



February 28, 2011

ATTN: Document Control Desk

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RE: NRC License SUA-1548, Docket No. 40-8964, Semi-Annual Effluent and Environmental Monitoring Report, July 1 through December 31, 2010

Dear Mr. McConnell:

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, 2010. Copies of this report are also being forwarded to Mr. Douglas Mandeville, USNRC Headquarters and Mr. Arthur Howell, Director, Division of Nuclear Materials Safety, Region IV.

If you have questions regarding the report, please contact me at (307) 316-7595.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Young".

Thomas P. Young
Vice-President, Operations
Cameco Resources

Attachments: Semi-Annual Effluent and Environmental Monitoring Report

TY/sab

cc: D. Mandeville, USNRC w/att A. Howell, DDNMS w/att
File SR 4.6.4.1 w/att

ec: CR-Cheyenne

**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, 2010**

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1.0 RESULTS FROM EMPLOYEE URINALYSES IF AN EXPOSURE EXCEEDS ACTION LEVELS DESCRIBED IN THE OPERATIONS PLAN OF THE APPROVED LICENSE APPLICATION

No bio-assays exceeded the action level of 15 µg/L uranium during the report period.

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

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

2.1 Satellite No. 1

Satellite No. 1 did not operate during the report period, as restoration activities in the A and B Wellfield are complete. Mine Unit-B is awaiting NRC approval of restoration, and surface reclamation will begin with approval of a decommissioning plan. Therefore, no injection or recovery rates are available for the report period, as shown in Table 1A.

2.2 Satellite No. 2, Satellite No. 3, Central Processing Plant, Satellite SR-1, Satellite SR-2

The injection rates, recovery rates, and injection pressure data 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 represent the total recovery rates minus the purge (clean-out circuit) flow. The purge flow from Satellites No. 2 and No. 3 is treated for uranium, radium and selenium removal and pumped to the Satellite No. 2 Purge Storage Reservoir (PSR-2) prior to disposal by irrigation 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 deep injection through a permitted waste disposal well. Purge flow from Satellites SR-1 and SR-2, and the CPP is disposed by deep well injection through permitted waste disposal wells.

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

3.1 Stack Emission Surveys

When the Central Processing Facility (CPF) at the Highland Uranium Project is operational, Cameco Resources (CR) monitors the Yellowcake Dryer and Packaging scrubber exhaust stacks to determine the emission rate of particulates, uranium, radium, and thorium. During the report period, the Highland CPF

remained on non-operating standby status and is anticipated to maintain that status during the next report period. All yellowcake processing activities (elution, precipitation, drying, and packaging) were conducted at the Smith Ranch CPP. The dryers at the CPP are zero emission vacuum dryers that do not require emission stack testing. Therefore, no stack tests were conducted during the report period.

3.2 Air Particulate, Radon, and Gamma Radiation Monitoring

CR 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) are used to monitor downwind conditions of the Highland CPF and are operated only when yellowcake processing operations are active 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. Monitoring conditions at AS-6 will commence during construction of the facility and before it becomes operational. The monitoring results for each radionuclide are averaged and compared to background, for use in calculating annual dose to the public.

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 (when the HUP CPF is operating).
- Air Station No. 5 (AS-5; Fowler Ranch): This station monitors the nearest downwind resident to the HUP CPF Restricted Area (when the HUP CPF is operating).
- 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 stations AS-4 and AS-5 was not conducted during the report period since the Highland CPF remains on standby status. Monitoring of conditions at AS-4 and AS-5 will only resume if the Highland CPF becomes operational. In addition, 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-3 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-3 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.

3.3 Water Sampling Data

3.3.1 *Groundwater and Surface Water Monitoring Stations*

During the report period, monitoring was completed at 18 water wells and 10 stock ponds. 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. The monitoring data shows that samples were limited during the report period due to ponds that remained dry or frozen and water wells that did not operate during the report period. A review of data collected from the available water wells and stock ponds 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.

3.4 Wastewater Land Application Facilities Monitoring

3.4.1 *Soil and Vegetation Sampling*

In accordance with License Condition 12.2 and the WDEQ permits 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 2010 soil and vegetation sampling at the irrigation areas was 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 with previous data shows no significant changes in the concentrations of uranium and radium-226. Uranium concentrations at the zero to six-inch depth remain slightly elevated above baseline conditions. Uranium concentrations at the six to twelve-inch depth and radium-226 concentrations at both depth intervals remain near baseline. 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. Therefore, PRI does not anticipate any problems with meeting the criteria in 10 CFR 40 during decommissioning of the facilities.

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 with previous data does not indicate any significant changes. Uranium and radium-226 concentrations remain slightly elevated above baseline conditions.

3.4.2 Irrigation Fluid

CR monitors the treated irrigation fluid that is disposed of at both irrigation facilities per the approved license application and the WDEQ Wastewater Land Application permits. Grab samples are collected at the irrigator pivot 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 $3.0 \text{ E-}7 \text{ } \mu\text{Ci/ml}$, and the estimate of $1.4\text{E-}6 \text{ } \mu\text{Ci/ml}$ provided in the original license application for the facility. The concentrations of radium-226 were below the 10 CFR 20, Appendix B, Effluent Concentration Limit of $6.0\text{E-}8 \text{ } \mu\text{Ci/ml}$. The August 2010 sample ($5.8\text{E-}9 \text{ } \mu\text{Ci/ml}$) was slightly above the estimate of $3.0\text{E-}9 \text{ } \mu\text{Ci/ml}$ provided in the original license application for the facility.

3.4.3 Radium Treatment Systems

CR 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 Purge Storage Reservoir No. 2 (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 $6.00\text{E-}8 \text{ } \mu\text{Ci/ml}$.

3.4.4 Soil Water

In accordance with approved license application and the WDEQ Wastewater Land Application Permits, PRI collects soil water samples at the irrigation areas in June of each year and analyzes them for various parameters. The results of soil water monitoring for 2010 was presented in the previous Semi-Annual Effluent and Environmental Monitoring Report.

3.4.5 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.

3.4.6 Satellite No. 2 Purge Storage Reservoir Shallow Wells

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. CR conducts quarterly sampling of both wells. Shallow Wells No. 1 and No. 2 are located adjacent to the south and east sides of the reservoir, respectively. In addition, four new monitoring wells were installed around the perimeter of PSR-2 for supplemental internal investigation regarding PSR-2. The wells are designated MW-1S (west), MW-2S (north), MW-3S (south) and MW-4S (east). Monitoring of the wells was conducted on September 22, September 28 and November 18, 2010. Table 11 contains the data for samples collected during the report period.

4.0 ANNUAL DOSE TO THE PUBLIC (2010)

10 CFR 20.1301 requires that each NRC licensee conduct their operations in such a manner that the total effective dose equivalent (TEDE) to members of the public does not exceed 0.1 rem (100 mrem) in a year, and that the dose from external sources in any unrestricted area does not exceed 0.002 rem (2 mrem) in any one hour.

Additionally, 10 CFR 20.1302 requires that each NRC licensee annually show compliance with the above described dose limits by demonstrating one of the following:

- 1) Show by actual measurement or calculation that the TEDE to the public does not exceed 100 mrem; or
- 2) Show that the annual average concentrations of radioactive effluents released at the restricted area boundary do not exceed the values in Table 2 of Appendix B to 10 CFR 20 and that the external dose to an individual continuously present in an

unrestricted area would not exceed 2 mrem in an hour and 50 mrem in a year.

Table 12 compares the 2010 annual average concentrations of radioactive effluents from the Smith Ranch-Highland Uranium Project to the 10 CFR 20, Table 2 limits of Appendix B. The table also shows the calculated TEDE at an unrestricted area sampling location (Vollman-Nearest Downwind Residence) and a Restricted Area location (Fenceline) assuming a person was continuously in the area for the entire year. As shown in Table 12, all measured concentrations of radioactive effluents are less than the Table 2 limits of Appendix B, confirming compliance with 10 CFR 20.1302(b)(2)(i) and (ii). Additionally, the calculated TEDE for the two locations confirms compliance with 10 CFR 20.1302(b)(1).

5.0 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, 2010, CR completed the following Safety and Environmental Evaluations:

- SERP #02/10-1 – SR-HUP Deep Disposal Wells (February 2, 2010);
- SERP #02/10-2 – Organizational Restructure (February 10, 2010);
- SERP #05/10-1 – Alternate Personnel to Perform RSO and Facility Foreman Inspection (July 27, 2010);
- SERP #07/10-1 – F200 and F300 Sampling (July 19, 2010); and
- SERP #10/10-1 – Organizational Restructure (October 27, 2010).

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.

6.0 GAS HILLS, RUTH AND NORTH BUTTE ISL PROJECTS

The Gas Hills, Ruth and North Butte 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, therefore, no effluent or environmental monitoring was conducted during the report period nor is it required by the NRC. 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 1-12

TABLE 1A

**SATELLITE NO.1 INJECTION RATES, RECOVERY RATES, INJECTION PRESSURES
2010**

MONTH	Injection Pressure (PSI)			Groundwater Sweep GPM	Radium Ponds GPM	RO Feed GPM	Injection GPM	RO Concentrate GPM	Purge Flow GPM
	RO #1	RO #2	RO #3						
Jul-10	0	0	0	0	0	0	0	0	0
Aug-10	0	0	0	0	0	0	0	0	0
Sep-10	0	0	0	0	0	0	0	0	0
Oct-10	0	0	0	0	0	0	0	0	0
Nov-10	0	0	0	0	0	0	0	0	0
Dec-10	0	0	0	0	0	0	0	0	0

TABLE 1B

**AVERAGE INJECTION RATES (GPM)
2010**

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2
Jul-10	1,734	3,488	1,338	2,580	3,970
Aug-10	1,745	3,441	1,494	3,127	3,919
Sep-10	1,729	3,478	1,450	3,073	3,862
Oct-10	1,671	3,447	1,552	3,354	3,647
Nov-10	1,665	3,323	1,856	3,389	3,772
Dec-10	1,672	3,435	1,821	3,540	3,952

TABLE 1C

**AVERAGE RECOVERY RATES (GPM)
2010**

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2
Jul-10	1,783	3,518	1,343	2,591	3,994
Aug-10	1,794	3,471	1,502	3,144	3,943
Sep-10	1,778	3,508	1,457	3,087	3,892
Oct-10	1,720	3,478	1,560	3,370	3,667
Nov-10	1,715	3,359	1,866	3,407	3,794
Dec-10	1,723	3,484	1,830	3,557	3,976

TABLE 1D

**INJECTION TRUNK LINE PRESSURES (PSI)
2010**

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2
Jul-10	100	133	115	52	23
Aug-10	99	134	138	80	24
Sep-10	92	137	141	84	31
Oct-10	91	139	132	71	21
Nov-10	95	137	150	81	22
Dec-10	93	135	142	78	23

TABLE 2
AIR SAMPLING DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th Quarters 2010

