Cameco

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February 26, 2009

ATTN: Document Control Desk

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Two White Flint North
Rockville, MD 20852-2738

RE: Smith Ranch-Highland Uranium Project
NRC License SUA-1548, Docket No. 40-8964, Semi-Annual Effluent and Environmental Monitoring Report, July 1 – December 31, 2008

Dear Mr. McConnell:

In accordance with 10 CFR 40.65 and per License Condition No. 12.2 of License SUA-1548, please find enclosed the Semi-Annual Effluent and Environmental Monitoring Report for the Smith Ranch-Highland Uranium Project. This report covers the period July 1 – December 31, 2008. A copy of this report is also being forwarded to Mr. Douglas Mandeville, USNRC Headquarters, and Mr. Leonard Wert, Director DRSS, Region IV.

If you have questions regarding the report, please contact me at (307) 358-6541, ext. 462.

Sincerely,

Krista Wenzel
Manager, Environment, Health and Safety

Attachment: Semi-Annual Report

cc: Mr. Douglas Mandeville, USNRC Headquarters
Mr. Leonard Wert, Director DRSS, Region IV, USNRC
S. Bakken w/atta
J. McCarthy, RSO w/atta
T. Cannon w/o atta
S. Collings w/o atta
A. Faunce, Asst. RSO w/atta
File SR 4.6.4.1

POWER RESOURCES, INC.

SMITH RANCH - HIGHLAND URANIUM PROJECT

SEMI-ANNUAL EFFLUENT AND ENVIRONMENTAL MONITORING REPORT

FOR THE PERIOD

JULY 1 THROUGH DECEMBER 31, 2008

USNRC SOURCE MATERIAL LICENSE NO. SUA-1548

DOCKET NO. 40-8964

TABLE OF CONTENTS

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 since restoration activities in the A and B Wellfield are complete. 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 these facilities 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 from Satellite No. 2 and No. 3 is treated for uranium and radium removal and pumped to the Satellite No. 2 Purge Storage Reservoir prior to disposal by irrigation at the Satellite No. 2 Land Application Facility. Purge from Satellite SR-1 and the CPP is disposed by deep 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, PRI 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 standby status and is anticipated to maintain that status during several upcoming report periods. All yellowcake processing activities (elution, precipitation, drying, and packaging) were conducted at the Smith Ranch Central Processing Plant. The dryers at the Smith Ranch Central Processing Plant are zero emission vacuum dryers that do not require emission stack testing. No stack tests were conducted during the report period.

3.2 Air Particulate, Radon, and Gamma Radiation Monitoring

PRI maintains five Air Monitoring Stations at various locations on and around the licensed area. Two of these stations are used to monitor downwind conditions of the Highland CPF, and monitoring is not required unless the CPF is in operation. The Air Monitoring Stations are used to monitor air particulates, radon, and gamma radiation. The stations are located as follows:

- AS-1 (Dave's Water Well): This station monitors background conditions, upwind of both the Smith Ranch and HUP wellfields and yellowcake processing facilities.

- AS-2 (Smith Ranch Restricted Area-Fenceline): This station monitors conditions downwind of the Smith Ranch CPP Restricted Area Boundary.

- AS-3 (Vollman Ranch): This station monitors the nearest downwind resident to the Smith Ranch CPP Restricted Area.

- AS-4 (HUP Restricted Area): This station monitors conditions downwind of the HUP CPF Restricted Area Boundary (when the HUP CPF is operating).

- AS-5 (Fowler Ranch): This station monitors the nearest downwind resident to the HUP CPF Restricted Area (when the HUP CPF is operating).

Monitoring at AS-4 and AS-5 was not conducted during the reporting period since the Highland CPF remains on standby status. Monitoring of downwind air stations will only resume if the Highland CPF becomes operational.

Table 2 shows the air particulate and radon data collected at these sites 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.

Gamma radiation data for the report period are provided in Table 3. 10 CFR 20 Appendix B contains no Effluent Concentration Limit for gamma radiation for comparison. Gamma results for the report period show a slightly higher concentration for background monitoring station for the 4th quarter, but are still within normal range.

