in Appendix B.

6. SERP 4/13-2 Approval of North Butte Satellite Facility Mine Unit 1 Wellfield Start-up (Approved 4/25/13)
The SERP approved the commencement of uranium recovery activities in the North Butte Mine Unit 1 wellfield, as required by Source Materials License SUA-1548, Condition 10.1.9
7. SERP 6-13/1: Approval of the Use of Higher Capacity Resin Trailers, North Butte Satellite Facility (Approved 6/12/2013)
The SERP approved the use of 1000 cubic foot capacity trailers for transport of ion exchange resin from the North Butte Satellite Facility for processing at the Smith Ranch Highland facility. The design of the trailers was determined to meet all NRC, DOT and Smith Ranch requirements. As the NRC Operations Plan, Section 7.5.7.2 describes a typical capacity for the resin trailers, and does not result in a change in procedures, no page change is necessary.
8. SERP 6/13-3: Approval Health Physics Technician (Approved 7/2/2013)
The SERP approved a Health Physics Technician, In Training as Health Physics Technician. The qualifications and training met the requirements outlined in NRC Regulatory Guide 8.31 for a Health Physics Technician.
9. SERP 7/13-1: Approval of Mine Unit H Restoration Plan (Approved 10/10/2013)
The SERP approved the Groundwater Restoration Plan for the Mine Unit H Wellfield, as required by license condition 10.1.9 of Source Material License SUA-1548.
10. SERP 9/13-1: Approval to Accept Ion Exchange Resin from Municipalities (Approved 10/1/2013)
The SERP approved receiving and processing ion exchange resin from Community Water Systems (Municipalities) for removal of Uranium. The SERP determined that receipt of this material for processing fell within NRC Regulatory Issue Summary (RIS) 2012-06. The material accepted will be similar to resin already in use at the Smith Ranch Highland Facility.
11. SERP 10/13-1: Approval for Tank Addition and Piping Modifications at the Central Processing Plant (Approved 12/1-/2013)
The SERP approved the addition of a 20,000 gallon conical tank and modifications to piping in the Central Processing Plant to perform elution and batch precipitations. This change will result in increased production efficiency and reduction of losses from overflow in the current tanking. The approval

resulted in a change to Figure 3-4 of the NRC Operations Plan and a copy of the changed page is included in Appendix B.

12. SERP 11/13-1: Approval of Tracer Research Project, Mine Unit 4 (Approved 12/2/2013)

The SERP approved a research project involving the use of tracers to promote growth of bacteria beneficial to restoration. The tracer results are analyzed and information is used to adjust and improve the restoration process. As no Safety, Health or Environmental issues not previously evaluated are expected, the SERP was approved to begin the project in Mine Unit 4, Header House 4-6.

Consistent with License Conditions 9.4(e), the above Safety and Environmental Evaluations and, if applicable, changed pages to the Operations plan of the approved license application, are included in Attachment B. The following page changes were made:

- From SERP 4/13-1: Figure 9-1 of the NRC Operations Plan (minor revision).
- From SERP 10/13-1: Figure 3-4 of the NRC Operations Plan (minor revision).

4 GAS HILLS AND RUTH ISL PROJECTS

The Gas Hills and Ruth ISL Projects are licensed for commercial ISL uranium recovery activities as satellite facilities to the Smith Ranch-Highland Uranium Project. The projects remained non-operational during the report period. Effluent and environmental monitoring conducted during the report period consisted of baseline gamma, radon and air monitoring at the Gas Hills Site.

Other activities conducted during the report period consisted of quarterly inspections of the Ruth evaporation ponds in accordance with License Condition 10.2.2 of SUA-1548. Inspection of the perimeter fence, pond embankments, and pond liners yielded no deficiencies during the report period.

ATTACHMENT A

DATA TABLES 1-11

TABLE 1A

**SATELLITE NO.1 INJECTION RATES, RECOVERY RATES, INJECTION PRESSURES
2013**

MONTH	Injection Pressure (PSI)			Groundwater	Radium	RO	Injection	RO	Purge
	RO #1	RO #2	RO #3	Sweep GPM	Ponds GPM	Feed GPM		Concentrate GPM	
Jul-13	0	0	0	0	0	0	0	0	0
Aug-13	0	0	0	0	0	0	0	0	0
Sep-13	0	0	0	0	0	0	0	0	0
Oct-13	0	0	0	0	0	0	0	0	0
Nov-13	0	0	0	0	0	0	0	0	0
Dec-13	0	0	0	0	0	0	0	0	0

TABLE 1B

**AVERAGE INJECTION RATES (GPM)
2013**

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2	North Butte
Jul-13	1,224	4,805	1,736	3,626	3,645	1,177
Aug-13	1,007	5,114	1,801	3,975	3,751	1,597
Sep-13	1,038	5,039	1,603	4,028	3,656	1,525
Oct-13	875	4,452	1,532	3,289	3,307	1,742
Nov-13	1,003	4,947	2,308	3,013	3,404	2,061
Dec-13	947	4,731	2,905	3,131	3,425	1,850

TABLE 1C

**AVERAGE RECOVERY RATES (GPM)
2013**

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2	North Butte
Jul-13	1,272	4,867	1,747	3,650	3,668	1,224
Aug-13	1,045	5,174	1,812	4,001	3,772	1,606
Sep-13	1,064	5,100	1,614	4,055	3,676	1,536
Oct-13	896	4,507	1,541	3,310	3,332	1,751
Nov-13	1,028	5,010	2,321	3,031	3,426	2,072
Dec-13	972	4,794	2,925	3,153	3,451	1,860

TABLE 1D

**INJECTION TRUNK LINE PRESSURES (PSI)
2013**

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2	North Butte
Jul-13	83	104	115	43	173	88
Aug-13	82	108	114	38	175	105
Sep-13	98	117	96	26	175	105
Oct-13	90	113	107	30	175	99
Nov-13	106	124	128	59	175	105
Dec-13	103	134	157	84	175	104

[illegible]

TABLE 2
AIR SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - NB
3rd and 4th Quarters 2013

SAMPLE LOCATION	SAMPLE PERIOD	RADIONUCLIDE ($\mu\text{Ci}/\text{ml}$)	CONCENTRATION ($\mu\text{Ci}/\text{ml}$)	ERROR EST. +/- ($\mu\text{Ci}/\text{ml}$)	L.L.D. ($\mu\text{Ci}/\text{ml}$)	EFF. CONC. LIMIT ($\mu\text{Ci}/\text{ml}$)	% EFF. CONC. LIMIT %
NB8 Pfister Ranch Air Station Nearest Residence	3rd Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	1.10E-16	2.6E-17	1.00E-16	9.00E-13	0.01
		Pb-210	2.00E-14	1.40E-15	2.00E-15	6.00E-13	3.3
	4th Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	1.00E-16	3.3E-17	1.00E-16	9.00E-13	0.01
		Pb-210	2.70E-14	1.8E-15	2.00E-15	6.00E-13	4.5
	All Period	Rn-222	8.00E-10	5.00E-11	3.00E-10	1.00E-08	8.0
	3rd Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	4.00E-14	1.8E-15	2.00E-15	6.00E-13	6.7
	4th Quarter	U-Nat	1.30E-16	NA	1.00E-16	9.00E-14	0.1
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	2.50E-14	2E-15	2.00E-15	6.00E-13	4.2
	All Period	Rn-222	8.00E-10	5.00E-11	3.00E-10	1.00E-08	8.0
NB9 West Air Station Upwind	3rd Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	4.00E-14	1.8E-15	2.00E-15	6.00E-13	6.7
	4th Quarter	U-Nat	1.30E-16	NA	1.00E-16	9.00E-14	0.1
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	2.50E-14	2E-15	2.00E-15	6.00E-13	4.2
	All Period	Rn-222	8.00E-10	5.00E-11	3.00E-10	1.00E-08	8.0
NB11 North Butte Air Station	3rd Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	1.40E-16	2.9E-17	1.00E-16	9.00E-13	0.02
		Pb-210	5.60E-14	2.20E-15	2.00E-15	6.00E-13	9.3
	4th Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	1.80E-14	1.6E-15	2.00E-15	6.00E-13	3.0
	All Period	Rn-222	1.10E-09	7.00E-11	3.00E-10	1.00E-08	11.0
NB12 North East Air Station Downwind (Background not deducted)	3rd Quarter	U-Nat	1.10E-16	NA	1.00E-16	9.00E-14	0.1
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	1.70E-14	1.10E-15	2.00E-15	6.00E-13	2.8
	4th Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	1.90E-14	1.6E-15	2.00E-15	6.00E-13	3.2
	All Period	Rn-222	1.20E-09	7.00E-11	3.00E-10	1.00E-08	12.0