SAMPLE LOCATION	SAMPLE PERIOD	RADIONUCLIDE ($\mu\text{Ci/ml}$)	CONCENTRATION ($\mu\text{Ci/ml}$)	ERROR EST. +/- ($\mu\text{Ci/ml}$)	L.L.D. ($\mu\text{Ci/ml}$)	10 CFR 20 App. B, Table 2	% EFF. CONC. LIMIT %
						Values ($\mu\text{Ci/ml}$)	
AS-1 DAVE'S WATER WELL Air Station Background Site	3rd Quarter	U-Nat	8.44E-17	N/A	1.00E-16	9.00E-14	0.1
		Th-230	<1E-16	4E-17	1.00E-16	3.00E-14	
		Ra-226	1.59E-17	5E-17	1.00E-16	9.00E-13	0.0
		Pb-210	1.29E-14	1.00E-15	2.00E-15	6.00E-13	2.2
	4th Quarter	U-Nat	4.49E-17	N/A	1.00E-16	9.00E-14	0.0
		Th-230	1.29E-17	2E-17	1.00E-16	3.00E-14	0.0
		Ra-226	<5E-17	2E-17	1.00E-16	9.00E-13	
		Pb-210	1.75E-14	1E-15	2.00E-15	6.00E-13	2.9
	All Period	Rn-222	7.00E-10	5.00E-11	3.00E-10	1.00E-08	7.0
AS-2 FENCE LINE Air Station Restricted Area Boundary	3rd Quarter	U-Nat	1.57E-15	N/A	1.00E-16	9.00E-14	1.7
		Th-230	1.75E-17	5E-17	1.00E-16	3.00E-14	0.1
		Ra-226	1.92E-16	6E-17	1.00E-16	9.00E-13	0.0
		Pb-210	1.84E-14	1.00E-15	2.00E-15	6.00E-13	3.1
	4th Quarter	U-Nat	7.61E-16	N/A	1.00E-16	9.00E-14	0.8
		Th-230	2.66E-17	3E-17	1.00E-16	3.00E-14	0.1
		Ra-226	6.95E-17	9E-17	1.00E-16	9.00E-13	0.0
		Pb-210	1.68E-14	1E-15	2.00E-15	6.00E-13	2.8
	All Period	Rn-222	1.30E-09	8.00E-11	3.00E-10	1.00E-08	13.0
AS-3 VOLLMAN RANCH Air Station Downwind Nearest Residence	3rd Quarter	U-Nat	8.00E-17	N/A	1.00E-16	9.00E-14	0.1
		Th-230	<1E-16	3E-17	1.00E-16	3.00E-14	
		Ra-226	<1E-16		1.00E-16	9.00E-13	
		Pb-210	8.57E-15	9.00E-16	2.00E-15	6.00E-13	1.4
	4th Quarter	U-Nat	1.28E-16	N/A	1.00E-16	9.00E-14	0.1
		Th-230	4.93E-17	3E-17	1.00E-16	3.00E-14	0.2
		Ra-226	<5E-17	3E-17	1.00E-16	9.00E-13	
		Pb-210	1.58E-14	1E-15	2.00E-15	6.00E-13	2.6
	All Period	Rn-222	2.60E-09	1.10E-10	3.00E-10	1.00E-08	26.0
AS-4 HUP RESTRICTED AREA		STANDBY STATUS					
AS-5 FOWLER RANCH		STANDBY STATUS					
AS-6 REYNOLDS SATELLITE		NOT CONSTRUCTED					

TABLE 3

**DIRECT RADIATION (GAMMA) MEASUREMENT DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2010**

SAMPLE LOCATION	SAMPLE PERIOD	EXPOSURE RATE (mR/qtr)
AS-1		
DAVE'S WATER WELL	3rd Quarter	37
Air Station		
Background	4th Quarter	38
Site		
AS-2		
FENCE LINE	3rd Quarter	43
Air Station		
Restricted Area	4th Quarter	48
Boundary		
AS-3		
VOLLMAN'S RANCH	3rd Quarter	41
Air Station		
Downwind	4th Quarter	39
Nearest Residence		
AS-4	STANDBY	
HUP RESTRICTED AREA	STATUS	
AS-5	STANDBY	
FOWLER RANCH	STATUS	
AS-6	NOT	
REYNOLDS SATELLITE	CONSTRUCTED	
CONTROL	3rd Quarter	41
	4th Quarter	35

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2010

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-1 Stock Pond Section 3 T35N, R74W	3rd Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
SW-2 Stock Pond Section 2 T35N, R74W	3rd Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
SW-3 Stock Pond Section 35 T36N, R74W	3rd Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
SW-4 Stock Pond Section 36 T36N, R74W	3rd Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
SW-5 Stock Pond Section 21 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0074	1.30	0.29	5.0E-09 1.3E-09	3.0E-07 6.0E-08	1.7 2.2
	4th Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
SW-6 Stock Pond Section 22 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0006	0.07	0.15	4.1E-10 7.0E-10	3.0E-07 6.0E-08	0.1 1.2
	4th Quarter	U-Nat Ra-226	FROZEN				3.0E-07 6.0E-08	

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2010

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-7 Stock Pond Section 22 T36N, R73W	3rd Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
SW-8 Stock Pond Section 18 T36N, R72W	3rd Quarter	U-Nat Ra-226	0.0039	0.61	0.24	2.6E-09 6.1E-10	3.0E-07 6.0E-08	0.9 1.0
	4th Quarter	U-Nat Ra-226	FROZEN				3.0E-07 6.0E-08	
SW-9 Stock Pond Section 18 T36N, R72W	3rd Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
SW-10 Stock Pond Section 19 T36N, R72W	3rd Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	DRY				3.0E-07 6.0E-08	
GW-1 Windmill Section 1 T35N, R74W	3rd Quarter	U-Nat Ra-226	0.029	4.20	0.44	2.0E-08 4.2E-09	3.0E-07 6.0E-08	6.5 7.0
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-2 Water Well Section 35 T36N, R74W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	

TABLE 4

**WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2010**

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-3 Windmill Section 27 T36N, R74W	3rd Quarter	U-Nat Ra-226	0.147	1.80	0.31	1.0E-07 1.8E-09	3.0E-07 6.0E-08	33.2 3.0
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-4 Windmill Section 23 T36N, R74W	3rd Quarter	U-Nat Ra-226	0.0728	0.45	0.19	4.9E-08 4.5E-10	3.0E-07 6.0E-08	16.4 0.8
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-5 Windmill Section 30 T36N, R73W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-6 Windmill Section 28 T36N, R73W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-8 Windmill Section 23 T36N, R73W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-9 Windmill Section 14 T36N, R73W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	

TABLE 4
WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2010

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-10 Water Well Section 14 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0056	0.34	0.17	3.8E-09	3.0E-07	1.3
						3.4E-10	6.0E-08	0.6
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-11 Water Well Section 11 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0008	0.41	0.20	5.4E-10	3.0E-07	0.2
						4.1E-10	6.0E-08	0.7
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-12 Water Well Section 7 T36N, R72W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-13 Water Well Section 9 T36N, R72W	3rd Quarter	U-Nat Ra-226	0.016	1.80	0.32	1.1E-08	3.0E-07	3.6
						1.8E-09	6.0E-08	3.0
	4th Quarter	U-Nat Ra-226	0.0053	0.77	0.19	3.6E-09	3.0E-07	1.2
						7.7E-10	6.0E-08	1.3
GW-14 Water Well Section 10 T36N, R72W	3rd Quarter	U-Nat Ra-226	0.0019	0.37	0.23	1.3E-09	3.0E-07	0.4
						3.7E-10	6.0E-08	0.6
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-15 Water Well Section 15 T36N, R72W	3rd Quarter	U-Nat Ra-226	0.0206	0.29		1.4E-08	3.0E-07	4.6
						2.9E-10	6.0E-08	0.5
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	

TABLE 4

**WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2010**

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-16 Water Well Section 11 T36N, R72W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-17 Water Well Section 8 T36N, R72W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-18 Water Well Section 2 T36N, R72W	3rd Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
	4th Quarter	U-Nat Ra-226	NOT RUNNING				3.0E-07 6.0E-08	
GW-20 Water Well Section 27 T36N, R73W	3rd Quarter	U-Nat Ra-226	<.001	0.26	0.17	2.6E-10	3.0E-07 6.0E-08	0.4
	4th Quarter	U-Nat Ra-226	<.001	0.2	0.13	2E-10	3.0E-07 6.0E-08	0.3