3.3 Water Sampling Data

3.3.1 *Groundwater and Surface Water Monitoring Stations*

During the report period, monitoring was completed at nine water wells (Stations GW-1, 2, 4, 9, 11, 13, 14, 15, and 20) and five stock ponds (Stations SW-3, 5, 6, 7, abd 8) throughout the

permit area. Water samples are collected from the water wells and stock ponds on a quarterly basis for analysis of uranium and radium-226. Table 4 provides the analytical data for samples collected during the report period. A review of data collected during the report period shows that five stock ponds (Stations SW- 1, 2, 4, 9, and 10) remained dry during the report period and nine water wells (GW- 3, 5, 6, 8, 10, 12, 16, 17, and 18) did not run during the report period. A review of data collected from the nine water wells and five stock ponds show that the concentrations of uranium and radium-226 are well below the 10 CFR 20, Appendix B, Effluent Concentration Limits of 3.0E-07 μCi/mL and 6.0E-08 μCi/mL, respectively.

3.4 Wastewater Land Application Facilities Monitoring

3.4.1 *Soil and Vegetation Sampling*

In accordance with the approved license application 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 2008 soil and vegetation sampling at the irrigation areas was conducted in August 2008, and results are shown in Tables 5, 6, 7A and 7B.

3.4.2 *Irrigation Fluid*

PRI 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 1 did not operate during the report period.

Irrigation fluid data collected at Satellite No. 2 is provided in Table 9. A review of the data indicates that the concentration of uranium in the monthly grab samples were slightly above the 10 CFR 20, Appendix B, Effluent Concentration Limit of 3.0 E-7 μCi/ml, but were lower than the estimate provided in the original license application for the facility (1.4E-6 μCi/ml) The samples contained radium-226 concentrations well below the 10 CFR 20, Appendix B, Effluent Concentration Limit of 6.0E-08 μCi/ml and above the estimate provided in the original license application for the facility (3.0E-9 μCi/ml)

3.4.3 *Radium Treatment Systems*

PRI 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 the Purge Storage Reservoir. No samples were collected from the Satellite No. 1 radium treatment system since it 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 points of the radium treatment system at each facility. The results of this monitoring are included in Table 10A, and 10B. Review of the monitoring data shows that all radium-226 concentrations were below the 10 CFR 20, Appendix B, Effluent Concentration Limit of 6.0E-8 μCi/ml (60 pCi/L) at both Satellite No. 2 and Satellite

No. 3 during the report period

3.4.4 *Soil Water*

PRI collects soil water samples at the irrigation areas in June of each year and analyzes them for various parameters, including uranium and radium-226. The 2008 sampling was not conducted until July 24, 2008, due to an error in scheduling. As shown in Table 11A and 11B, the relatively limited amount of irrigation resulted in insufficient soil water available to produce a sample at any of the sample locations for the Satellite No. 1 and Satellite No. 2 irrigation areas.

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 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. It is unlikely there will be any seepage from PSR-1 in the following report periods.

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 the Satellite No. 2 Purge Storage Reservoir (PSR-2). PRI 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. During the report period, monitoring was conducted on July 23 and December 10, 2008.

4.0 ANNUAL DOSE TO THE PUBLIC (2008)

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 13 compares the 2008 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 unrestricted area sampling locations (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 13, 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. Summaries of the completed SERP evaluations are provided in Attachment B. During the period July 1 through December 31, 2008, PRI completed the following Safety and Environmental Evaluations:

Safety and Environmental Evaluation - Dated October 23, 2008 for EHS Management Replacement and addition of Assistant EHS Manager/RSO

Safety and Environmental Evaluation - Dated October 23, 2008 Mine Unit-9 Hydrologic Test Report