TABLE 2

**AIR SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - NB
3rd and 4th Quarters 2013**

NB13**Anadarko Road**

Air Station Downwind (Background not deducted)	3rd Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	1.70E-14	1E-15	2.00E-15	6.00E-13	2.8
	4th Quarter	U-Nat	ND	NA	1.00E-16	9.00E-14	NA
		Th-230	ND	NA	1.00E-16	3.00E-14	NA
		Ra-226	ND	NA	1.00E-16	9.00E-13	NA
		Pb-210	2.30E-14	2.1E-15	2.00E-15	6.00E-13	3.8
	All Period	Rn-222	6.00E-10	5.00E-11	3.00E-10	1.00E-08	6.0

Christensen Rd

Environmental Station Fence Line	All Period	Rn-222	8.00E-10	5E-11	3.00E-10	1.00E-08	8.0
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Frac Tanks

Environmental Station FenceLine	All Period	Rn-222	8.00E-10	5E-11	3.00E-10	1.00E-08	8.0
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TABLE 3

**DIRECT RADIATION (GAMMA) MEASUREMENT DATA
ENVIRONMENTAL MONITORING SITES - SRH
3rd & 4th QUARTERS 2013**

SAMPLE LOCATION	SAMPLE PERIOD	EXPOSURE RATE (mR/qtr)
AS-1		
DAVE'S WATER WELL	3rd Quarter	32
Air Station		
Background	4th Quarter	35
Site		
AS-2		
FENCE LINE	3rd Quarter	46
Air Station		
Restricted Area	4th Quarter	52
Boundary		
AS-3		
VOLLMAN'S RANCH	3rd Quarter	31
Air Station		
Downwind	4th Quarter	38
Nearest Residence		
AS-4	3rd Quarter	35
HUP RESTRICTED AREA	4th Quarter	41
AS-5	3rd Quarter	33
FOWLER RANCH	4th Quarter	41
AS-6	NOT	
REYNOLDS SATELLITE	CONSTRUCTED	
CONTROL	3rd Quarter	41
	4th Quarter	42

TABLE 3

DIRECT RADIATION (GAMMA) MEASUREMENT DATA
ENVIRONMENTAL MONITORING SITES - NB
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE PERIOD	EXPOSURE RATE (mR/qtr)
NB8		
Phister Ranch		
Air Station	3rd Quarter	49
Nearest Residence	4th Quarter	38
NB9		
West Air Station		
Air Station	3rd Quarter	47
Upwind	4th Quarter	35
Background		
NB11		
North Butte		
Air Station	3rd Quarter	42
Downwind	4th Quarter	36
North Butte		
NB12		
North East Airstation		
Air Station	3rd Quarter	48
Downwind	4th Quarter	37
NB13		
Anadarko Rd		
Air Station	3rd Quarter	48
Downwind	4th Quarter	35
Fenceline		
Upwind	3rd Quarter	47
Background	4th Quarter	40
Christensen Rd.		
Fence Line	3rd Quarter	43
Downwind	4th Quarter	38
CONTROL		
	3rd Quarter	44
	4th Quarter	27

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - SRH
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	10 CFR 20 App. B, Table 2 Values (µCi/ml)	% EFF. CONC. LIMIT
SW-1 Stock Pond Section 3 T35N, R74W	3rd Quarter	U-Nat Ra-226	0.0049	ND	1.50E-01	3.3E-09 ND	3.0E-07 6.0E-08	1.1 ND
	4th Quarter	U-Nat Ra-226	0.0066	0.03	1.50E-01	4.5E-09 3.0E-11	3.0E-07 6.0E-08	1.5 0.1
SW-2 Stock Pond Section 2 T35N, R74W	3rd Quarter	U-Nat Ra-226	0.0044	2.5	2.40E-01	3.0E-09 2.5E-09	3.0E-07 6.0E-08	1.0 4.2
	4th Quarter	U-Nat Ra-226	0.0028	2.6	4.20E-01	1.9E-09 2.6E-09	3.0E-07 6.0E-08	0.6 4.3
SW-3 Stock Pond Section 35 T36N, R74W	3rd Quarter	U-Nat Ra-226	0.0054	1.70	2.10E-01	3.7E-09 1.7E-09	3.0E-07 6.0E-08	1.2 2.8
	4th Quarter	U-Nat Ra-226	0.0088	1.30	3.20E-01	6.0E-09 1.3E-09	3.0E-07 6.0E-08	2.0 2.2
SW-4 Stock Pond Section 36 T36N, R74W	3rd Quarter	U-Nat Ra-226	0.0039	2.60	3.00E-01	2.6E-09 2.6E-09	3.0E-07 6.0E-08	0.9 4.3
	4th Quarter	U-Nat Ra-226	0.0019	0.54	2.40E-01	1.3E-09 5.4E-10	3.0E-07 6.0E-08	0.4 0.9
SW-5 Stock Pond Section 21 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.002	1.30	1.90E-01	1.4E-09 1.3E-09	3.0E-07 6.0E-08	0.5 2.2
	4th Quarter	U-Nat Ra-226	0.0005	0.75	2.50E-01	3.4E-10 7.5E-10	3.0E-07 6.0E-08	0.1 1.3