TABLE 5

SATELLITE No. 1
LAND APPLICATION FACILITY (IRRIGATOR 1)
ANNUAL SOIL DATA
2010

SAMPLE ID	SAMPLE DATE	CONDUCTIVITY SAT. PASTE (mmhos/cm)	CALCIUM SOLUBLE (meq/L)	MAGNESIUM SOLUBLE (meq/L)	SODIUM SOLUBLE (meq/L)	SAR	pH SAT. PASTE (std. Units)	Sat %	ARSENIC ABDTPA (mg/kg-dry)	BARIUM ABDTPA (mg/kg-dry)	SELENIUM ABDTPA (mg/kg-dry)	POTASSIUM SOLUBLE (mg/kg-dry)	BORON ABDTPA (mg/kg-dry)	RADIUM 226 (μ Ci/g-dry)	TOTAL ERROR ESTIMATE \pm (pCi/g-dry)	Uranium mg/kg	URANIUM - NATURAL TOTAL (μ Ci/g-dry)
S.E. Location 1 0-6"	8/20/10	0.62	2.62	1.29	1.22	0.9	6.5	42.7	0.10	2.6	0.26	7.82	3.7	1.10E-06	0.2	24.6	1.67E-05
S.E. Location 1 6-12"	8/20/10	0.64	1.69	0.85	2.74	2.4	6.4	35.8	0.07	2.7	0.11	5.57	2.1	8.00E-07	0.1	8.9	6.03E-06
S.E. Location 2 0-6"	8/20/10	0.70	3.93	1.70	0.85	0.5	6.7	66.4	0.14	2.1	0.96	12.5	5.8	1.50E-06	0.2	19.4	1.31E-05
S.E. Location 2 6-12"	8/20/10	0.45	1.99	0.76	1.32	1.1	7.4	50.9	0.05	2.6	0.15	4.37	2.6	1.20E-06	0.2	3.4	2.30E-06
S.E. Location 3 0-6"	8/20/10	0.42	1.29	0.67	1.48	1.5	6.6	84.6	0.15	1.6	0.41	11.0	2.6	1.50E-06	0.2	19.0	1.29E-05
S.E. Location 3 6-12"	8/20/10	0.31	0.59	0.36	1.65	2.4	6.7	80.1	0.11	2.2	0.37	5.02	2.3	1.40E-06	0.2	3.8	2.57E-06
S.W. Location 4 0-6"	8/20/10	0.43	1.65	0.84	1.29	1.2	6.6	85.2	0.14	2.4	0.62	8.67	2.3	1.70E-06	0.2	25.1	1.70E-05
S.W. Location 4 6-12"	8/20/10	0.52	1.67	0.90	2.48	2.2	7.1	84.2	0.11	3.3	0.32	4.14	3.7	1.60E-06	0.2	3.4	2.30E-06
S.W. Location 5 0-6"	8/20/10	0.65	2.26	1.13	1.53	1.2	5.7	43.0	0.11	2.0	0.34	10.1	2.3	1.10E-06	0.2	11.8	7.99E-06
S.W. Location 5 6-12"	8/20/10	0.38	0.83	0.48	2.07	2.6	6.1	70.5	0.10	2.2	0.10	5.16	3.4	1.70E-06	0.2	2.9	1.96E-06
S.W. Location 6 0-6"	8/20/10	0.37	1.17	0.60	1.51	1.6	6.0	67.2	0.08	1.5	0.33	6.39	2.3	1.50E-06	0.2	16.7	1.13E-05
S.W. Location 6 6-12"	8/20/10	0.28	0.86	0.48	1.97	2.4	6.8	69.0	0.09	2.2	0.27	3.06	2.3	1.60E-06	0.2	5.1	3.45E-06
S.W. Location 7 0-6"	8/20/10	0.53	2.04	0.97	2.13	1.7	6.4	65.9	0.12	2.3	0.40	7.32	2.3	1.50E-06	0.2	19.0	1.29E-05
S.W. Location 7 6-12"	8/20/10	1.21	5.79	2.68	4.85	2.4	7.4	75.6	0.06	3.1	0.17	4.28	2.2	1.60E-06	0.2	4.3	2.91E-06
N.W. Location 8 0-6"	8/20/10	0.24	0.46	0.24	0.95	1.6	6.4	64.0	0.11	2.0	0.27	3.59	2.2	1.50E-06	0.2	20.0	1.35E-05
N.W. Location 8 6-12"	8/20/10	0.99	3.54	1.84	4.40	2.7	7.3	82.6	0.08	2.9	0.15	5.46	2.5	1.40E-06	0.2	2.8	1.90E-06
N.W. Location 9 0-6"	8/20/10	0.28	0.67	0.36	1.38	1.9	7.0	75.8	0.13	3.0	0.45	5.31	2.8	1.60E-06	0.2	8.7	5.89E-06
N.W. Location 9 6-12"	8/20/10	0.53	1.45	0.78	2.83	2.7	7.5	79.3	0.08	4.7	0.32	4.27	2.9	1.60E-06	0.2	2.2	1.49E-06
N.W. Location 10 0-6"	8/20/10	0.21	0.76	0.40	1.58	2.1	5.8	64.4	0.14	2.5	0.32	5.66	2.6	1.70E-06	0.2	21.3	1.44E-05
N.W. Location 10 6-12"	8/20/10	0.89	2.90	1.64	4.15	2.8	7.4	82.9	0.05	3.0	0.19	6.79	2.4	2.00E-06	0.2	4.0	2.71E-06
N.E. Location 11 0-6"	8/20/10	0.39	1.69	0.83	0.96	0.9	6.2	47.6	0.10	2.5	0.37	6.62	2.2	1.30E-06	0.2	29.8	2.02E-05
N.E. Location 11 6-12"	8/20/10	0.71	3.17	1.13	3.06	2.1	7.4	62.3	0.03	3.3	0.12	5.86	2.4	1.60E-06	0.2	2.2	1.49E-06
N.E. Location 12 0-6"	8/20/10	0.40	1.48	0.77	1.37	1.3	6.5	79.1	0.13	2.7	0.36	11.8	2.6	1.50E-06	0.2	21.9	1.48E-05
N.E. Location 12 6-12"	8/20/10	0.29	0.82	0.47	1.88	2.3	6.5	75.2	0.11	3.4	0.21	4.99	2.2	1.40E-06	0.2	4.1	2.78E-06
N.E. Location 13 0-6"	8/20/10	0.48	1.81	0.90	2.09	1.8	7.4	68.8	0.07	2.8	0.07	4.48	2.1	1.50E-06	0.2	4.4	2.98E-06
N.E. Location 13 6-12"	8/20/10	0.58	1.59	0.93	3.26	2.9	7.8	74.1	0.04	3.1	0.19	1.88	3.8	1.80E-06	0.2	2.6	1.76E-06
N.E. Location 14 0-6"	8/20/10	0.23	0.80	0.49	1.43	1.8	6.7	59.4	0.11	3.4	0.18	3.24	2.6	1.60E-06	0.2	5.1	3.45E-06
N.E. Location 14 6-12"	8/20/10	0.68	1.91	1.35	3.36	2.6	7.3	69.7	0.10	3.2	0.10	2.05	2.9	1.40E-06	0.2	2.9	1.96E-06
Average 0-6"	8/20/10	0.43	1.62	0.80	1.41	1.4	6.5	65.3	0.12	2.4	0.38	7.46	2.7	1.47E-06		17.6	1.19E-05
Average 6-12"	8/20/10	0.60	2.06	1.05	2.86	2.4	7.1	70.9	0.08	3.0	0.20	4.49	2.7	1.51E-06		3.8	2.54E-06
Background 0-6"	8/20/10	0.30	0.30	0.87	0.32	0.3	6.8	54.6	0.08	10.9	0.05	2.19	1.5	1.80E-06	0.2	2.2	1.49E-06
Background 6-12"	8/20/10	0.57	0.57	1.47	1.42	1.0	7.2	61.7	0.05	12.5	0.03	3.27	1.8	1.30E-06	0.2	2.3	1.56E-06

TABLE 6

**SATELLITE No. 2
LAND APPLICATION FACILITY (IRRIGATOR 2)
ANNUAL SOIL DATA
2010**

SAMPLE ID	SAMPLE DATE	CONDUCTIVITY SAT. PASTE (mmhos/cm)	CALCIUM SOLUBLE (meq/L)	MAGNESIUM SOLUBLE (meq/L)	SODIUM SOLUBLE (meq/L)	SAR	pH SAT. PASTE (std. Units)	Sat %	ARSENIC ABDTPA (mg/kg-dry)	BARIUM ABDTPA (mg/kg-dry)	SELENIUM ABDTPA (mg/kg-dry)	POTASSIUM SOLUBLE (mg/kg-dry)	BORON ABDTPA (mg/kg-dry)	RADIUM 226 (µCi/g-dry)	TOTAL ERROR ESTIMATE± (µCi/g-dry)	Uranium mg/kg	URANIUM - NATURAL TOTAL (µCi/g-dry)
Location 1 0-6"	8/26/10	3.39	27.7	13.7	4.6	1.0	6.3	67.4	0.08	1.1	0.28	12.2	1.4	1.50E-06	2.00E-07	5.1	3.45E-06
Location 1 6-12"	8/26/10	3.72	26.9	14.8	8.0	1.8	6.4	81.3	0.07	0.6	0.20	7.62	1.3	1.70E-06	2.00E-07	3.0	2.03E-06
Location 2 0-6"	8/26/10	0.96	4.60	2.67	2.31	1.2	6.5	81.6	0.07	1.9	0.11	6.37	1.4	2.00E-06	2.00E-07	3.1	2.10E-06
Location 2 6-12"	8/26/10	1.98	11.9	6.96	4.64	1.5	6.9	82.4	0.06	1.2	0.10	5.65	1.6	2.00E-06	2.00E-07	1.8	1.22E-06
Location 3 0-6"	8/26/10	1.96	13.0	5.80	3.21	1.0	7.5	76.7	0.03	2.2	0.11	7.13	1.5	1.50E-06	2.00E-07	6.4	4.33E-06
Location 3 6-12"	8/26/10	2.98	23.7	9.99	6.52	1.6	7.6	77.6	0.02	1.3	0.15	6.17	1.3	1.70E-06	2.00E-07	3.0	2.03E-06
Location 4 0-6"	8/26/10	1.66	10.0	5.02	2.73	1.0	6.9	60.5	0.05	1.4	0.22	9.73	1.0	1.30E-06	2.00E-07	9.0	6.09E-06
Location 4 6-12"	8/26/10	1.81	11.6	5.43	2.85	1.0	7.0	69.8	0.08	1.8	0.62	15.5	1.3	1.60E-06	2.00E-07	14.7	9.95E-06
Location 5 0-6"	8/26/10	2.12	13.5	6.62	3.84	1.2	7.3	47.4	0.04	2.8	0.26	10.8	1.0	1.30E-06	2.00E-07	5.0	3.39E-06
Location 5 6-12"	8/26/10	2.03	12.3	6.44	3.24	1.1	7.2	43.7	0.03	2.2	0.20	7.06	0.8	1.10E-06	2.00E-07	3.0	2.03E-06
Location 6 0-6"	8/26/10	0.97	5.48	2.50	2.24	1.1	7.2	71.7	0.04	2.2	0.08	4.07	1.2	1.60E-06	2.00E-07	2.8	1.90E-06
Location 6 6-12"	8/26/10	1.57	10.6	4.06	3.73	1.4	7.3	70.8	0.03	1.6	0.07	4.08	1.1	1.00E-06	2.00E-07	1.9	1.29E-06
Location 7 0-6"	8/26/10	2.94	22.3	11.5	4.75	1.2	6.2	76.6	0.07	1.0	0.18	17.5	1.3	1.50E-06	2.00E-07	4.8	3.25E-06
Location 7 6-12"	8/26/10	3.56	26.0	15.8	7.0	1.5	6.3	81.6	0.05	0.6	0.17	11.0	1.4	1.80E-06	2.00E-07	2.6	1.76E-06
Location 8 0-6"	8/26/10	2.23	15.2	7.85	3.87	1.1	6.5	70.5	0.07	1.3	0.12	10.3	1.3	2.10E-06	2.00E-07	5.6	3.79E-06
Location 8 6-12"	8/26/10	2.69	20.5	11.9	4.30	1.1	7.2	75.5	0.04	1.3	0.09	5.71	1.9	1.70E-06	2.00E-07	1.8	1.22E-06
Location 9 0-6"	8/26/10	1.52	9.14	5.08	3.33	1.2	6.5	68.4	0.07	1.2	0.14	5.87	1.7	1.90E-06	2.00E-07	7.7	5.21E-06
Location 9 6-12"	8/26/10	3.10	22.7	14.0	6.38	1.5	6.8	76.1	0.06	0.9	0.11	5.91	2.7	1.90E-06	2.00E-07	2.9	1.96E-06
Location 10 0-6"	8/26/10	3.69	26.9	16.2	6.7	1.5	6.9	67.1	0.05	0.4	0.21	7.02	1.6	1.60E-06	2.00E-07	7.8	5.28E-06
Location 10 6-12"	8/26/10	4.12	27.0	16.1	11.5	2.5	7.3	67.8	0.02	0.9	0.28	6.70	1.7	1.30E-06	2.00E-07	5.9	3.99E-06
Location 11 0-6"	8/26/10	1.97	11.4	6.23	3.19	1.1	6.9	79.6	0.08	1.4	0.32	17.7	2.0	6.00E-07	2.00E-07	8.5	5.75E-06
Location 11 6-12"	8/26/10	1.93	11.6	6.76	4.53	1.5	7.0	79.2	0.06	1.2	0.23	6.26	1.7	1.40E-06	2.00E-07	3.2	2.17E-06
Location 12 0-6"	8/26/10	2.78	17.9	8.63	3.65	1.0	6.8	41.7	0.05	1.8	0.18	10.9	1.6	8.00E-07	2.00E-07	9.1	6.16E-06
Location 12 6-12"	8/26/10	0.93	4.24	2.23	2.09	1.2	6.8	53.4	0.06	2.0	0.06	2.45	1.2	9.00E-07	2.00E-07	1.3	8.80E-07
Location 13 0-6"	8/26/10	1.24	6.43	3.56	2.18	1.0	6.4	50.0	0.08	1.5	0.14	6.21	1.4	1.00E-06	2.00E-07	2.3	1.56E-06
Location 13 6-12"	8/26/10	0.65	2.80	1.71	1.93	1.3	6.6	58.3	0.08	1.5	0.11	2.79	1.3	1.10E-06	2.00E-07	1.6	1.08E-06
Location 14 0-6"	8/26/10	3.51	28.3	13.3	5.0	1.1	7.1	67.5	0.06	1.0	0.20	7.67	1.7	1.20E-06	2.00E-07	7.3	4.94E-06
Location 14 6-12"	8/26/10	3.49	27.2	13.6	6.0	1.3	7.1	55.6	0.03	0.8	0.15	3.49	1.4	8.00E-07	2.00E-07	2.6	1.76E-06
Location 15 0-6"	8/26/10	3.09	14.8	7.5	2.8	0.8	6.7	65.7	0.08	1.5	0.15	7.58	1.5	1.20E-06	2.00E-07	4.2	2.84E-06
Location 15 6-12"	8/26/10	3.06	25.0	12.7	4.8	1.1	6.8	68.7	0.07	1.0	0.13	6.71	1.2	1.50E-06	2.00E-07	2.7	1.83E-06
Location 16 0-6"	8/26/10	3.07	27.7	9.2	3.8	0.9	7.8	60.0	0.05	1.9	0.15	9.08	1.6	9.00E-07	2.00E-07	4.2	2.84E-06
Location 16 6-12"	8/26/10	2.98	27.1	11.3	4.38	1.0	7.8	58.1	0.03	1.7	0.14	5.14	1.6	1.00E-06	2.00E-07	3.8	2.57E-06
Average 0-6"	8/26/10	2.32	15.9	7.84	3.6	1.1	6.8	65.8	0.06	1.5	0.18	9.38	1.5	1.38E-06		5.8	3.93E-06
Average 6-12"	8/26/10	2.54	18.2	9.61	5.1	1.4	7.0	68.7	0.05	1.3	0.18	6.39	1.5	1.41E-06		3.5	2.36E-06
Background 0-6"		0.34	3.09	0.64	0.12	<0.1	7.7	37.6	0.03	1.2	0.01	1.11	1.2	6.00E-07	1.0E-07	2.0	1.35E-06
Background 6-12"		0.44	3.86	1.08	0.24	0.2	7.6	43.0	0.03	1.0	0.01	1.09	1.2	1.00E-06	2.0E-07	2.5	1.69E-06