ATTACHMENT A

DATA TABLES 1-13

TABLE 1A
SATELLITE NO. 1 INJECTION RATES, RECOVERY RATES, INJECTION PRESSURES

MONTH	Injection Pressure (PSI) RO #1	RO #2	RO #3	Grounwater Sweep GPM	Radium Ponds GPM	RO Feed GPM	Injection GPM	RO Concentrate GPM	Purge Flow GPM
Jul-08	0	0	0	0	0	0	0	0	0
Aug-08	0	0	0	0	0	0	0	0	0
Sep-08	0	0	0	0	0	0	0	0	0
Oct-08	0	0	0	0	0	0	0	0	0
Nov-08	0	0	0	0	0	0	0	0	0
Dec-08	0	0	0	0	0	0	0	0	0

TABLE 1B
AVERAGE INJECTION RATES (GPM)

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2
Jul-08	2,050	2,540	3,287	3,124	
Aug-08	2,097	2,583	3,387	3,689	
Sep-08	2,152	2,638	2,822	3,768	
Oct-08	2,118	2,686	2,518	3,632	
Nov-08	2,097	2,843	2,495	3,599	
Dec-08	2,099	2,875	2,441	3,297	982

TABLE 1C
AVERAGE RECOVERY RATES (GPM)

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2
Jul-08	2,069	2,589	3,322	3,157	
Aug-08	2,116	2,639	3,419	3,724	
Sep-08	2,171	2,692	2,849	3,808	
Oct-08	2,118	2,745	2,535	3,657	
Nov-08	2,097	2,903	2,512	3,624	
Dec-08	2,099	2,932	2,457	3,318	860

TABLE 1D
INJECTION TRUNK LINE PRESSURES (PSI)

MONTH	Satellite No. 2	Satellite No. 3	Central Processing Plant	Satellite SR-1	Satellite SR-2
Jul-08	95	135	138	76	
Aug-08	105	143	146	86	
Sep-08	111	142	136	78	
Oct-08	103	143	148	90	
Nov-08	92	133	147	89	
Dec-08	103	116	162	91	125

TABLE 2

AIR SAMPLING DATA
ENVIRONMENTAL MONITORING SITES
3rd and 4th Quarters 2008

SAMPLE LOCATION	SAMPLE PERIOD	RADIONUCLIDE (µCi/ml)	CONCENTRATION (µCi/ml)	ERROR EST. +/- (µCi/ml)	L.L.D. (µCi/ml)	EFF. CONC. LIMIT (µCi/ml)	% EFF. CONC. LIMIT %
AS-1							
DAVE'S WATER WELL	3rd	U-Nat	1.20E-16	N/A	1.00E-16	9.00E-14	0.1
Air Station	Quarter	Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	< 1.0
Background		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	< 1.0
Site		Pb-210	1.03E-14	2.88E-15	2.00E-15	6.00E-13	1.7
		Rn-222			3.00E-10	1.00E-08	0.0
	4th	U-Nat	<1.00E-16	N/A	1.00E-16	9.00E-14	< 1.0
	Quarter	Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	< 1.0
		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	< 1.0
		Pb-210	<2.00E-15	N/A	2.00E-15	6.00E-13	< 1.0
		Rn-222	9.00E-10		3.00E-10	1.00E-08	9
AS-2							
FENCE LINE	3rd	U-Nat	1.49E-16	N/A	1.00E-16	9.00E-14	0.2
Air Station	Quarter	Th-230	1.97E-16	4.75E-17	1.00E-16	3.00E-14	0.7
Restricted Area		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	< 1.0
Boundary		Pb-210	1.43E-14	3.11E-15	2.00E-15	6.00E-13	2.4
		Rn-222			3.00E-10	1.00E-08	
	4th	U-Nat	<1.00E-16	N/A	1.00E-16	9.00E-14	< 1.0
	Quarter	Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	< 1.0
		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	< 1.0
		Pb-210	<2.00E-15	N/A	2.00E-15	6.00E-13	< 1.0
		Rn-222	1.60E-09		3.00E-10	1.00E-08	16.0
AS-3							
VOLLMAN RANCH	3rd	U-Nat	3.18E-16	N/A	1.00E-16	9.00E-14	0.4
Air Station	Quarter	Th-230	1.44E-16	4.39E-17	1.00E-16	3.00E-14	< 1.0
Downwind Nearest		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	< 1.0
Residence		Pb-210	7.42E-15	2.88E-15	2.00E-15	6.00E-13	1.2
		Rn-222			3.00E-10	1.00E-08	0.0
	4th	U-Nat	<1.00E-16	N/A	1.00E-16	9.00E-14	< 1.0
	Quarter	Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	< 1.0
		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	< 1.0
		Pb-210	<2.00E-15	N/A	2.00E-15	6.00E-13	< 1.0
		Rn-222	2.50E-09		3.00E-10	1.00E-08	25.0
AS-4		**STANDBY**					
HUP RESTRICTED AREA		**STATUS**					
AS-5		**STANDBY**					
FOWLER RANCH		**STATUS**					