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - SRH
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	10 CFR 20 App. B, Table 2	% EFF. CONC. LIMIT
							Values (µCi/ml)	
SW-6 Stock Pond Section 22 T36N, R73W	3rd Quarter	U-Nat	0.0011	0.14	1.40E-01	7.4E-10 1.4E-10	3.0E-07	0.2
		Ra-226					6.0E-08	0.2
	4th Quarter	U-Nat	0.0003	0.15	1.60E-01	2.0E-10 1.5E-10	3.0E-07	0.1
		Ra-226					6.0E-08	0.3
SW-7 Stock Pond Section 22 T36N, R73W	3rd Quarter	U-Nat	0.0038	0.20	1.50E-01	2.6E-09 2.0E-10	3.0E-07	0.9
		Ra-226					6.0E-08	0.3
	4th Quarter	U-Nat	0.0007	0.22	1.90E-01	4.7E-10 2.2E-10	3.0E-07	0.2
		Ra-226					6.0E-08	0.4
SW-8 Stock Pond Section 18 T36N, R72W	3rd Quarter	U-Nat	0.003	1.80	2.40E-01	2.0E-09 1.8E-09	3.0E-07	0.7
		Ra-226					6.0E-08	3.0
	4th Quarter	U-Nat	0.0014	0.29	1.70E-01	9.5E-10 2.9E-10	3.0E-07	0.3
		Ra-226					6.0E-08	0.5
SW-9 Stock Pond Section 18 T36N, R72W	3rd Quarter	U-Nat	0.0011	0.33	2.00E-01	7.4E-10 3.3E-10	3.0E-07	0.2
		Ra-226					6.0E-08	0.6
	4th Quarter	U-Nat	0.0006	0.29	1.70E-01	4.1E-10 2.9E-10	3.0E-07	0.1
		Ra-226					6.0E-08	0.5
SW-10 Stock Pond Section 19 T36N, R72W	3rd Quarter	U-Nat	0.0019	0.82	2.20E-01	1.3E-09 8.2E-10	3.0E-07	0.4
		Ra-226					6.0E-08	1.4
	4th Quarter	U-Nat	0.0033	0.42	2.10E-01	2.2E-09 4.2E-10	3.0E-07	0.7
		Ra-226					6.0E-08	0.7

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - SRH
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	10 CFR 20 App. B, Table 2 Values (µCi/ml)	% EFF. CONC. LIMIT
GW-1 Windmill Section 1 T35N, R74W	3rd Quarter	U-Nat Ra-226	0.0321					
				1.40	2.40E-01	2.2E-08 1.4E-09	3.0E-07 6.0E-08	7.2 2.3
	4th Quarter	U-Nat Ra-226	0.0337					
				1.30	3.30E-01	2.3E-08 1.3E-09	3.0E-07 6.0E-08	7.6 2.2
GW-2 Water Well Section 35 T36N, R74W	3rd Quarter	U-Nat Ra-226	0.0377					
				0.78	2.10E-01	2.6E-08 7.8E-10	3.0E-07 6.0E-08	8.5 1.3
	4th Quarter	U-Nat Ra-226	0.033					
				0.88	2.80E-01	2.2E-08 8.8E-10	3.0E-07 6.0E-08	7.4 1.5
GW-3 Windmill Section 27 T36N, R74W	3rd Quarter	U-Nat Ra-226	0.171					
				1.60	2.80E-01	1.2E-07 1.6E-09	3.0E-07 6.0E-08	38.6 2.7
	4th Quarter	U-Nat Ra-226	0.154					
				1.30	3.20E-01	1.0E-07 1.3E-09	3.0E-07 6.0E-08	34.8 2.2
GW-4 Windmill Section 23 T36N, R74W	3rd Quarter	U-Nat Ra-226	0.0825					
				0.30	1.60E-01	5.6E-08 3.0E-10	3.0E-07 6.0E-08	18.6 0.5
	4th Quarter	U-Nat Ra-226	0.0792					
				0.51	2.30E-01	5.4E-08 5.1E-10	3.0E-07 6.0E-08	17.9 0.9
GW-5 Windmill Section 30 T36N, R73W	3rd Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0
	4th Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0

TABLE 4

WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - SRH
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	10 CFR 20	% EFF. CONC. LIMIT
							App. B, Table 2 Values (µCi/ml)	
GW-6 Windmill Section 28 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0544	0.52	2.00E-01	3.7E-08	3.0E-07	12.3
						5.2E-10	6.0E-08	0.9
	4th Quarter	U-Nat Ra-226				0.0E+00	3.0E-07	0.0
						0.0E+00	6.0E-08	0.0
GW-8 Windmill Section 23 T36N, R73W	3rd Quarter	U-Nat Ra-226				0.0E+00	3.0E-07	0.0
						0.0E+00	6.0E-08	0.0
	4th Quarter	U-Nat Ra-226				0.0E+00	3.0E-07	0.0
						0.0E+00	6.0E-08	0.0
GW-9 Windmill Section 14 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0013	0.38	2.20E-01	8.8E-10	3.0E-07	0.3
						3.8E-10	6.0E-08	0.6
	4th Quarter	U-Nat Ra-226				0.0E+00	3.0E-07	0.0
						0.0E+00	6.0E-08	0.0
GW-10 Water Well Section 14 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0021	0.38	1.70E-01	1.4E-09	3.0E-07	0.5
						3.8E-10	6.0E-08	0.6
	4th Quarter	U-Nat Ra-226				0.0E+00	3.0E-07	0.0
						0.0E+00	6.0E-08	0.0
GW-11 Water Well Section 11 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0194	4.90	5.80E-01	1.3E-08	3.0E-07	4.4
						4.9E-09	6.0E-08	8.2
	4th Quarter	U-Nat Ra-226	0.0007	0.39	2.10E-01	4.7E-10	3.0E-07	0.2
						3.9E-10	6.0E-08	0.7

TABLE 4

WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - SRH
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	10 CFR 20 App. B, Table 2	% EFF. CONC. LIMIT
							Values (µCi/ml)	
GW-12 Water Well Section 7 T36N, R72W	3rd Quarter	U-Nat Ra-226	ND	ND	9.00E-02	ND ND	3.0E-07 6.0E-08	ND ND
	4th Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0
	3rd Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0
	4th Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0
GW-13 Water Well Section 9 T36N, R72W	3rd Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0
	4th Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0
	3rd Quarter	U-Nat Ra-226	0.0069	0.53	1.70E-01	4.7E-09 5.3E-10	3.0E-07 6.0E-08	1.6 0.9
	4th Quarter	U-Nat Ra-226	0.0144			9.7E-09 1.1E-09	3.0E-07 6.0E-08	3.2 1.8
GW-14 Water Well Section 10 T36N, R72W	3rd Quarter	U-Nat Ra-226	0.0238	0.66	1.60E-01	1.6E-08 6.6E-10	3.0E-07 6.0E-08	5.4 1.1
	4th Quarter	U-Nat Ra-226	0.0203			1.4E-08 1.2E-09	3.0E-07 6.0E-08	4.6 2.0
	3rd Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0
	4th Quarter	U-Nat Ra-226				0.0E+00 0.0E+00	3.0E-07 6.0E-08	0.0 0.0

**WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - SRH
3rd & 4th QUARTERS 2013**

3rd & 4th QUARTERS 2019							10 CFR 20 App. B, Table 2	% EFF. CONC.
SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (μCi/ml)	Values (μCi/ml)	LIMIT
GW-17 Water Well Section 8 T36N, R72W	3rd Quarter	U-Nat Ra-226	0.0033			2.2E-09	3.0E-07	0.7
				0.45	1.80E-01	4.5E-10	6.0E-08	0.8
	4th Quarter	U-Nat Ra-226	0.0031			2.1E-09	3.0E-07	0.7
				0.57	2.50E-01	5.7E-10	6.0E-08	1.0
GW-18 Water Well Section 2 T36N, R72W	3rd Quarter	U-Nat Ra-226	0.0199			1.3E-08	3.0E-07	4.5
				0.73	1.60E-01	7.3E-10	6.0E-08	1.2
	4th Quarter	U-Nat Ra-226	0.018			1.2E-08	3.0E-07	4.1
				1.5	3.40E-01	1.5E-09	6.0E-08	2.5
GW-20 Water Well Section 27 T36N, R73W	3rd Quarter	U-Nat Ra-226	ND			ND	3.0E-07	ND
				0.33	1.60E-01	3.3E-10	6.0E-08	0.6
	4th Quarter	U-Nat Ra-226	ND			ND	3.0E-07	ND
				0.47	2.30E-01	4.7E-10	6.0E-08	0.8