TABLE 7A

SATELLITE NO. 1
LAND APPLICATION FACILITY (IRRIGATOR #1)
ANNUAL VEGETATION DATA
2010

SAMPLE SITE SAMPLE DATE		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	0.7	ND	ND	ND	0.6
Barium	0.05	55.60	36.90	38.90	34.70	78.90
Boron	5	14	10	11	13	10
Selenium	0.05	18.90	20.50	20.50	15.20	2.10
RADIOMETRIC ($\mu\text{Ci/kg}$): E903.0						
U-Nat		6.8E-03	2.2E-03	7.7E-03	4.2E-03	9.0E-04
U-Nat RL		1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04
Ra226		2.5E-04	3.4E-04	1.8E-04	2.0E-04	1.3E-04
Ra226 ERR. EST. +/-		1.0E-05	1.2E-05	6.4E-06	7.1E-06	5.5E-06
Ra226 MDC		2.2E-06	1.9E-06	8.5E-07	1.3E-06	9.0E-07

TABLE 7B

SATELLITE NO. 2
LAND APPLICATION FACILITY (IRRIGATOR #2)
ANNUAL VEGETATION DATA
2010

SAMPLE SITE SAMPLE DATE		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	18.60	13.70	8.20	10.04	30.00
Boron	5	14	12	9	13	5
Selenium	0.05	1.4	1.80	1.00	1.40	0.50
RADIOMETRIC ($\mu\text{Ci/kg}$): E903.0						
U-Nat		1.4E-02	1.6E-02	5.8E-03	1.1E-02	5.0E-04
U-Nat RL		3.0E-04	3.0E-04	3.0E-04	3.0E-04	3.0E-04
Ra226		6.3E-05	7.3E-05	4.7E-05	4.4E-05	1.6E-04
Ra226 ERR. EST. +/-		4.9E-06	6.9E-06	5.1E-06	5.2E-06	8.2E-06
Ra226 MDC		1.6E-06	2.7E-06	2.3E-06	2.5E-06	1.8E-06

TABLE 8

**SATELLITE NO. 1
LAND APPLICATION FACILITY (IRRIGATOR NO. 1)
MONTHLY IRRIGATION FLUID DATA
2010**

IRRIGATION CYCLE**VOLUME (AF)****DATE SAMPLED**

Jul-10

Aug-10

Sep-10

Oct-10

Nov-10

Dec-10

MAJOR IONS (mg/L)Reporting
Limit

Calcium

1.0

Magnesium

1.0

Irrigator

Irrigator

Irrigator

Irrigator

Irrigator

Irrigator

Sodium

1.0

Did

Did

Did

Did

Did

Did

Potassium

1.0

Not

Not

Not

Not

Not

Not

Bicarbonate

1.0

Operate

Operate

Operate

Operate

Operate

Operate

Sulfate

1.0

Chloride

1.0

NON-METALS

TDS @ 180° C (mg/L)

10.0

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
2010

IRRIGATION CYCLE

VOLUME (AF)		36.27	21.00				
DATE SAMPLED		Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
MAJOR IONS (mg/L)	Reporting Limit						
Calcium	1.0	287	292	Irrigator	Irrigator	Irrigator	Irrigator
Magnesium	1.0	99	104	Did	Did	Did	Did
Sodium	1.0	76	79	Not	Not	Not	Not
Potassium	1.0	25	24	Operate	Operate	Operate	Operate
Bicarbonate	1.0	212	202				
Sulfate	1.0	710	758				
Chloride	1.0	355	371				
NON-METALS							
TDS @ 180° C (mg/L)	10.0	1970	1910				
pH (standard units)	0.010	7.90	8.09				
SAR	0.01	1.0	1.0				
TRACE METALS (mg/L)							
Arsenic	0.001	ND	0.001				
Barium	0.1	ND	ND				
Boron	0.10	0.20	0.20				
Selenium	0.001	0.015	0.009				
RADIOMETRIC							
U-nat (µCi/mL)	2.03E-10	2.22E-07	1.67E-07				
Ra-226 (µCi/mL)	2.00E-10	5.7E-10	5.8E-09				
Ra Err. Est. +/-		1.8E-10	4.7E-10				

TABLE 10

SELENIUM PLANT
RADIUM TREATMENT SYSTEM DISCHARGE
MONTHLY RADIUM GRAB SAMPLES
2010

SAMPLE DATE	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
RADIOMETRIC						
Ra-226 ($\mu\text{Ci/mL}$)	2.40E-10	5.60E-10	3.40E-10	1.30E-08	5.70E-10	8.60E-09
Ra Err. Est. +/-	1.70E-10	1.80E-10	1.60E-10	8.20E-10	1.80E-10	4.90E-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 2010**

SAMPLE SITE		Shallow Well No. 1 (South)		Shallow Well No. 2 (East)		MW-1S (West)		MW-2S (North)		MW-3S (South)		MW-4S (East)	
SAMPLE DATE		9/22/10	11/18/10	9/22/10	11/18/10	9/28/10	11/18/10	9/28/10	11/18/10	9/28/10	11/18/10	9/28/10	11/18/10
WATER LEVEL (DTW)	Laboratory Reporting	14.8	13.2	10.2	11.3	28.4	29.8	22.4	23.7	22.6	22.7	33.4	34.0
MAJOR IONS (mg/L)	Limit												
Bicarbonate	1.0			401	331	428	368	381	368	408	396	553	504
Sulfate	1.0			2420	2390	1920	1930	231	240	972	1020	1680	1620
Chloride	1.0	NOT	NOT	442	409	279	307	69	72	521	497	115	126
		ENOUGH	ENOUGH										
NON-METALS													
Cond ($\mu\text{mho}/\text{cm}$)	1.0	WATER	WATER	5210	5090	4340	4390	1160	1180	3410	3410	3610	3410
pH (standard units)	0.01			7.47	7.50	7.76	7.48	7.87	7.61	7.85	7.6	7.8	7.59
		TO	TO										
TRACE METALS (mg/L)													
Barium	0.001	SAMPLE	SAMPLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	0.0025			0.039	0.036	2	2.08	0.003	0.005	0.226	0.198	0.9	0.681
Boron	0.1000			ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
Arsenic	0.0010			0.002	ND	0.005	ND	ND	ND	0.003	ND	ND	ND
RADIOMETRIC													
U-nat ($\mu\text{Ci}/\text{mL}$)	6.77E-10			5.36E-08	4.43E-08	4.4E-08	3.8E-08	8.1E-10	1.2E-09	5.7E-07	5.8E-07	1.5E-07	1.9E-07
Ra-226 ($\mu\text{Ci}/\text{mL}$)	2.00E-10			7.80E-10	8.40E-10	1.50E-09	2.90E-10	7.00E-10	3.10E-10	7.60E-10	2.70E-10	3.50E-09	2.10E-09
Ra-226 Err. Est. +/- ($\mu\text{Ci}/\text{mL}$)				1.80E-10	1.80E-10	2.30E-10	1.20E-10	1.80E-10	1.30E-10	1.70E-10	1.20E-10	3.50E-10	2.70E-10

TABLE 12

2010 DOSE TO PUBLIC CALCULATIONS

<u>Monitoring Location/Parameter</u>		<u>Average Concentration/Annual Gamma Dose</u>	<u>Average Concentration/Annual Gamma Dose Above Background</u>	<u>10 CFR 20 App. B, Table 2 Values</u>	<u>Dose to the Public mrem/yr¹</u>
Dave's Water Well (Background)					
Uranium (μCi/ml)		9.13E-17		9.00E-14	
Thorium-230 (μCi/ml)	<	7.82E-17		2.00E-14	
Radium-226 (μCi/ml)	<	6.65E-17		9.00E-13	
Lead-210 (μCi/ml)		1.10E-14		6.00E-13	
Radon-222 (μCi/ml)		7.5E-10		1.00E-08	
Gamma (mrem/yr)		151		--	
TEDE (mrem/yr)					Background
Fenceline (Controlled Area Boundary)					
Uranium (μCi/ml)		2.68E-15	2.59E-15	9.00E-14	1.44
Thorium-230 (μCi/ml)	<	6.28E-17	0	2.00E-14	0.00
Radium-226 (μCi/ml)	<	1.17E-16	5.02E-17	9.00E-13	0.00
Lead-210 (μCi/ml)		1.44E-14	3.34E-15	6.00E-13	0.28
Radon-222 (μCi/ml)		1.3E-09	5.00E-10	1.00E-08	2.50
Gamma (mrem/yr)		182	31	--	31.00
TEDE (mrem/yr)					35.2
Vollman (Nearest Downwind Residence)					
Uranium (μCi/ml)		4.30E-16	3.38E-16	9.00E-14	0.19
Thorium-230 (μCi/ml)	<	8.73E-17	9.10E-18	2.00E-14	0.02
Radium-226 (μCi/ml)	<	8.75E-17	2.10E-17	9.00E-13	0.00
Lead-210 (μCi/ml)		7.62E-15	0	6.00E-13	0.00
Radon-222 (μCi/ml)		1.75E-09	1.00E-09	1.00E-08	5.00
Gamma (mrem/yr)		158	7	--	7.00
TEDE (mrem/yr)					12.2

Notes: TEDE Total Effective Dose Equivalent (mrem/yr)

< One or more of the Lower Limits of Detection (LLD) used to determine average concentration.