TABLE 3

DIRECT RADIATION (GAMMA) MEASUREMENT DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2008

SAMPLE LOCATION	SAMPLE PERIOD	EXPOSURE RATE (mR/qtr)
FENCE LINE		
Air Station	3rd Quarter	43
Restricted Area Boundary	4th Quarter	49
VOLLMAN'S RANCH		
Air Station	3rd Quarter	35
Downwind Nearest Residence	4th Quarter	47
DAVE'S WATER WELL		35
Air Station	3rd Quarter	
Background Site	4th Quarter	41
HUP RESTRICTED AREA	**STANDBY STATUS**	
FOWLER RANCH	**STANDBY STATUS**	
CONTROL	3rd Quarter	40
	4th Quarter	50

Background has not been deducted

TABLE 4

WATER SAMPLING DATA
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2008

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	EFF. CONC. LIMIT (µCi/ml)	% EFF. CONC. LIMIT
SW-1 Stock Pond Section 3 T35N, R74W	3rd Quarter	U-Nat	Dry All Quarter				3.0E-07	0.0
		Ra-226					6.0E-08	0.0
	4th Quarter	U-Nat	Dry all Quarter				3.0E-07	0.0
		Ra-226					6.0E-08	0.0
SW-2 Stock Pond Section 2 T35N, R74W	3rd Quarter	U-Nat	Dry All Quarter				3.0E-07	0.0
		Ra-226					6.0E-08	0.0
	4th Quarter	U-Nat	Dry All Quarter				3.0E-07	0.0
		Ra-226					6.0E-08	0.0
SW-3 Stock Pond Section 35 T36N, R74W	3rd Quarter	U-Nat	0.126			8.5E-08	3.0E-07	28.4
		Ra-226		0.52	1.70E-01	2.2E-10	6.0E-08	0.4
	4th Quarter	U-Nat	Dry All Quarter				3.0E-07	0.0
		Ra-226					6.0E-08	0.0
SW-4 Stock Pond Section 36 T36N, R74W	3rd Quarter	U-Nat	Dry All Quarter				3.0E-07	0.0
		Ra-226					6.0E-08	0.0
	4th Quarter	U-Nat	Dry All Quarter				3.0E-07	0.0
		Ra-226					6.0E-08	0.0
SW-5 Stock Pond Section 21 T36N, R73W	3rd Quarter	U-Nat	0.001			6.8E-10	3.0E-07	0.2
		Ra-226		ND	1.20E-01	2.2E-10	6.0E-08	0.4
	4th Quarter	U-Nat	0.0005			3.4E-10	3.0E-07	0.1
		Ra-226		0.30	1.30E-01	2.2E-10	6.0E-08	0.4
SW-6 Stock Pond Section 22 T36N, R73W	3rd Quarter	U-Nat	0.0003			2.0E-10	3.0E-07	0.1
		Ra-226		0.87	2.70E-01	2.2E-10	6.0E-08	0.4
	4th Quarter	U-Nat	0.0004			2.7E-10	3.0E-07	0.1
		Ra-226		0.18	1.00E-01	2.2E-10	6.0E-08	0.4

TABLE 4 (Continued)