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - NB
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	10 CFR 20	% EFF. CONC. LIMIT
							App. B, Table 2 Values (µCi/ml)	
NBSWS1 Surface Water Section 25 T43N, R76W	3rd Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
	4th Quarter	Pb-210 (Suspended)					1.0E-08	NA
		Pb-210 (Dissolved)					1.0E-08	
		U-Nat (Suspended)				NA	3.0E-07	
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
NBSWS2 Surface Water Section 26 T43N, R77W	3rd Quarter	Po-210 (Suspended)	Dry			NA	4.0E-08	NA
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	
	4th Quarter	U-Nat (Suspended)				NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
NBI2 Impoundment Section 25 T43N, R76W	3rd Quarter	Pb-210 (Suspended)	Dry			NA	1.0E-08	NA
		Pb-210 (Dissolved)					1.0E-08	
		U-Nat (Suspended)					3.0E-07	
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
	4th Quarter	Po-210 (Suspended)				NA	4.0E-08	NA
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	
		U-Nat (Suspended)					3.0E-07	
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - NB
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	10 CFR 20 App. B, Table 2	% EFF. CONC. LIMIT
							Values (µCi/ml)	
NBI6 Impoundment Section 24 T44N,R76W	3rd Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	
	4th Quarter	U-Nat (Suspended)	0.0004			2.7E-10	3.0E-07	0.1
		U-Nat (Dissolved)	0.0004			2.7E-10	3.0E-07	0.1
		Ra-226 (Suspended)		2.00	3.00E-01	2.0E-09	6.0E-08	3.3
		Ra-226 (Dissolved)		1.70	2.90E-01	1.7E-09	6.0E-08	2.8
		Th-230 (Suspended)		0.30	1.00E-01	3.0E-10	1.0E-07	0.3
		Th-230 (Dissolved)		0.04	7.00E-02	4.0E-11	1.0E-07	0.0
		Po-210 (Suspended)		1.30	9.00E-01	1.3E-09	4.0E-08	3.3
		Po-210 (Dissolved)		0.40	8.00E-01	4.0E-10	4.0E-08	1.0
		Pb-210 (Suspended)		0.50	4.00E-01	5.0E-10	1.0E-08	5.0
		Pb-210 (Dissolved)		0.02	6.00E-01	2.0E-11	1.0E-08	0.2
NBSU1 Upstream Section 18 T45N,R75W	3rd Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	
	4th Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	
NBSU2 Upstream Section 13 T45N,R76W	3rd Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	
	4th Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - NB
3rd & 4th QUARTERS 2013

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (pCi/ml)	10 CFR 20 App. B, Table 2	% EFF. CONC. LIMIT
							Values (pCi/ml)	
NBSD1 DownStream Section 19 T44N, R75W	3rd Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
	4th Quarter	Pb-210 (Suspended)	Dry			NA	1.0E-08	NA
		Pb-210 (Dissolved)					1.0E-08	
		U-Nat (Suspended)					3.0E-07	
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
NBSD2 Downstream Section 24 T44N, R76W	3rd Quarter	Po-210 (Suspended)	Dry			NA	4.0E-08	NA
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	
	4th Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
		Po-210 (Suspended)					4.0E-08	
		Po-210 (Dissolved)					4.0E-08	
NBSD3 Downstream Section 19 T44N, R75W	3rd Quarter	Pb-210 (Suspended)	Dry			NA	1.0E-08	NA
		Pb-210 (Dissolved)					1.0E-08	
		U-Nat (Suspended)					3.0E-07	
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	
		Th-230 (Suspended)					1.0E-07	
		Th-230 (Dissolved)					1.0E-07	
	4th Quarter	Po-210 (Suspended)	Dry			NA	4.0E-08	NA
		Po-210 (Dissolved)					4.0E-08	
		Pb-210 (Suspended)					1.0E-08	
		Pb-210 (Dissolved)					1.0E-08	
		U-Nat (Suspended)					3.0E-07	
		U-Nat (Dissolved)					3.0E-07	
		Ra-226 (Suspended)					6.0E-08	
		Ra-226 (Dissolved)					6.0E-08	

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES - NB
3rd & 4th QUARTERS 2013