¹ Dose from radionuclides (mrem/yr) = $\frac{\text{Avg concentration above background in } \mu\text{Ci/ml} \times 50 \text{ mrem}}{10 \text{ CFR } 20 \text{ AppB, Table 2 value in } \mu\text{Ci/ml}}$

ATTACHMENT B

**SAFETY AND ENVIRONMENTAL
EVALUATIONS (2010)**



CAMECO RESOURCES
Smith Ranch-Highland
Operation

Inter-Office Memo

To: Tom Cannon

From: Miriam Whatley

Date: February 2, 2010

Cc: John McCarthy, Bob Hembree, Miriam Whatley

Subject: ORC/SERP 0-02082010-1 Deep Disposal Wells SR-HUP

A. SERP Evaluation Checklist

(New) Change, Test and Experiment License Condition

- a. The licensee may, without obtaining a license amendment pursuant to §40.44, and subject to conditions specified in (b) of this condition:
 - 1) Make changes in the facility as described in the license application (as updated).
 - 2) Make changes in the procedures as described in the license application (as updated), and
 - 3) Conduct test or experiments not described in the license application (as updated).
- b. NRC License Condition 9.4b of SUA-1548 requires a license amendment prior to implementing a proposed change, test or experiment. The SERP shall review the Checklist to determine if a license amendment is required prior to implementing a proposed change.

SERP Evaluation Checklist

NRC LICENSE REQUIREMENT	YES	NO	N/A
Results in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated)		X	
Creates a possibility for an accident of a different type than any previously evaluated in the license application (as updated)		X	
Creates a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated)		X	
Results in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or technical evaluation reports (TERs) or other analyses and evaluations for license amendments.		X	

If all questions are answered NO then implementation can begin. If any of the questions are answered YES then an amendment to License must be submitted and approval received from NRC prior to implementation.

B. SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP)

NRC License condition 9.4d of SUA-1548 requires that any changes, test or experiments made under the Performance Based License Condition be evaluated by a SERP committee consisting of at least three individuals. One member must have management expertise and have the financial and management responsibility for approving changes. The second member must have operational and/or construction expertise and have responsibility for implementing any operational changes. The third member must be the Radiation Safety Officer (RSO) with the responsibility of assuring that the proposed activities will conform to radiation safety and environmental requirements. Members selected to perform this SERP review include:

SERP Member	QUALIFICATIONS TITLE
Tom Cannon	General Operations Mgr.
John McCarthy	Assistant Manager, Safety, Health, Environment and Quality (SHEQ) and RSO
Miriam Whatley	SHEQ Coordinator
Bob Hembree	Engineering Mgr.

C. EVALUATION OF PROPOSED CHANGE/TEST

Operations/Technical Review

The operational and technical reviews were completed during the Operational Review Committee (ORC) process prior to the SERP review. The ORC minutes and supporting documentation contain information (maps, schematics, process descriptions, etc.) regarding discussion of the new Deep Disposal Wells.

Environmental/Safety Review

Review of Environmental Assessment (EA), dated May 8, 2001 and Safety Evaluation (SER) report dated April, 2001 has been completed. The Deep Disposal Wells are described in the EA beginning on page 12 and discusses the requirement for EPA/WDEQ approval. The aquifer exemption action is issued by the EPA. The SER describes the deep well injection beginning on page 9 and mentions the wells are the preferred method of disposal and permitted by WDEQ/EPA.

Review of the Reynolds Ranch Environmental Assessment, dated November 2006 and Safety Evaluation Report (SER) dated January 2007 has been completed. The Reynolds Ranch SER discusses deep well injection to dispose of "production bleed, plant wash-down water, ground water restoration equipment effluent, restoration bleed and facility sanitary waste (PRI 2004 (Section 4.2) and 2006a). Production bleed. Plant wash-down water, and ground water restoration water will be disposed through a deep injection well permitted under the ground water injection control (UIC) program through the Wyoming DEQ-Water Quality Division." The Reynolds Ranch EA discusses operational wastes "generated at the proposed Reynolds Ranch satellite facility would be disposed of through a deep injection well. These wastes would include production bleed stream, wash down water, and ground water sweep (i.e., from ground water sweep and ground water treatment activities). The planned deep injection well would be similar in design and depth to the current injection wells at Smith Ranch and located near the Reynolds Ranch area. This deep injection well would be permitted through the WDEQ and operating according to permit requirements."

The deep well installation will be the same as previously installed wells and the injection formations are identical to existing deep disposal wells and are referenced herein. The pipelines, pumps, wellhead, mechanical integrity test (MIT), fall-off test, monitoring and reporting are consistent with the existing deep injection wells. The sampling requirements for the renewed and new wells are detailed on page 14 of UIC Permit 09-054. There are additional sampling parameters on the table as compared to Permits UIC 04-611 and 99-347. The installation, MTI and Fall-off Tests are completed by consultants and contractors in consultation with Cameco Resources. The consultant will supply any required Professional Engineer's seal and signature. All consultants and contractors will comply with Cameco Resources' SHEQ policies and procedures.

The application for the new permit was prepared and submitted by a consulting Professional Engineer with concurrence with CR's Engineering Department and the Safety, Health, Environment and Quality Department (SHEQ).

Maintenance work at the well heads or pump stations may require a Radiation Work Permit and Job Hazard Analysis prior beginning the task. The Radiation Safety Officer and/or Supervisor will evaluate the need for the RWP/JHA and any additional safeguards.

Safety: Standard Operating Procedure SOP 2269 "Waste Disposal Well" will need to be updated to include the new well information, operating parameters and monitoring requirements. SHEQ Volume VI, Environmental Manual, 3.7 will need to be updated as appropriate. All contractor and consultants will comply with all site safety, health and environmental procedures and all applicable regulations.

Cultural: Cultural inventories and surveys have been evaluated for potential impact and the reviewed documentation is listed in references below. The drill sites will not impact any known cultural resource localities; however, as stated in SUA-1548, condition 9.9, "In order to ensure that no unapproved disturbance of cultural resources occurs, any work resulting in the discovery of previously unknown cultural artifacts shall cease. The artifacts shall be inventoried and evaluated in accordance with 36CFR Part 800, and no disturbance of the area shall occur until the licensee has received authorization from the NRC to proceed."

Security and Environmental Concerns: The well heads and pumps are located within the closest satellite or in dog houses at the well heads. The wells are checked daily for operational concerns and security purposes. The wellhead and pump enclosures are heated to prevent freezing. Pipelines are pressure tested prior to use and periodically there after. The operational monitoring requirements are detailed in the permits and Standard Operating Procedures. The wells/pumps are also operationally monitored at the Central Processing Plant or a satellite's PLC and results maintained on file. For security purposes, keypad locks will be installed on all doors accessing out buildings containing deep disposal well heads and pumps.

Compliance Review: Documents for review: NRC License, SUA 1548 (Amendment 15, September 15, 2009), supporting application (October 26, 1999) and the below referenced documents.

D. CONCLUSIONS

The deep injection wells described in Permit 09-054 will inject into the same receiving formations as the existing permitted wells. The well construction, monitoring and operation are analogous to the approved permitted wells. As noted above, the only difference will be in the sampling parameters and this will be address in the SOPs. The WDEQ/EPA has reviewed for completeness and approved the construction and operation for the wells listed in Permit 09-054. The SERP has reviewed the Permit and below

referenced documentation and has determined the deep injection wells are not contrary to the license or reviews conducted by the NRC during previous approvals.

E. **REFERENCES**

1. Wyoming Department of Environmental Quality/Water Quality Division.2009
"UIC Permit 09-054, Smith Ranch Highland Project Class I Injection Permit,
Converse County, WY", October 8, 2009.

Wells included are:

Morton 1-20 (renewal)
Vollman 33-27 (renewal)
SRHUP No. 6 (new well)
SRHUP No. 7 (new well)
SRHUP No. 8 (new well)
SRHUP No. 9 (new well)
SRHUP No. 10 (new well)

2. Wyoming Department of Environmental Quality/Water Quality Division.2005
"REYNOLDS RANCH DISPOSAL WELL #1 UIC Facility WYS 009-044,
Permit UIC 04-611 Converse County, WY", March 31, 2005.

Reynolds Ranch Deep Well #1

3. Wyoming Department of Environmental Quality/Water Quality Division.1999
UIC PERMIT 99-347, October 21, 1999

Smith Ranch Disposal Wells #1 and #2

4. United States Nuclear Regulatory Commission. 2007 "Environmental Assessment
for the Addition of the Reynolds Ranch Mining Area to Power Resources, Inc's
Smith Ranch/Highlands Uranium Project Converse County, Wyoming",
November 2006
5. United States Nuclear Regulatory Commission. 2007 "Safety Evaluation Report
Amendment No. 11 to Source Material License No. SUA-1548 Addition of
Reynolds Ranch-Highland Uranium Project (SR-HUP) Converse County,
Wyoming", January 2007.
6. United States Nuclear Regulatory Commission. 2001 "Safety Evaluation Report
For The Renewal Of Source Material License No. SUA-1548 Rio Algom Mining
Corp. Smith Ranch In-Situ Leaching Facility Converse County, Wyoming",
April 2001.

7. United States Nuclear Regulatory Commission. 2001 "Environmental Assessment for Renewal Of Source Material License No. SUA-1548 Rio Algom Mining Corporation Smith Ranch Uranium Project Converse County, Wyoming", November 2006
8. Pronghorn Archaeological Services. 1998 "Class III Cultural Resource Inventory for the Smith Ranch Area Project Located In Converse County, Wyoming", December 1998.
9. Robert G. Roseberg. 1997 "Assessment Of Effects For The Bozeman Trail and Other Historic Sites Within The Rio Algom Mining Corp. Reynolds Project Permit Area, Converse County, Wyoming", September 1997.

SERP Member Signatory Approvals

Signature: [Signature] Date: 2.10.10

Signature: [Signature] Date: 2-10-10

Signature: [Signature] Date: 02-18-2010

Signature: [Signature] RSO Date: 2/10/10

Signature: Miriam Whalley Date: 2-10-10

Signature: _____ Date: _____

Signature: _____ Date: _____

Signature: _____ Date: _____

E. ATTACHMENTS (if any)

Refer to the above referenced documents and the ORC minutes.