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	EFF. CONC. LIMIT (µCi/ml)	% EFF. CONC. LIMIT
SW-7	3rd Quarter	U-Nat	0.0009			6.1E-10	3.0E-07	0.2
Stock Pond		Ra-226		0.27	1.80E-01	2.2E-10	6.0E-08	0.4
Section 22								
T36N, R73W	4th Quarter	U-Nat	Dry All				3.0E-07	0.0
		Ra-226	Quarter				6.0E-08	0.0
SW-8	3rd Quarter	U-Nat	0.0008			5.4E-10	3.0E-07	0.2
Stock Pond		Ra-226		0.22	1.40E-01	2.2E-10	6.0E-08	0.4
Section 18								
T36N, R72W	4th Quarter	U-Nat	0.0031			2.1E-09	3.0E-07	0.7
		Ra-226		0.34	1.60E-01	2.2E-10	6.0E-08	0.4
SW-9	3rd Quarter	U-Nat	Dry All				3.0E-07	0.0
Stock Pond		Ra-226	Quarter				6.0E-08	0.0
Section 18								
T36N, R72W	4th Quarter	U-Nat	Dry All				3.0E-07	0.0
		Ra-226	Quarter				6.0E-08	0.0
SW-10	3rd Quarter	U-Nat	Dry All				3.0E-07	0.0
Stock Pond		Ra-226	Quarter				6.0E-08	0.0
Section 19								
T36N, R72W	4th Quarter	U-Nat	Dry All				3.0E-07	0.0
		Ra-226	Quarter				6.0E-08	0.0
GW-1	3rd Quarter	U-Nat	0.0243			1.6E-08	3.0E-07	5.5
Windmill		Ra-226		0.97	0.25	2.2E-10	6.0E-08	0.4
Section 1								
T35N, R74W	4th Quarter	U-Nat	Not Running				3.0E-07	0.0
		Ra-226	This Quarter				6.0E-08	0.0
GW-2	3rd Quarter	U-Nat	0.037			2.5E-08	3.0E-07	8.3
Water Well		Ra-226		0.44	1.60E-01	2.2E-10	6.0E-08	0.4
Section 35								
T36N, R74W	4th Quarter	U-Nat	0.0406			2.7E-08	3.0E-07	9.2
		Ra-226		0.80	1.80E-01	2.2E-10	6.0E-08	0.4
GW-3	3rd Quarter	U-Nat	Did Not Run				3.0E-07	0.0
Windmill		Ra-226	This Quarter				6.0E-08	
Section 27								
T36N, R74W	4th Quarter	U-Nat	Did Not Run				3.0E-07	
		Ra-226	This Quarter				6.0E-08	0.0

TABLE 4 (Continued)

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	EFF. CONC. LIMIT (µCi/ml)	% EFF. CONC. LIMIT
GW-4	3rd Quarter	U-Nat	Did Not Run				3.0E-07	0.0
Windmill		Ra-226	This Quarter				6.0E-08	
Section 23								
T36N, R74W	4th Quarter	U-Nat	0.0719				3.0E-07	0.0
		Ra-226		0.28	1.30E-01		6.0E-08	0.0
GW-5	3rd Quarter	U-Nat	Did Not Run				3.0E-07	
Windmill		Ra-226	This Quarter				6.0E-08	
Section 30								
T36N, R73W	4th Quarter	U-Nat	Did Not Run				3.0E-07	
		Ra-226	This Quarter				6.0E-08	
GW-6	3rd Quarter	U-Nat	Did Not Run				3.0E-07	
Windmill		Ra-226	This Quarter				6.0E-08	
Section 28								
T36N, R73W	4th Quarter	U-Nat	Did Not Run				3.0E-07	
		Ra-226	This Quarter				6.0E-08	
GW-8	3rd Quarter	U-Nat	Did Not Run				3.0E-07	
Windmill		Ra-226	this Quarter				6.0E-08	
Section 23								
T36N, R73W	4th Quarter	U-Nat	Did Not Run				3.0E-07	
		Ra-226	This Quarter				6.0E-08	
GW-9	3rd Quarter	U-Nat	0.0012			8.1E-10	3.0E-07	
Windmill		Ra-226		0.09	1.10E-01	9.0E-11	6.0E-08	
Section 14								
T36N, R73W	4th Quarter	U-Nat	Did Not Run				3.0E-07	
		Ra-226	This Quarter				6.0E-08	
GW-10	3rd Quarter	U-Nat	Did Not Run				3.0E-07	
Water Well		Ra-226	This Quarter				6.0E-08	
Section 14								
T36N, R73W	4th Quarter	U-Nat	Did Not Run				3.0E-07	
		Ra-226	This Quarter				6.0E-08	