							10 CFR 20	% EFF. CONC.			
SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	App. B, Table 2 Values (µCi/ml)	LIMIT			
NBSU4 Upstream Section 24 T44N, R76W	3rd Quarter	U-Nat (Suspended)	Dry			NA	3.0E-07	NA			
		U-Nat (Dissolved)				3.0E-07					
		Ra-226 (Suspended)				6.0E-08					
		Ra-226 (Dissolved)				6.0E-08					
		Th-230 (Suspended)				1.0E-07					
		Th-230 (Dissolved)				1.0E-07					
		Po-210 (Suspended)				4.0E-08					
		Po-210 (Dissolved)				4.0E-08					
		Pb-210 (Suspended)				1.0E-08					
	Pb-210 (Dissolved)			1.0E-08							
	4th Quarter	U-Nat (Suspended)	0.0032			2.2E-09	3.0E-07	0.7			
		U-Nat (Dissolved)	0.0019			1.3E-09	3.0E-07	0.4			
		Ra-226 (Suspended)		4.30	5.50E-01	4.3E-09	6.0E-08	7.2			
		Ra-226 (Dissolved)		0.47	1.80E-01	4.7E-10	6.0E-08	0.8			
		Th-230 (Suspended)		1.00	3.00E-01	1.0E-09	1.0E-07	1.0			
		Th-230 (Dissolved)		0.10	9.00E-02	1.0E-10	1.0E-07	0.1			
		Po-210 (Suspended)		2.90	1.50E+00	2.9E-09	4.0E-08	7.3			
		Po-210 (Dissolved)		0.30	6.00E-01	3.0E-10	4.0E-08	0.8			
		Pb-210 (Suspended)		1.90	7.00E-01	1.9E-09	1.0E-08	19.0			
		Pb-210 (Dissolved)		0.40	6.00E-01	4.0E-10	1.0E-08	4.0			
		Beck Well Section 19 T44N,R75W	3rd Quarter	U-Nat (Suspended)	ND 0.0153			NA	3.0E-07	NA	
				U-Nat (Dissolved)				1.0E-08	3.0E-07	3.5	
Ra-226 (Suspended)				0.02		1.30E-01	2.0E-11	6.0E-08	0.0		
Ra-226 (Dissolved)	4.80			4.30E-01		4.8E-09	6.0E-08	8.0			
Th-230 (Suspended)	0.02			7.00E-02		2.0E-11	1.0E-07	0.0			
Th-230 (Dissolved)	0.04			6.00E-02		4.0E-11	1.0E-07	0.0			
Po-210 (Suspended)	1.10			1.60E+00		1.1E-09	4.0E-08	2.8			
Po-210 (Dissolved)	0.60			7.00E-01		6.0E-10	4.0E-08	1.5			
Pb-210 (Suspended)	0.50			1.00E+00		5.0E-10	1.0E-08	5.0			
Pb-210 (Dissolved)	1.40		6.00E-01	1.4E-09	1.0E-08	14.0					
4th Quarter	U-Nat (Suspended)		ND 0.0143			NA	3.0E-07	NA			
	U-Nat (Dissolved)					9.7E-09	3.0E-07	3.2			
	Ra-226 (Suspended)			0.70	4.00E-01	7.0E-10	6.0E-08	1.2			
	Ra-226 (Dissolved)			11.70	4.00E-01	1.2E-08	6.0E-08	19.5			
	Th-230 (Suspended)			ND	NA	NA	1.0E-07	NA			
	Th-230 (Dissolved)			ND	NA	NA	1.0E-07	NA			
	Po-210 (Suspended)			4.50	9.00E-01	4.5E-09	4.0E-08	11.3			
	Po-210 (Dissolved)			ND	NA	NA	4.0E-08	NA			
	Pb-210 (Suspended)			10.30	1.20E+00	1.0E-08	1.0E-08	103.0			
	Pb-210 (Dissolved)			ND	NA	NA	1.0E-08	NA			
	Brown 5 Section 30 T43N, R75W			3rd Quarter	U-Nat (Suspended)	ND 0.0105			NA	3.0E-07	NA
					U-Nat (Dissolved)				7.1E-09	3.0E-07	2.4
		Ra-226 (Suspended)			0.01		1.00E-01	1.0E-11	6.0E-08	0.0	
Ra-226 (Dissolved)		0.69	1.20E-01		6.9E-10		6.0E-08	1.2			
Th-230 (Suspended)		0.04	7.00E-02		4.0E-11		1.0E-07	0.0			
Th-230 (Dissolved)		0.02	8.00E-02		2.0E-11		1.0E-07	0.0			
Po-210 (Suspended)		0.05	4.00E-01		5.0E-11		4.0E-08	0.1			
Po-210 (Dissolved)		0.30	7.00E-01		3.0E-10		4.0E-08	0.8			
Pb-210 (Suspended)		0.01	4.00E-01		1.0E-11		1.0E-08	0.1			
Pb-210 (Dissolved)		0.20	6.00E-01	2.0E-10	1.0E-08	2.0					
4th Quarter		U-Nat (Suspended)	0.0003			2.0E-10	3.0E-07	0.1			
		U-Nat (Dissolved)	0.0120			8.1E-09	3.0E-07	2.7			
		Ra-226 (Suspended)		0.17	1.20E-01	1.7E-10	6.0E-08	0.3			
		Ra-226 (Dissolved)		0.36	1.40E-01	3.6E-10	6.0E-08	0.6			
		Th-230 (Suspended)		0.04	7.00E-02	4.0E-11	1.0E-07	0.0			
		Th-230 (Dissolved)		0.20	9.00E-02	2.0E-10	1.0E-07	0.2			
		Po-210 (Suspended)		0.90	8.00E-01	9.0E-10	4.0E-08	2.3			
		Po-210 (Dissolved)		0.01	6.00E-01	6.0E-12	4.0E-08	0.0			
		Pb-210 (Suspended)		0.20	4.00E-01	2.0E-10	1.0E-08	2.0			
		Pb-210 (Dissolved)		0.20	6.00E-01	2.0E-10	1.0E-08	2.0			

TABLE 5

SATELLITE No. 1
LAND APPLICATION FACILITY (IRRIGATOR 1)
ANNUAL SOIL DATA
2013

SAMPLE ID	SAMPLE DATE	Sat %	CONDUCTIVITY (mmhos/cm)	pH SAT. PASTE (std. Units)	CALCIUM SOLUBLE (meq/L)	MAGNESIUM SOLUBLE (meq/L)	SODIUM SAT. PASTE (meq/L)	SAR	BARIUM ABDTPA (mg/kg-dry)	POTASSIUM SOLUBLE (mg/kg-dry)	BORON CACL2 (mg/kg-dry)	ARSENIC ABDTPA (mg/kg-dry)	SELENIUM ABDTPA (mg/kg-dry)	Uranium mg/kg	RADIUM 226 (µCi/g-dry)	TOTAL ERROR ESTIMATE± (pCi/g-dry)
S.E. Location 1 0-6"	8/28/2013	38.0	0.42	6.8	1.83	0.9	1.35	1.2	50	5.1	0.6	0.040	0.07	24.8	7.0E-01	0.06
S.E. Location 1 6-12"	8/28/2013	32.2	0.45	6.8	1.18	0.6	2.56	2.7	38	3.4	0.4	0.027	0.04	1.6	5.0E-01	0.05
S.E. Location 2 0-6"	8/28/2013	59.0	0.74	6.4	2.88	1.4	2.50	1.7	71	11.4	1.0	0.063	0.17	39.4	1.2E+00	0.08
S.E. Location 2 6-12"	8/28/2013	62.8	0.65	6.7	1.36	0.8	3.86	3.7	70	5.3	0.9	0.045	0.07	1.7	1.0E+00	0.07
S.E. Location 3 0-6"	8/28/2013	64.9	0.74	7.0	3.87	1.7	2.63	1.6	70	12.7	0.8	0.053	0.18	75.6	1.5E+00	0.08
S.E. Location 3 6-12"	8/28/2013	66.1	0.72	7.8	2.09	1.0	3.95	3.2	67	4.4	0.7	0.024	0.32	3.1	1.1E+00	0.07
S.W. Location 4 0-6"	8/28/2013	66.2	0.50	7.0	2.03	0.9	2.23	1.8	72	9.9	1.6	0.042	0.17	47.8	1.1E+00	0.07
S.W. Location 4 6-12"	8/28/2013	66.9	2.34	7.5	13.60	5.9	8.57	2.7	29	7.5	1.1	0.030	0.46	58.5	1.1E+00	0.07
S.W. Location 5 0-6"	8/28/2013	53.5	0.35	6.1	1.03	0.6	2.00	2.2	99	6.3	0.9	0.079	0.08	45.8	9.0E-01	0.06
S.W. Location 5 6-12"	8/28/2013	58.9	0.53	6.4	1.17	0.6	3.19	3.4	98	4.9	0.9	0.060	0.06	2.9	9.0E-01	0.06
S.W. Location 6 0-6"	8/28/2013	60.6	0.50	6.4	1.69	0.9	2.21	2.0	50	9.1	1.1	0.075	0.19	58.1	9.0E-01	0.07
S.W. Location 6 6-12"	8/28/2013	73.8	0.91	7.2	2.98	1.7	4.63	3.0	51	5.5	1.2	0.050	0.22	13.6	1.0E+00	0.07
S.W. Location 7 0-6"	8/28/2013	49.0	0.48	6.2	1.84	0.9	1.67	1.4	40	11.5	0.8	0.069	0.09	2.2	7.0E-01	0.06
S.W. Location 7 6-12"	8/28/2013	68.6	0.84	6.7	2.16	1.4	4.10	3.1	66	5.7	1.0	0.052	0.05	2.4	1.2E+00	0.07
N.W. Location 8 0-6"	8/28/2013	56.1	0.51	6.4	1.36	0.8	2.45	2.3	83	4.1	0.9	0.057	0.07	35.0	1.3E+00	0.08
N.W. Location 8 6-12"	8/28/2013	56.9	1.09	6.9	3.12	2.3	4.40	2.7	53	2.2	0.9	0.039	0.04	1.5	9.0E-01	0.06
N.W. Location 9 0-6"	8/28/2013	63.4	0.58	7.0	2.79	1.3	2.39	1.7	73	8.0	1.1	0.057	0.11	53.2	1.1E+00	0.07
N.W. Location 9 6-12"	8/28/2013	62.1	0.62	7.4	2.02	1.1	3.48	2.8	64	3.5	1.0	0.040	0.16	1.5	9.0E-01	0.06
N.W. Location 10 0-6"	8/28/2013	56.9	0.48	6.8	2.20	1.1	1.58	1.2	64	11.4	1.3	0.063	0.19	51.4	1.0E+00	0.07
N.W. Location 10 6-12"	8/28/2013	58.8	0.51	6.7	1.09	0.6	3.23	3.5	97	4.3	1.1	0.058	0.08	2.8	8.0E-01	0.06
N.E. Location 11 0-6"	8/28/2013	62.9	0.64	6.3	2.89	1.5	2.48	1.7	78	10.8	0.5	0.054	0.25	41.6	1.2E+00	0.08
N.E. Location 11 6-12"	8/28/2013	56.0	0.71	6.9	2.65	1.3	3.56	2.5	64	5.0	0.5	0.048	0.37	7.9	1.2E+00	0.08
N.E. Location 12 0-6"	8/28/2013	55.0	0.72	6.2	3.42	1.7	2.61	1.6	74	10.2	0.5	0.054	0.30	79.2	1.3E+00	0.08
N.E. Location 12 6-12"	8/28/2013	59.6	0.56	6.7	1.57	0.9	3.41	3.1	82	3.0	0.4	0.049	0.22	2.1	1.4E+00	0.08
N.E. Location 13 0-6"	8/28/2013	62.1	0.50	6.2	2.20	1.2	2.18	1.7	79	7.2	0.6	0.056	0.25	70.8	1.6E+00	0.09
N.E. Location 13 6-12"	8/28/2013	57.4	0.87	7.1	3.13	1.6	4.51	2.9	67	4.8	0.3	0.045	0.41	4.4	1.1E+00	0.07
N.E. Location 14 0-6"	8/28/2013	62.4	0.76	6.0	3.70	1.8	2.48	1.5	68	15.6	0.8	0.063	0.63	4.8	1.7E+00	0.09
N.E. Location 14 6-12"	8/28/2013	60.7	0.77	7.1	2.91	1.5	3.73	2.5	81	7.5	0.4	0.044	0.34	5.3	1.4E+00	0.08
Average 0-6"		57.86	0.57	6.49	2.41	1.19	2.20	1.69	69.36	9.52	0.89	0.06	0.20	44.98	1.2E+00	0.07
Average 6-12"		60.06	0.83	6.99	2.93	1.52	4.08	2.99	66.21	4.79	0.77	0.04	0.20	7.81	1.0E+00	0.07
Background 0-6"	8/28/2013	53.9	0.32	6.3	1.60	1.1	0.82	0.7	73	3.9	0.4	0.056	0.05	1.4	1.6E+00	0.09
Background 6-12"	8/28/2013	54.1	0.48	7.5	1.92	1.3	2.20	1.7	72	2.0	0.4	0.032	<0.02	1.4	1.3E+00	0.08