CAMECO RESOURCES
Smith Ranch-Highland
Operation

Inter-Office Memo

To: Tom Cannon

From: Dawn Kolkman

Date: 2/10/10

Cc: Angelo Kallas, Arlene Faunce, John McCarthy, Miriam Whatley

Subject: Organizational Restructure for EHS Reporting – ORC #02/10-2

A. SERP Evaluation Checklist

(New) Change, Test and Experiment License Condition

- a. The licensee may, without obtaining a license amendment pursuant to §40.44, and subject to conditions specified in (b) of this condition:
 - 1) Make changes in the facility as described in the license application (as updated).
 - 2) Make changes in the procedures as described in the license application (as updated), and
 - 3) Conduct test or experiments not described in the license application (as updated).
- b. NRC License Condition 9.4b of SUA-1548 requires a license amendment prior to implementing a proposed change, test or experiment. The SERP shall review the Checklist to determine if a license amendment is required prior to implementing a proposed change.

SERP Evaluation Checklist

NRC LICENSE REQUIREMENT	YES	NO	N/A
Results in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated)		X	
Creates a possibility for an accident of a different type than any previously evaluated in the license application (as updated)		X	
Creates a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated)		X	
Results in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or technical evaluation reports (TERs) or other analyses and evaluations for license amendments.		X	

If all questions are answered NO then implementation can begin. If any of the questions are answered YES then an amendment to License must be submitted and approval received from NRC prior to implementation.

B. SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP)

NRC License condition 9.4d of SUA-1548 requires that any changes, test or experiments made under the Performance Based License Condition be evaluated by a SERP consisting of at least three individuals. One member must have management expertise and have the financial and management responsibility for approving changes. The second member must have operational and/or construction expertise and have responsibility for implementing any operational changes. The third member must be the Radiation Safety Officer (RSO), or equivalent (CRSO), with the responsibility of assuring that the proposed activities will conform to radiation safety and environmental requirements. Members selected to perform this SERP review include:

SERP Member	QUALIFICATIONS TITLE
Tom Cannon	General Manager of Operations
Terry Warner	Human Resources Manager
John McCarthy	RSO
Angelo Kallas	Safety, Health, Environment and Quality Mgr.
Dawn Kolkman	Environmental Coordinator
Arlene Faunce	RSO in Training
Miriam Whatley	Environmental Coordinator

C. EVALUATION OF PROPOSED CHANGE/TEST

Operations/Technical Review

The SR-HUP Application – Reynolds Ranch Amendment/Chapter 9 (as revised 1/08) describes the position of Director, Compliance and Licensing. The alignment of the site Environmental, Health and Safety Manager reporting to the Director, Compliance and Licensing will promote company compliance with regulatory requirements by providing support to the site Environmental, Health and Safety Manager. The Director also has the responsibility and authority to terminate immediately any activity determined to be a threat to employees or public health, the environment or potentially a violation of state or federal regulations as indicated in reports from the site Environmental, Health and Safety Manager.

Environmental/Safety Review

The proposed organizational realignment is consistent with NRC License SUA-1548 and Regulatory Guide 8.31 and should not compromise the effectiveness of the ALARA and environmental compliance programs.

Compliance Review

Regulatory Guide 8.31 has been reviewed to ensure that the organizational change is consistent with the guidance provided. NRC License SUA-1548 have also been reviewed to ensure that the proposed organizational changes can be effected through the SERP process.

D. CONCLUSIONS

The SERP has concluded that the proposed organizational realignment should be beneficial to the operation of the environmental, health and safety programs and is consistent with NRC License SUA-1548 and Regulatory Guide 8.31 and should not compromise the effectiveness of the ALARA and environmental compliance programs.

SERP Member Signatory Approvals

Signature: Miriam Whalley Date: 2/10/10

Signature: John McCarthy Date: 2/20/10

Signature: ANCEL Date: 2-10-10

Signature: Dawn Kellman Date: 2-10-10

Signature: [Signature] Date: 2.10.10

Signature: Alice Farrow Date: 2-10-10

Signature: Mum Dase Date: 2-10-10

Signature: _____ Date: _____

E. ATTACHEMENTS (if any)



CAMECO RESOURCES
Smith Ranch-Highland
Operation

Inter-Office Memo

To: Tom Cannon

From: Dawn Kolkman

Date: 7/27/10

Cc:

Subject: SERP Alternate Personnel to Perform RSO and Facility Foreman Weekly Inspection
5/10-1

A. SERP Evaluation Checklist

(New) Change, Test and Experiment License Condition

- a. The licensee may, without obtaining a license amendment pursuant to §40.44, and subject to conditions specified in (b) of this condition:
 - 1) Make changes in the facility as described in the license application (as updated).
 - 2) Make changes in the procedures as described in the license application (as updated), and
 - 3) Conduct test or experiments not described in the license application (as updated).
- b. NRC License Condition 9.4b of SUA-1548 requires a license amendment prior to implementing a proposed change, test or experiment. The SERP shall review the Checklist to determine if a license amendment is required prior to implementing a proposed change.

SERP Evaluation Checklist

NRC LICENSE REQUIREMENT	YES	NO	N/A
Results in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated)		X	
Creates a possibility for an accident of a different type than any previously evaluated in the license application (as updated)		X	
Creates a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated)		X	
Results in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or technical evaluation reports (TERs) or other analyses and evaluations for license amendments.		X	

If all questions are answered NO then implementation can begin. If any of the questions are answered YES then an amendment to License must be submitted and approval received from NRC prior to implementation.

B. SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP)

NRC License condition 9.4d of SUA-1548 requires that any changes, test or experiments made under the Performance Based License Condition be evaluated by a SERP consisting of at least three individuals. One member must have management expertise and have the financial and management responsibility for approving changes. The second member must have operational and/or construction expertise and have responsibility for implementing any operational changes. The third member must be the Radiation Safety Officer (RSO), or equivalent (CRSO), with the responsibility of assuring that the proposed activities will conform to radiation safety and environmental requirements. Members selected to perform this SERP review include:

SERP Member	QUALIFICATIONS TITLE
Tom Cannon	General Manager Operations
John McCarthy	RSO
Arlene Faunce	RSO in Training
Mike Bryson	WF Operations Superintendent
Erik Heide	CPP Foreman
Angelo Kallas	SHEQ Mgr.
Dawn Kolkman	SHEQ Coordinator – acting facilitator

C. EVALUATION OF PROPOSED CHANGE/TEST

Operations/Technical Review

The operational and technical reviews were completed during the Operational Review Committee (ORC) process prior to the SERP review. The ORC minutes and supporting documentation contain information (maps, schematics, process descriptions, etc.) regarding discussion of the utilizing designees to perform facility inspections for either the RSO or the facility foreman.

Environmental/Safety Review

Review of Environmental Assessment (EA), dated May 8, 2001 and Safety Evaluation (SER) report dated April, 2001 has been completed. In-Plant Safety is addressed in Section 6.11 of the EA beginning on page 28 and describes that frequent in-house inspections will be required. The NRC considers the program of in-plant safety, as required by Federal regulations, and the radiation safety program, as defined by 10CFR Part 20, to be sufficient to protect the worker during normal operations. Section 9.8 of the SER discusses the management audit and inspection program to allow for acceptable frequencies, types and scopes of reviews and inspections.

The NRC license SUA-1548 provides, in Section 9.15 pg. 9-24, that the EHS staff performs a weekly safety and environmental inspection that covers all major facilities at the SR-HUP, including the CPP areas, Satellites and Wellfields. Additionally, license condition 9.7 describes that CR, in the conduct of its Radiation Protection Program, shall follow the guidance set forth in the US Nuclear Regulatory Commission, Regulatory Guides 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposure at Uranium Recovery Facilities will be As Low as is Reasonably Achievable (ALARA)," or NRC-approved equivalent. This varies somewhat from the Regulatory Guide 8.31 which describes that daily and weekly inspection will be performed, "The RSO and the facility foreman should conduct a weekly inspection of all facility areas to observe general radiation control practices and review required changes in procedures and equipment." Unfortunately, this requires that the RSO be on-site every week and does not allow for absences due to illness, vacation, training, unscheduled workload changes, etc.

Therefore, inspections performed by designated personnel, such as the manner performed for daily inspections should be sufficient. According to the SER (Referenced Item 1 below), problems observed, logged and recorded are to be reviewed by the RSO for corrective actions.

Compliance Review: Documents for review: NRC License, SUA 1548 Amendment 16, pg. 6 and US Nuclear Regulatory Commission, Regulatory Guides 8.31, Section 2.3.1 Daily and Weekly Inspections.

Cultural Review: There will be no cultural issues relevant to this change.

D. CONCLUSIONS

The SERP has reviewed the Permit and below referenced documentation and has determined that the utilization of alternate designees to perform weekly RSO and facility foreman facility inspections would be acceptable.

E. REFERENCES

1. United States Nuclear Regulatory Commission. 2001 "Safety Evaluation Report For The Renewal Of Source Material License No. SUA-1548 Rio Algom Mining Corp. Smith Ranch In-Situ Leaching Facility Converse County, Wyoming", April 2001.
2. United States Nuclear Regulatory Commission. 2001 ""Environmental Assessment for Renewal Of Source Material License No. SUA-1548 Rio Algom Mining Corporation Smith Ranch Uranium Project Converse County, Wyoming", May 2001.

SERP Member Signatory Approvals

Signature: Alan Jan Date: 7/27/10

Signature: John McCarthy Date: 7/27/10

Signature: Michael D. Bryson Date: 7/27/10

Signature: Ar Kill Date: 7-27-10

Signature: [Signature] Date: 7/27/10

Signature: [Signature] Date: 7.27.10

Signature: Dawn Kolkman Date: 7.27.10

Signature: _____ Date: _____

F. ATTACHEMENTS (if any)

Refer to the above referenced documents and the ORC minutes.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
SUA-1548Docket or Reference Number
40-8964

Amendment No. 16

- 9.7 In the conduct of its Radiation Protection Program, the licensee shall follow the guidance set forth in U.S. Nuclear Regulatory Commission, Regulatory Guides 8.22, "Bioassay at Uranium Mills," 8.30, "Health Physics Surveys in Uranium Recovery Facilities," and 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposure at Uranium Recovery Facilities will be As Low as is Reasonably Achievable (ALARA)," or NRC-approved equivalent.

- 9.8 The licensee is hereby exempted from the requirements of 10 CFR §20.1902(e) for areas within the facility, provided that all entrances to the facility are conspicuously posted in accordance with §20.1902(e) and with the words, "ANY AREA WITHIN THIS FACILITY MAY CONTAIN RADIOACTIVE MATERIAL."

- 9.9 Before engaging in any developmental activity not previously assessed by the NRC, the licensee shall administer a cultural resource inventory. All disturbances associated with the proposed development will be completed in compliance with the National Historic Preservation Act (as amended) and its implementing regulations (36 CFR 800), and the Archaeological Resources Protection Act (as amended) and its implementing regulations (43 CFR 7).