TABLE 4 (Continued)

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	EFF. CONC. LIMIT (µCi/ml)	% EFF. CONC. LIMIT
GW-11	3rd Quarter	U-Nat	0.0008			5.4E-10	3.0E-07	0.0
Water Well		Ra-226		0.18		1.8E-10	6.0E-08	
Section 11								
T36N, R73W	4th Quarter	U-Nat	0.0009				3.0E-07	
		Ra-226		0.25	1.20E-01		6.0E-08	
GW-12	3rd Quarter	U-Nat	Did Not Run				3.0E-07	0.0
Water Well		Ra-226	This Quarter				6.0E-08	
Section 7								
T36N, R72W	4th Quarter	U-Nat	Did Not Run				3.0E-07	
		Ra-226	This Quarter				6.0E-08	
GW-13	3rd Quarter	U-Nat	0.0035				3.0E-07	0.0
Water Well		Ra-226		0.71	1.80E-01		6.0E-08	0.0
Section 9								
T36N, R72W	4th Quarter	U-Nat	0.147				3.0E-07	0.0
		Ra-226		1.10	2.10E-01		6.0E-08	0.0
GW-14	3rd Quarter	U-Nat	0.0016				3.0E-07	0.0
Water Well		Ra-226		1.40	2.40E-01		6.0E-08	0.0
Section 10								
T36N, R72W	4th Quarter	U-Nat	Did Not Run				3.0E-07	
		Ra-226	This Quarter				6.0E-08	
GW-15	3rd Quarter	U-Nat	Did Not Run				3.0E-07	0.0
Water Well		Ra-226	This Quarter				6.0E-08	0.0
Section 15								
T36N, R72W	4th Quarter	U-Nat	0.0184				3.0E-07	0.0
		Ra-226		0.78	1.80E-01		6.0E-08	0.0
GW-16	3rd Quarter	U-Nat	Did Not Run				3.0E-07	0.0
Water Well		Ra-226	This Quarter				6.0E-08	0.0
Section 11								
T36N, R72W	4th Quarter	U-Nat	Did Not Run				3.0E-07	0.0
		Ra-226	This Quarter				6.0E-08	0.0
GW-17	3rd Quarter	U-Nat	Did Not Run				3.0E-07	0.0
Water Well		Ra-226	This Quarter				6.0E-08	
Section 8								
T36N, R72W	4th Quarter	U-Nat	Did Not Run				3.0E-07	0.0
		Ra-226	This Quarter				6.0E-08	0.0

TABLE 4 (Continued)

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	EFF. CONC. LIMIT (µCi/ml)	% EFF. CONC. LIMIT
GW-18	3rd Quarter	U-Nat	Did Not Run				3.0E-07	0.0
Water Well		Ra-226	This Quarter				6.0E-08	0.0
Section 2								
T36N, R72W	4th Quarter	U-Nat	Did Not Run				3.0E-07	0.0
		Ra-226	This Quarter				6.0E-08	0.0
GW-20	3rd Quarter	U-Nat	ND				3.0E-07	0.0
Water Well		Ra-226		0.2	1.40E-01		6.0E-08	0.0
Section 27								
T36N, R73W	4th Quarter	U-Nat	ND				3.0E-07	0.0
		Ra-226		0.34	1.50E-01		6.0E-08	0.0