TABLE 6
SATELLITE No. 2
LAND APPLICATION FACILITY (IRRIGATOR 2)
ANNUAL SOIL DATA
2013

SAMPLE ID	SAMPLE DATE	Sat %	CONDUCTIVITY (mmhos/cm)	pH SAT. PASTE (std. Units)	CALCIUM SOLUBLE (meq/L)	MAGNESIUM SOLUBLE (meq/L)	SODIUM SAT. PASTE (meq/L)	SAR	BARIUM ABDTPA (mg/kg-dry)	POTASSIUM SOLUBLE (mg/kg-dry)	BORON CACL2 (mg/kg-dry)	ARSENIC ABDTPA (mg/kg-dry)	SELENIUM ABDTPA (mg/kg-dry)	Uranium mg/kg	RADIUM 226 (µCi/g-dry)	TOTAL ERROR ESTIMATE± (pCi/g-dry)
S.E. Location 1 0-6"	8/28/2013	67.3	3.97	6.6	30.0	15.5	7.11	1.5	10	20.2	0.5	0.056	0.11	21.4	1.3E+00	0.08
S.E. Location 1 6-12"	8/28/2013	58.0	5.56	6.8	36.1	22.5	11.10	2.1	9	6.4	0.3	0.048	0.29	2.3	1.0E+00	0.07
S.E. Location 2 0-6"	8/28/2013	66.4	3.63	7.0	29.3	14.1	5.54	1.2	10	24.0	0.9	0.049	0.10	13.8	1.5E+00	0.08
S.E. Location 2 6-12"	8/28/2013	62.4	4.40	7.3	30.7	19.2	9.32	1.9	9	8.5	0.6	0.033	0.16	4.0	1.5E+00	0.09
S.E. Location 3 0-6"	8/28/2013	75.4	3.89	7.1	29.5	14.5	7.00	1.5	16	35.4	1.3	0.035	0.18	15.5	1.3E+00	0.08
S.E. Location 3 6-12"	8/28/2013	71.8	4.64	6.9	32.6	17.4	9.52	1.9	8	18.5	0.5	0.030	0.18	3.1	1.2E+00	0.08
S.W. Location 4 0-6"	8/28/2013	68.5	3.82	7.2	29.1	15.9	6.71	1.4	18	28.7	1.2	0.044	0.10	14.9	1.2E+00	0.08
S.W. Location 4 6-12"	8/28/2013	65.6	4.33	7.2	31.4	18.6	8.21	1.6	8	7.1	0.3	0.035	0.18	2.4	1.4E+00	0.08
S.W. Location 5 0-6"	8/28/2013	67.3	4.13	7.2	31.8	17.1	7.85	1.6	13	33.8	1.2	0.047	0.13	10.5	1.0E+00	0.07
S.W. Location 5 6-12"	8/28/2013	66.0	4.46	6.6	29.5	19.0	9.52	1.9	8	7.9	0.3	0.044	0.16	10.4	1.3E+00	0.08
S.W. Location 6 0-6"	8/28/2013	53.0	2.19	6.9	14.0	7.9	3.33	1.0	18	18.8	1.4	0.012	0.10	13.3	7.0E-01	0.06
S.W. Location 6 6-12"	8/28/2013	64.0	3.54	6.1	25.7	15.7	7.36	1.6	8	9.5	0.8	0.010	0.10	6.3	1.1E+00	0.07
S.W. Location 7 0-6"	8/28/2013	72.2	3.57	7.0	27.6	14.1	6.61	1.4	7	33.7	1.5	0.009	0.09	12.8	1.3E+00	0.08
S.W. Location 7 6-12"	8/28/2013	68.5	3.79	7.2	28.1	15.6	7.86	1.7	7	11.9	0.8	0.007	0.10	5.9	1.3E+00	0.08
N.W. Location 8 0-6"	8/28/2013	50.6	4.65	6.4	34.9	20.6	7.59	1.4	12	29.0	1.6	0.013	0.16	11.4	8.0E-01	0.07
N.W. Location 8 6-12"	8/28/2013	53.0	4.73	5.8	31.8	19.1	8.63	1.7	6	18.4	1.2	0.012	0.14	8.6	1.1E+00	0.08
N.W. Location 9 0-6"	8/28/2013	72.5	3.24	6.7	23.6	13.9	4.37	1.0	18	25.1	1.6	0.011	0.11	13.9	1.0E+00	0.08
N.W. Location 9 6-12"	8/28/2013	71.6	3.20	6.6	20.9	13.8	6.27	1.5	13	7.3	0.6	0.009	0.12	16.6	1.3E+00	0.09
N.W. Location 10 0-6"	8/28/2013	63.0	3.14	7.0	24.4	12.8	4.00	0.9	19	24.9	1.5	0.010	0.08	10.2	1.1E+00	0.08
N.W. Location 10 6-12"	8/28/2013	49.4	3.38	7.2	26.3	12.2	6.85	1.6	7	9.1	0.9	0.006	0.06	4.9	6.0E-01	0.06
N.E. Location 11 0-6"	8/28/2013	72.5	3.26	7.1	24.5	13.0	4.43	1.0	21	32.1	1.6	0.006	0.11	8.0	1.1E+00	0.08
N.E. Location 11 6-12"	8/28/2013	36.6	3.45	7.3	26.8	12.8	6.26	1.4	15	13.7	0.9	0.004	0.12	6.7	9.0E-01	0.08
N.E. Location 12 0-6"	8/28/2013	60.7	3.03	6.8	22.3	10.8	4.75	1.2	16	21.7	1.2	0.010	0.09	11.8	9.0E-01	0.07
N.E. Location 12 6-12"	8/28/2013	69.0	3.70	7.0	27.5	15.7	6.43	1.4	7	10.6	0.5	0.006	0.10	6.3	1.4E+00	0.10
N.E. Location 13 0-6"	8/28/2013	70.4	3.47	6.8	25.4	14.7	5.43	1.2	13	24.9	1.2	0.009	0.14	8.0	1.1E+00	0.10
N.E. Location 13 6-12"	8/28/2013	69.3	3.72	7.3	26.9	14.8	6.64	1.5	9	8.5	0.7	<0.002	0.32	6.0	1.1E+00	0.10
N.E. Location 14 0-6"	8/28/2013	63.7	3.82	6.7	29.9	15.9	6.19	1.3	9	24.5	1.0	0.005	0.50	14.0	1.0E+00	0.10
N.E. Location 14 6-12"	8/28/2013	57.8	3.18	6.9	25.7	12.2	5.20	1.2	10	8.0	0.6	0.005	0.26	5.4	1.1E+00	0.10
N.E. Location 15 0-6"	8/28/2013	64.8	3.77	6.7	30.6	15.5	5.50	1.1	8	21.6	0.8	0.004	0.84	12.9	1.3E+00	0.10
N.E. Location 15 6-12"	8/28/2013	63.3	3.88	7.1	29.8	16.3	6.68	1.4	10	7.0	0.4	<0.002	0.78	3.8	1.2E+00	0.10
N.E. Location 16 0-6"	8/28/2013	52.1	3.68	6.7	28.9	16.0	5.36	1.1	9	22.8	1.0	0.004	0.45	6.8	9.0E-01	0.07
N.E. Location 16 6-12"	8/28/2013	62.0	2.46	6.9	16.4	8.3	4.68	1.3	19	8.8	0.7	0.003	0.56	12.6	1.1E+00	0.07
Average 0-6"																
Average 6-12"																
Background 0-6"	8/28/2013	47.2	0.39	6.6	3.17	0.9	0.10	<0.1	65	3.5	0.5	0.007	0.03	1.4	8.0E-01	0.06
Background 6-12"	8/28/2013	45.9	0.42	7.2	3.41	0.9	0.16	0.1	67	2.1	0.4	0.004	<0.02	1.6	1.1E+00	0.07