Before engaging in any development activity in T35N, R74W that would physically disrupt or disturb inventoried cultural sites that have been designated eligible for the National Register of Historic Places, the licensee shall propose mitigation measures, for NRC review and approval, which will preserve the integrity of these sites, as defined by the Advisory Council on Historic Preservation. These include inventoried sites 48CO352, 48CO1288, 48CO1289, 48CO1291, 48CO2462, 48CO2463, and 48CO2464.

In order to ensure that no unapproved disturbance of cultural resources occurs, any work resulting in the discovery of previously unknown cultural artifacts shall cease. The artifacts shall be inventoried and evaluated in accordance with 36 CFR Part 800, and no disturbance of the area shall occur until the licensee has received authorization from the NRC to proceed.

For the Gas Hills Project, the licensee shall comply with the stipulations for cultural resource protection in the Programmatic Agreement provided in the NRC letter to the Advisory Council on Historic Preservation, dated December 18, 2003.

For the Reynolds Ranch Project, prior to any developmental activity conducted in the following list of Sections, the licensee shall administer a cultural resource inventory in any area of the Section not previously inventoried: T36N R73W Sec 5, Sec 7, Sec 17, and Sec 18; T36N R74W Sec 11, Sec 12, Sec 13, and Sec 14; and T37N, R73W Sec 30.

[Applicable Amendments: 6, 11, 12]

- 9.10 The licensee shall provide buffer zones and construct its facilities in accordance with the recommendations made in its historical consultant's report submitted May 7, 1991, in order to prevent diverse effects upon historic and prehistoric resources found in the State permit area. Land disturbance plans and well-field facility design shall be coordinated with NRC and the Bureau of Land Management in Mills, Wyoming.

For work on nonroutine maintenance jobs when the potential for exposure to radioactive material exists and for which no standard written operating procedure already exists, a radiation work permit (RWP)⁴ should be used. Such permits should describe the following:

1. The details of the job to be performed,
2. Any precautions necessary to reduce exposure to uranium and its daughters,
3. The radiological monitoring and sampling necessary before, during, and following completion of the job.

The RSO should indicate by signature the review of each RWP prior to the initiation of work, and the work should be carried out in strict adherence to the conditions of the RWP. The RSO should designate a member of the radiation safety office staff or a supervisory member of the production staff who has received specialized radiation protection training to review and sign RWPs when the RSO is not available, e.g., during off shifts.

2.3 Surveillance: Audits and Inspections

With sufficient management interest, exposure to hazardous materials is reduced. Frequent management audit and inspection of worker health protection practices at a UR facility can serve to provide management with the information necessary to conduct an appropriate ALARA program.

2.3.1 Daily and Weekly Inspections

The RSO and the facility foreman should conduct a weekly inspection of all facility areas to observe general radiation control practices and review required changes in procedures and equipment. The RSO or designated health physics technician should conduct a daily walk-through (visual) inspection of all work and storage areas of the facility to ensure proper implementation of good radiation safety procedures, including good housekeeping and cleanup practices that would minimize unnecessary contamination. Problems observed during all inspections should be noted in writing in an inspection logbook or other retrievable record format. The entries should be dated, signed, and maintained on file for at least 1 year. The RSO should review all violations of radiation safety procedures or other potentially hazardous problems with the resident manager or other mill employees who have authority to correct the problem. Also, the RSO should review the daily work-order and shift logs on a regular basis to determine that all jobs and operations with a potential for exposing personnel to uranium, especially those RWP jobs that would require a radiation survey and monitoring, were approved in writing by the RSO, the RSO's staff, or the RSO's designee prior to initiation of work.

2.3.2 Monthly Reviews

At least monthly, the RSO should review the results of daily and weekly inspections, including a review of all monitoring and exposure data for the month. The RSO should provide to

⁴The term "radiation work permit" is used by many licensees and will be used throughout this guide; other terms such as "special work permit" are equally acceptable.



CAMECO RESOURCES
Smith Ranch-Highland
Operation

Inter-Office Memo

To: Tom Cannon

From: Dawn Kolkman

Date: 7/19/2010

Cc:

Subject: ORC/SERP 07/10-1 - F-200 & 300 Sampling SR-HUP

A. SERP Evaluation Checklist

(New) Change, Test and Experiment License Condition

- a. The licensee may, without obtaining a license amendment pursuant to §40.44, and subject to conditions specified in (b) of this condition:
 - 1) Make changes in the facility as described in the license application (as updated).
 - 2) Make changes in the procedures as described in the license application (as updated), and
 - 3) Conduct test or experiments not described in the license application (as updated).
- b. NRC License Condition 9.4b of SUA-1548 requires a license amendment prior to implementing a proposed change, test or experiment. The SERP shall review the Checklist to determine if a license amendment is required prior to implementing a proposed change.

SERP Evaluation Checklist

NRC LICENSE REQUIREMENT	YES	NO	N/A
Results in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated)		✓	
Results in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated)		✓	
Results in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated)		✓	
Results in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated)		✓	
Creates a possibility for an accident of a different type than any previously evaluated in the license application (as updated)		✓	
Creates a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated)		✓	
Results in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or technical evaluation reports (TERs) or other analyses and evaluations for license amendments.		✓	

If all questions are answered NO then implementation can begin. If any of the questions are answered YES then an amendment to License must be submitted and approval received from NRC prior to implementation.

B. SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP)

NRC License condition 9.4d of SUA-1548 requires that any changes, test or experiments made under the Performance Based License Condition be evaluated by a SERP committee consisting of at least three individuals. One member must have management expertise and have the financial and management responsibility for approving changes. The second member must have operational and/or construction expertise and have responsibility for implementing any operational changes. The third member must be the Radiation Safety Officer (RSO) with the responsibility of assuring that the proposed activities will conform to radiation safety and environmental requirements. Members selected to perform this SERP review include:

SERP Member	QUALIFICATIONS TITLE
Tom Cannon	General Operations Mgr.
John McCarthy	Assistant Manager, Safety, Health, Environment and Quality (SHEQ) and RSO
Toby Hewitt	Restoration Superintendent
Bev Johnson	Environmental Specialist
Dawn Kolkman	Environmental Coordinator

C. EVALUATION OF PROPOSED CHANGE/TEST

Operations/Technical Review

The operational and technical reviews were completed during the Operational Review Committee (ORC) process prior to the SERP review. The ORC minutes and supporting documentation contain information concerning the proposed change to the application to combine the radium-226 sample downstream of the Barium Treatment Systems in Sat. 2 & 3 to one sample point downstream of the Selenium Plant.

Environmental/Safety Review

Review of the Technical Evaluation Report (TER) attached to the License Amendment No. 53 authorizing the operation of a second irrigation facility under license SUA-1511, dated June 10, 1994 was completed. The TER concluded the monitoring program as described in the proposed amendment, Section 4.0 of the SWLA, would be incorporated into License Conditions No.(s) 11.4 and 12.2 to ensure reporting requirements were met. Section 4.2 Wastewater Quality and Quantity Monitoring of the proposed amendment, second paragraph states: "To ensure that the radium treatment system is operating properly, a monthly grab sample will be obtained downstream of the radium treatment system and analyzed for radium-226."

Review of the Reynolds Ranch Environmental Assessment, dated November 2006 and Safety Evaluation Report (SER) dated January 2007 has been completed and the proposed change is consistent with the findings.

License Condition 11.6 of Source Materials License, SUA-1548 states: "The licensee shall establish an effluent and environmental monitoring program in accordance with Section 5.3 of the application dated May 6, 2003, as amended."

Section 5.3 "Effluent and Environmental Monitoring" of the approved Amendment No. 11, January 31, 2007 for Reynolds Ranch describes the current monitoring program as referenced in License Condition No. 11.6. Specifically, 5.3.7.2 "Radium Treatment Sampling" states: "Monthly grab samples are collected for the radium treatment system at each satellite to assure that the barium chloride treatment system is reducing radium-226 to acceptable concentrations (less than Effluent Concentration Limit of 60 pCi/l (6.0E-8µCi/l))....."

Cameco Resources' Safety, Health, Environment and Quality (SHEQ) Management System, Volume VI describes our current monitoring program. Section 3.12.2 and 3.12.3 states: "The monthly grab sample for Highland Satellite No. 2 is obtained at the discharge from the radium treatment system, downstream of the filter press and bag filters at the sampling port identified as F-200. This sample is designated the "F-200" sample.". "The monthly grab sample for Highland Satellite No. 3 is obtained at the discharge from the

radium treatment system, downstream of the filter press and bag filters at the sampling port identified as F-300. This sample is designated the "F-300" sample."

Safety: Safety considerations for sampling will be consistent with Cameco Resources' requirements as described in the Management System and no additional requirements will be necessary. A change in monitoring location will not introduce additional safety considerations.

Cultural: As stated in SUA-1548, condition 9.9, "In order to ensure that no unapproved disturbance of cultural resources occurs, any work resulting in the discovery of previously unknown cultural artifacts shall cease. The artifacts shall be inventoried and evaluated in accordance with 36CFR Part 800, and no disturbance of the area shall occur until the licensee has received authorization from the NRC to proceed." A change in the monitoring location will not impact cultural sites as the sample will be collected within the Selenium Plant.

Security and Environmental Concerns: The sampling location is located within the Selenium Plant which is adjacent to Satellite 2 and has incorporated our site security. The doors are key coded and under surveillance daily.

Compliance Review: Documents for review: NRC License, SUA 1548 (Amendment 11, January 31, 2007) and supporting documents, Cameco Resources' SHEQ Management System, SUA-1511, Amendment No. 53, June 10, 1994.

D. CONCLUSIONS

The proposed change is consistent with the reviewed documents and meets the requirements of the sampling procedure as described in the original amendment application, June 10, 1994. The Selenium Plant will become the single point of radium removal in the wastewater circuit and as such, only one point for compliance sampling will be available.

E. REFERENCES

1. United States Nuclear Regulatory Commission. 2007 "Environmental Assessment for the Addition of the Reynolds Ranch Mining Area to Power Resources, Inc's Smith Ranch/Highlands Uranium Project Converse County, Wyoming", November 2006
2. United States Nuclear Regulatory Commission. 2007 "Safety Evaluation Report Amendment No. 11 to Source Material License No. SUA-1548 Addition of Reynolds Ranch-Highland Uranium Project (SR-HUP) Converse County, Wyoming", January 2007.

3. United States Nuclear Regulatory Commission. 2007, Amendment No. 11 to Source Material License No. SUA-1548. Addition of Reynolds Ranch-Highland Uranium Project (SR-HUP) Converse County, Wyoming", January, 2007.
4. United States Nuclear Regulatory Commission. June 10, 1994, Technical Evaluation Report authorizing Power Resources, Inc's to operate a second effluent storage irrigation facility at the Highlands Uranium Project, Satellite 2 facility.
5. SHEQ Management System, Environmental, Vol. VI

5.
SERP Member Signatory Approvals

Signature: [Signature] Date: 7/19/10

Signature: [Signature] Date: 7.19.10

Signature: [Signature] Date: 7-19-10

Signature: [Signature] RESO Date: 7/19/10

Signature: Dawn C. Folkman Date: 7/19/10

Signature: _____ Date: _____

Signature: _____ Date: _____

Signature: _____ Date: _____

E. ATTACHMENTS (if any)

Refer to the above referenced documents and the ORC minutes.