TABLE 5
SATELLITE No. 1
LAND APPLICATION FACILITY (IRRIGATOR 1)
ANNUAL SOIL DATA
2008

SAMPLE ID	SAMPLE DATE	CONDUCTIVITY SAT. PASTE (mmhos/cm)	Sat %	pH SAT. PASTE (std. Units)	POTASSIUM SOLUBLE (mg/kg-dry)	CALCIUM SOLUBLE (meq/L)	MAGNESIUM SOLUBLE (meq/L)	SODIUM SOLUBLE (meq/L)	SAR	ARSENIC ABDTPA (mg/kg-dry)	BARIUM ABDTPA (mg/kg-dry)	SELENIUM ABDTPA (mg/kg-dry)	URANIUM - NATURAL TOTAL (pCi/g-dry)	BORON ABDTPA (mg/kg-dry)	RADIUM 226 (pCi/g-dry)	TOTAL ERROR ESTIMATE± (pCi/g-dry)
S.E. Location 1 0-6"	8/21/08	0.32	48.7	6.7	5.86	1.25	0.61	1.48	1.54	0.062	1.4	0.334	5.0	0.29	11.0	
S.E. Location 1 6-12"	8/21/08	0.30	49.6	6.6	3.74	0.86	0.39	1.90	2.41	0.036	1.4	0.283	2.7	0.45	5.1	
S.E. Location 2 0-6"	8/21/08	0.50	71.8	7.0	6.52	2.45	1.10	1.92	1.44	0.045	3.2	0.670	9.9	0.49	3.1	
S.E. Location 2 6-12"	8/21/08	0.67	54.8	6.7	3.48	2.31	1.26	3.54	2.66	0.036	3.0	0.554	8.3	0.33	4.4	
S.E. Location 3 0-6"	8/21/08	0.93	55.6	6.9	6.70	3.22	1.70	4.86	3.11	0.020	2.6	0.644	2.3	0.42	3.5	
S.E. Location 3 6-12"	8/21/08	1.19	70.2	7.3	6.22	4.06	2.13	5.61	3.20	<.006	2.0	0.636	1.3	0.35	4.0	
S.W. Location 4 0-6"	8/21/08	0.87	66.8	6.9	12.80	4.13	2.00	2.99	1.72	0.056	2.9	0.936	16.1	0.40	4.1	
S.W. Location 4 6-12"	8/21/08	0.59	67.8	7.2	6.81	2.07	0.97	2.94	2.39	0.019	2.4	0.545	4.7	0.35	3.9	
S.W. Location 5 0-6"	8/21/08	0.67	60.5	7.1	6.04	2.16	1.10	3.77	2.96	0.015	2.3	0.462	3.2	0.37	2.8	
S.W. Location 5 6-12"	8/21/08	0.89	61.7	7.6	3.78	2.81	1.39	4.82	3.33	0.011	2.0	0.435	1.6	0.30	4.2	
S.W. Location 6 0-6"	8/21/08	0.50	66.3	7.6	5.67	2.26	0.91	2.02	1.61	0.016	2.3	0.356	9.7	0.31	3.7	
S.W. Location 6 6-12"	8/21/08	0.45	65.0	7.8	2.67	1.37	0.57	2.37	2.41	0.018	2.2	0.268	3.0	0.29	3.4	
S.W. Location 7 0-6"	8/21/08	0.55	63.4	7.8	5.40	1.92	0.80	3.40	2.92	0.028	2.4	0.453	7.1	0.36	3.0	
S.W. Location 7 6-12"	8/21/08	0.63	74.6	7.8	4.03	1.85	0.81	4.07	3.55	0.025	2.1	0.429	3.3	0.34	3.6	
N.W. Location 8 0-6"	8/21/08	1.13	60.7	7.9	16.50	5.97	2.64	3.62	1.75	0.047	1.9	0.702	11.8	0.43	4.0	
N.W. Location 8 6-12"	8/21/08	2.02	63.4	7.4	12.20	9.64	4.49	6.44	2.43	0.051	1.7	0.799	8.4	0.30	3.5	