TABLE 7A

SATELLITE NO. 1
LAND APPLICATION FACILITY (IRRIGATOR #1)
ANNUAL VEGETATION DATA
2013

SAMPLE SITE SAMPLE DATE	8/28/2013	Quarter 1 (NW)	Quarter 2 (NE)	Quarter 3 (SE)	Quarter 4 (SW)	Background
TRACE METALS (mg/kg): SW6020 Dry Ash Extracted	Lower Limit of Detection					
Arsenic	0.05	ND	ND	ND	ND	ND
Barium	0.05	42.9	57.5	74.5	69.0	42.2
Boron	5	19.6	27.5	16.4	19.7	20.8
Selenium	0.05	72.2	86.0	48.5	41.2	2.2
RADIOMETRIC (μCi/kg): E903.0						
U-Nat		2.7E-03	2.9E-03	1.0E-03	1.1E-03	5.2E-05
U-Nat RL		2.0E-07	2.0E-07	2.0E-07	2.0E-07	3.1E-07
Ra226		1.0E-05	1.3E-05	1.1E-05	1.0E-05	1.3E-05
Ra226 ERR. EST. +/-		1.0E-06	1.1E-06	9.5E-07	8.9E-07	1.7E-06
Ra226 MDC		5.0E-07	4.2E-07	4.2E-07	3.8E-07	1.0E-06

TABLE 7B

SATELLITE NO. 2
LAND APPLICATION FACILITY (IRRIGATOR #2)
ANNUAL VEGETATION DATA
2013

SAMPLE SITE SAMPLE DATE	8/28/13	Quarter 1 (NW)	Quarter 2 (NE)	Quarter 3 (SE)	Quarter 4 (SW)	Background
TRACE METALS (mg/kg): SW6020 Dry Ash Extracted	Lower Limit of Detection					
Arsenic	0.05	ND	ND	ND	ND	ND
Barium	0.05	15.3	12.1	12.4	21.0	40.4
Boron	5	18.6	20.1	17.6	24.5	16.4
Selenium	0.05	3.8	10.7	23.2	38.5	1.1
RADIOMETRIC (μCi/kg): E903.0						
U-Nat		6.00E-03	5.9E-03	3.3E-03	3.0E-03	7.4E-06
U-Nat RL		2.00E-07	2.2E-07	2.0E-07	2.0E-07	6.9E-07
Ra226		4.40E-05	2.1E-05	1.9E-05	2.3E-05	6.4E-06
Ra226 ERR. EST. +/-		2.10E-05	1.8E-06	1.4E-06	1.7E-06	2.2E-06
Ra226 MDC		5.30E-07	7.0E-07	4.8E-07	6.2E-07	2.3E-06

TABLE 8

SATELLITE NO. 1
LAND APPLICATION FACILITY (IRRIGATOR NO. 1)
MONTHLY IRRIGATION FLUID DATA
2013

IRRIGATION CYCLE

VOLUME (AF)
DATE SAMPLED

Jul-13 Aug-13 Sep-13 Oct-13 Nov-13 - Dec-13

MAJOR IONS (mg/L) Reporting
Limit

Calcium	1.0
Magnesium	1.0
Sodium	1.0
Potassium	1.0
Bicarbonate	1.0
Sulfate	1.0
Chloride	1.0

IRRIGATOR DID NOT OPERATE

NON-METALS

TDS @ 180° C (mg/L)	11.0
pH (standard units)	0.01
SAR	0.01

TRACE METALS (mg/L)