Surface water sampling for locations for the Reynolds Ranch amendment area will be determined and added to the monitoring plan as wellfield operations commence.

5.3.7 Wastewater Land Application Facilities Monitoring Program

5.3.7.1 General

To assist in assessing impacts of irrigating treated wastewater at the Satellite No. 1 and Satellite No. 2 Wastewater Land Application Facilities (Irrigation Areas) the irrigation water, soil, and vegetation are monitored for various constituents including natural uranium and radium-226. This monitoring program has been in place since the start of each facility. Results of the monitoring program are reported to the NRC in the Semi-Annual Report and to the WDEQ-LQD in the Annual Report. The monitoring programs for the Satellite No. 1 and Satellite No. 2 Wastewater Land Application Facilities are shown in Tables 5-8 and 5-9, respectively.

5.3.7.2 Radium Treatment Sampling

Monthly Grab sample(s) are collected downstream from the radium treatment system ~~at each Satellite~~ to assure that the barium chloride treatment system is reducing radium-226 to acceptable concentrations (less than the Effluent Concentration Limit of 60 pCi/L (6.0E-8 μ Ci/mL)). Monitoring data collected throughout the life of the project shows that the treatment system is very effective in reducing radium-226 concentrations to levels below the Effluent Concentration Limit (ECL).

The result of monitoring data for the radium treatment system at Satellite No. 1 for the period 1995 through 1999 shows a mean radium-226 concentration of 9.25 E-9 μ Ci/mL which is 15% of the ECL. The results of monitoring data for the radium treatment system at Satellite No. 2 for the period 1995 through 1999 shows a mean radium-226 concentration of 2.51 E-8 μ Ci/mL, which is 42% of the ECL. Monitoring data for the Satellite No. 3 treatment system, which has only been operational since January 1999, shows a mean radium-226 concentration of 2.12 E-8 μ Ci/mL (35% of the ECL) for the period January 1999 through December 1999.

5.3.7.3 Irrigation Fluid Sampling

The irrigation fluid quality has been monitored at both irrigation facilities since irrigation operations started. Review of the irrigation fluid monitoring results at the Satellite No. 1 facility, for the period 1989 through 1999, shows the following mean concentrations of natural uranium and radium-226 (weighted by volume of water applied):

permeability shales and mudstones will prevent any seepage from reaching these zones.

4.0 OPERATIONAL MONITORING PLAN

4.1 General

The proposed operational monitoring plan for the proposed Satellite No. 2 facilities is consistent with the current monitoring plan approved in WDEQ-WQD Permit No. 92-077 and utilized at the operating Satellite No. 1 facilities, and is also based on recommendations of WDEQ personnel. The proposed operational monitoring plan is adequate to assess changes in soil and vegetation conditions and will allow PRI to determine whether or not any changes to the irrigation practices are necessary (i.e., application rates, soil amendments, etc.). The Wastewater Land Application Facility will be visually inspected on a daily basis during operation. The same "sampling protocols" utilized for the Satellite No. 1 facilities will be utilized for monitoring at the proposed facilities.

4.2 Wastewater Quality and Quantity Monitoring

During periods of wastewater land application (irrigation), the irrigation fluid will be sampled daily, composited, and analyzed at least every 30 days of operation for the parameters listed in Table 7. The quantity of irrigation fluid applied will be determined for each irrigation period by multiplying the time that irrigation occurred by the actual irrigation rate (gpm).

To ensure that the radium treatment system is operating properly, a monthly grab sample will be obtained downstream of the radium treatment system and analyzed for radium-226.

4.3 Soil Water, Soil and Irrigated Vegetation Monitoring at the Wastewater Land Application Facility Area

Consistent with recommendations of WDEQ-WQD personnel, two porous cup lysimeters will be installed to depths of four feet. Soil water samples will be obtained in June of each year and analyzed for the parameters in Table 7. Consistent with additional recommendations of WDEQ-LQD personnel, two shallow wells (10 to 15 ft deep) will be installed at the locations shown on Plate 1. The water levels in these wells will be determined quarterly and if water is present it will be sampled semi-annually for the parameters in Table 7. Data collected from these two wells will determine if any water is seeping laterally to the reservoir.



CAMECO RESOURCES
Smith Ranch-Highland
Operation

Inter-Office Memo

To: Tom Cannon

From: Dawn Kolkman

Date: 10/27/10

Cc: Angelo Kallas, Eric Heide, John McCarthy

Subject: Cameco Resources Organizational Restructure – ORC #10/10-2

Change Summary

The Cameco Resources President issued a memo notifying personnel at the Smith Ranch operation, that the responsibility of the SHEQ group will be split into two groups at the divisional level. One group is accountable for implementing the Safety, Health, Environmental and Quality Program. The other group will be accountable for radiation safety programs, regulatory affairs including licensing/permitting. Both positions will report directly to the President.

The position description of Director, Compliance and Licensing is provided in the SUA-1548 License Application; however, it is being revised into two positions to include a new Director, Radiation Safety and Licensing position and the Director, Safety, Health, Environment and Quality. A discussion of the change is provided on the Change Control Form.

The change entails modifying the reporting structure of the Director of SHEQ, the site Manager, SHEQ, the site RSO, and the addition of the management position, Director of Radiation Safety and Licensing. The Safety Supervisor has been relabeled as the Safety Officer and the Radiation Safety Technician has been relabeled as a Health Physics Technician. A copy of the change is attached.

A. SERP Evaluation Checklist

(New) Change, Test and Experiment License Condition

- a. The licensee may, without obtaining a license amendment pursuant to §40.44, and subject to conditions specified in (b) of this condition:

- 1) Make changes in the facility as described in the license application (as updated).
 - 2) Make changes in the procedures as described in the license application (as updated), and
 - 3) Conduct test or experiments not described in the license application (as updated).
- b. NRC License Condition 9.4b of SUA-1548 requires a license amendment prior to implementing a proposed change, test or experiment. The SERP shall review the Checklist to determine if a license amendment is required prior to implementing a proposed change.

SERP Evaluation Checklist

NRC LICENSE REQUIREMENT	YES	NO	N/A
Results in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated)		X	
Results in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated)		X	
Creates a possibility for an accident of a different type than any previously evaluated in the license application (as updated)		X	
Creates a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated)		X	
Results in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or technical evaluation reports (TERs) or other analyses and evaluations for license amendments.		X	

If all questions are answered NO then implementation can begin. If any of the questions are answered YES then an amendment to License must be submitted and approval received from NRC prior to implementation.

B. SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP)

NRC License condition 9.4d of SUA-1548 requires that any changes, test or experiments made under the Performance Based License Condition be evaluated by a SERP consisting of at least three individuals. One member must have management expertise and have the financial and management responsibility for approving changes. The second member must have operational and/or construction expertise and have responsibility for implementing any operational changes. The third member must be the Radiation Safety Officer (RSO), or equivalent (CRSO), with the responsibility of assuring that the proposed activities will conform to radiation safety and environmental requirements. Members selected to perform this SERP review include:

SERP Member	QUALIFICATIONS TITLE
Tom Cannon	General Manager of Operations
Eric Heide	CPP Supervisor (Designee for GM)
John McCarthy	RSO
Shawn Praska	Human Resources Site Supervisor
Dawn Kolkman	Environmental Coordinator

C. EVALUATION OF PROPOSED CHANGE/TEST

Operations/Technical Review

The operational and technical reviews were completed during the Operational Review Committee (ORC) process prior to the SERP review. The ORC minutes and supporting documentation contain information regarding the changes to roles and responsibilities as defined in the SR-HUP Application – Reynolds Ranch Amendment/Chapter 9 (as revised 1/08) which provides a description for the management system at Smith Ranch. Figure 9-1 is an organizational chart which illustrates the reporting structure. The SERP discussed the following items.

Environmental/Safety Review

The 2006 Environmental Assessment for the Addition of Reynolds Ranch does not provide a section describing the organizational structure; however, the Safety Evaluation Report (SER) from 2007 does. SER Amendment No. 11 Addition of Reynolds Ranch ISL Satellite Facility, January 2007, Chapter 5 Section 5.1.1 provides for a Corporate Organization and Administrative Procedure. Section 5.1.1 indicates that the administrative structure is, “detailed in the application and other related correspondence [PRI 2004 (Section 9.5) and 2006a]” and that figure 1 shows a current partial organization chart for SR-HUP. A review of the license application reveals that the Corporate Organization and Administrative Procedure is in Section 9.5

As discussed during the technical review performed by the ORC, the RSO will report directly to the General Manager of Operations; however, will remain responsible for other safety related duties, such as responsibility for programs of industrial hygiene but will not have a direct production-related responsibility as required by Regulatory Guide 8.31 Section 2.1

Cultural: There are no cultural effects related to this change

Security Concerns: There will be no changes to security on-site as a result of the organizational change. Security will remain as is.

Compliance Review

Regulatory Guide 8.31 has been reviewed to ensure that the organizational change is consistent with the guidance provided. The change of having the RSO report directly to the General Manager of Operations is in direct alignment with Section 2.1 which states, “*Generally, the RSO will report directly to the resident manager on matters of radiation safety.*”

Regulatory Guide 3.5, Section 5.1 outlines the information applicants should include and “provide a detailed description of the applicant’s organization including authority and responsibility of each level of management.”

D. CONCLUSIONS

The SERP has concluded that the proposed organizational realignment should be beneficial to the operation of the environmental, health and safety programs and is consistent with NRC License SUA-1548 and Regulatory Guide 8.31 and should not compromise the effectiveness of the ALARA and environmental compliance programs.

E. REFERENCES

1. United States Nuclear Regulatory Commission. 2007 "Environmental Assessment for the Addition of the Reynolds Ranch Mining Area to Power Resources, Inc's Smith Ranch/Highlands Uranium Project Converse County, Wyoming", November 2006
2. United States Nuclear Regulatory Commission. 2007 "Safety Evaluation Report Amendment No. 11 to Source Material License No. SUA-1548 Addition of Reynolds Ranch-Highland Uranium Project (SR-HUP) Converse County, Wyoming", January 2007.
3. United States Nuclear Regulatory Commission. 2007 License Application SUA 1548 Addition of Reynolds Ranch-Highland Uranium Project.
4. United States Nuclear Regulatory Commission Regulatory Guide 8.3, Section 2.1
5. United States Nuclear Regulatory Commission Regulatory Guide 3.1, Section 5.1

C. EVALUATION OF PROPOSED CHANGE/TEST

Operations/Technical Review

Environmental/Safety Review

Compliance Review

D. CONCLUSIONS

SERP Member Signatory Approvals

Signature: *Steve Dine* Date: 10/26/10

Signature: *John McCarthy RSO* Date: 10/26/10

Signature: *[Signature]* Date: 10/26/10

Signature: *Dawn Kalkman* Date: 10/26/10

Signature: _____ Date: _____

Signature: _____ Date: _____

Signature: _____ Date: _____

Signature: _____ Date: _____

E. ATTACHEMENTS (if any)