Arsenic	0.001
Barium	0.10
Boron	0.10
Selenium	0.001

RADIOMETRIC

U-nat (μCi/mL)	2.03E-10
Ra-226 (μCi/mL)	2.00E-10
Ra Err. Est. +/-	

TABLE 9

SATELLITE NO. 2
LAND APPLICATION FACILITY (IRRIGATOR NO. 2)
MONTHLY IRRIGATION FLUID DATA
2013

IRRIGATION CYCLE

VOLUME (AF)		40.0	45.10				
DATE SAMPLED		Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13
	Reporting						
MAJOR IONS (mg/L)	Limit						
Calcium	1.0	278	259				
Magnesium	1.0	133	134				
Sodium	1.0	93	95				
Potassium	1.0	30	31				
Bicarbonate	5.0	233	186				
Sulfate	4.0	860	889				
Chloride	1.0	241	266				
NON-METALS				IRRIGATOR DID NOT OPERATE			
TDS @ 180° C (mg/L)	20.0	2020	2080				
pH (standard units)	0.010	7.82	8.07				
SAR	0.1	1.1	1.2				
TRACE METALS (mg/L)							
Arsenic	0.001	0.001	0.002				
Barium	0.1	ND	ND				
Boron	0.10	0.20	0.2				
Selenium	0.001	0.007	0.003				
RADIOMETRIC							
U-nat (μCi/mL)	2.03E-10	1.4E-07	1.1E-07				
Ra-226 (μCi/mL)	2.00E-10	2.1E-09	1.2E-09				
Ra Err. Est. +/-		3.0E-01	2.4E-01				

TABLE 10

**SELENIUM PLANT
RADIUM TREATMENT SYSTEM DISCHARGE
MONTHLY RADIUM GRAB SAMPLES
2013**

SAMPLE DATE	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13
RADIOMETRIC						
Ra-226 (μCi/mL)	2.80E-09	2.20E-09	6.50E-10	3.30E-10	8.70E-09	2.20E-09
Ra Err. Est. +/-	3.50E-10	3.60E-10	1.90E-10	1.50E-10	6.00E-10	3.10E-10
Eff. Con. Limit	6.00E-08					

TABLE 11

SATELLITE NO. 2
PURGE STORAGE RESERVOIR (PSR-2)
SHALLOW MONITORING WELLS
WATER LEVEL AND WATER QUALITY DATA
3rd and 4th Quarters 2013

SAMPLE SITE		Shallow Well No. 1 (South)		Shallow Well No. 2 (East)		MW-1S (West)		MW-2S (North)		MW-3S (South)		MW-4S (East)		MW-5S			
SAMPLE DATE	Date	8/9/13	11/24/13	8/8/13	11/24/13	8/12/13	11/19/13	8/8/13	11/19/13	8/9/13	11/20/13	8/8/13	11/24/13	8/7/13	11/19/13		
WATER LEVEL (DTW)		Laboratory Reporting Limit															
MAJOR IONS (mg/L)																	
Bicarbonate		1.0	293	366	329	431	400	381	387	388	524	493	521	521	226	253	
Sulfate		1.0	2140	1940	2340	2290	1980	1930	249	272	1070	1050	1630	1700	1680	1580	
Chloride		1.0	413	505	411	483	315	312	59	63	328	317	146	153	446	351	
NON-METALS																	
Cond (µmho/cm)		1.0	4800	4750	5170	5400	4410	4600	1190	1190	3190	3070	3870	3880	4120	3640	
pH (standard units)		0.01	7.78	7.57	7.32	7.36	7.31	7.23	7.64	7.37	7.5	7.36	7.13	7.04	7.30	7.31	
TRACE METALS (mg/L)																	
Barium		0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium		0.0025	2.490	1.880	0.008	0.008	2.17	2.3	0.001	ND	0.22	0.25	1.27	1.24	0.678	0.630	
Arsenic		0.0010	ND	0.003	0.001	0.003	0.003	ND	ND	ND	ND	ND	ND	0.002	0.004	ND	
RADIOMETRIC																	
U-nat (µCi/mL)		6.77E-10	3.93E-10	3.95E-10	5.99E-11	1.04E-10	5.78E-11	5.14E-11	1.00E-12	8.00E-13	1.03E-09	9.43E-10	2.26E-10	2.24E-10	1.09E-10	1.23E-10	
Ra-226 (µCi/mL)		2.00E-10	1.30E-09	2.20E-09	1.40E-09	6.00E-09	6.40E-10	3.30E-09	1.20E-09	1.10E-09	3.60E-10	1.50E-09	1.70E-09	4.20E-09	1.20E-09	1.40E-09	
Ra-226 Err. Est. +/- (µCi/mL)			2.30E-10	3.00E-10	2.30E-10	4.60E-10	1.80E-10	3.20E-10	2.30E-10	2.00E-10	1.50E-10	2.40E-10	2.60E-10	4.00E-10	2.30E-10	2.20E-10	

SAMPLE SITE		MW-6S		MW-7S		MW-8S		MW-9S		MW-10S		MW-11S		MS-12S			
SAMPLE DATE	Date	8/12/13	11/20/13	8/6/13	11/20/13	8/7/13	11/22/13	8/6/13	11/18/13	8/6/13	11/18/13	8/7/13	11/24/13	8/9/13	11/20/13		
WATER LEVEL (DTW)		Laboratory Reporting Limit															
MAJOR IONS (mg/L)																	
Bicarbonate		1.0	292	293	369	373	402	413	355	358	293	291	388	380	298	303	
Sulfate		1.0	1300	1390	998	1020	1330	1290	878	859	521	516	573	595	1290	354	
Chloride		1.0	231	253	383	338	345	395	8	9	12	13	290	302	513	519	
NON-METALS																	
Cond (µmho/cm)		1.0	3130	3160	2970	2910	3520	3480	1900	1910	1400	1400	2360	2360	3930	3890	
pH (standard units)		0.01	7.06	7.02	7.13	7.25	7.03	7.06	7	7.23	7.76	7.84	7.16	7.26	7.52	7.46	
TRACE METALS (mg/L)																	
Barium		0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium		0.0025	0.003	0.002	0.012	0.009	0.141	0.101	ND	0.002	ND	ND	0.030	0.046	0.645	0.750	
Arsenic		0.0010	0.002	ND	0.003	ND	0.003	0.002	0.002	ND	0.001	ND	0.002	0.001	ND	ND	
RADIOMETRIC																	
U-nat (µCi/mL)		6.77E-10	8.00E-13	9.00E-13	3.61E-10	3.80E-10	2.12E-10	1.96E-10	5.77E-11	5.90E-11	4.00E-13	8.00E-13	5.89E-11	8.82E-11	1.10E-09	1.18E-09	
Ra-226 (µCi/mL)		0.00E+00	2.00E-09	2.10E-08	3.10E-09	3.10E-09	3.80E-09	2.90E-09	2.90E-09	1.80E-09	8.30E-10	8.80E-10	1.20E-09	6.00E-09	1.70E-09	3.90E-09	
Ra-226 Err. Est. +/- (µCi/mL)			2.90E-10	8.60E-10	4.50E-10	3.40E-10	3.90E-10	3.30E-10	4.30E-10	2.40E-10	2.80E-10	1.70E-10	2.30E-10	4.80E-10	2.70E-10	3.80E-10	

ATTACHMENT B

SAFETY AND ENVIRONMENTAL REVIEW PANEL EVALUATIONS

Cameco Resources
North Butte
5/2/2013

Paul Goranson
President

Brent Berg
General
Manager(EC WY)

Arlene Faunce
RSO (SR)

Smith Ranch

(1) Mike Bryson
Mine Manager