N.W. Location 9 0-6"	8/21/08	0.75	66.9	7.6	9.02	2.70	1.21	3.17	2.27	0.044	2.6	0.349	4.5	0.29	3.5	
N.W. Location 9 6-12"	8/21/08	0.84	68.1	7.6	7.58	2.76	1.35	4.21	2.95	0.038	2.6	0.413	2.6	0.27	4.8	
N.W. Location 10 0-6"	8/21/08	0.79	63.4	7.8	9.52	2.92	1.41	4.13	2.81	0.031	2.6	0.470	5.1	0.79	4.7	
N.W. Location 10 6-12"	8/21/08	1.80	80.7	7.3	13.40	9.87	4.39	6.86	2.58	0.024	1.3	0.364	5.5	0.73	6.2	
N.E. Location 11 0-6"	8/21/08	0.44	65.4	7.4	5.98	1.25	0.61	2.09	2.17	0.032	1.6	0.355	11.1	0.58	4.6	
N.E. Location 11 6-12"	8/21/08	0.54	53.2	7.4	4.55	1.76	0.92	2.82	2.44	0.025	3.0	0.259	3.1	0.69	2.1	
N.E Location 12 0-6"	8/21/08	1.48	74.7	7.2	11.90	7.01	3.55	5.70	2.48	0.021	2.1	0.126	6.4	0.66	2.8	
N.E. Location 12 6-12"	8/21/08	3.97	61.1	6.4	10.80	24.70	12.80	12.40	2.86	0.030	1.3	0.567	2.1	0.49	4.5	
N.E. Location 13 0-6"	8/21/08	0.96	61.1	6.2	9.35	3.89	1.80	3.41	2.03	0.029	3.0	0.286	6.4	0.44	4.7	
N.E. Location 13 6-12"	8/21/08	0.56	44.4	6.4	3.51	1.48	0.70	2.95	2.83	0.027	2.6	0.127	1.7	0.48	5.7	
N.E. Location 14 0-6"	8/21/08	0.51	49.9	6.1	5.91	1.85	0.89	2.30	1.97	0.055	3.2	0.205	3.0	0.54	6.9	
N.E. Location 14 6-12"	8/21/08	0.44	51.5	6.2	2.79	1.30	0.64	2.27	2.31	0.041	3.1	0.126	1.9	0.59	7.5	
Average		**0.90**	**62.19**	**7.14**	**7.24**	**3.92**	**1.90**	**3.86**	**2.47**	**0.03**	**2.31**	**0.43**	**5.4**	**0.44**	**4.48**	
Background 0-6"	8/21/08	0.60	66.9	6.9	4.40	1.47	1.26	1.85	1.59	0.085	3.2	0.085	1.7	0.33	3.8	
Background 6-12"	8/21/08	0.25	79.5	7.0	3.24	0.64	0.50	1.44	1.92	0.082	3.4	0.082	1.3	0.42	4.8	

TABLE 6
SATELLITE No. 2
LAND APPLICATION FACILITY (IRRIGATOR 2)
ANNUAL SOIL DATA
2008

SAMPLE ID	SAMPLE DATE	CONDUCTIVITY SAT. PASTE (mmhos/cm)	Sat %	pH SAT. PASTE (std. Units)	POTASSIUM SOLUBLE (mg/kg-dry)	CALCIUM SOLUBLE (meq/L)	MAGNESIUM SOLUBLE (meq/L)	SODIUM SOLUBLE (meq/L)	SAR	ARSENIC ABDTPA (mg/kg-dry)	BARIUM ABDTPA (mg/kg-dry)	SELENIUM ABDTPA (mg/kg-dry)	URANIUM TOTAL (mg/kg)	BORON ABDTPA (mg/kg-dry)	RADIUM 226 ABDTPA (pCi/g-dry)	TOTAL ERROR ESTIMATE± (pCi/g-dry)
Location 1 0-6"	8/26/08	4.74	59.3	6.7	15.00	34.0	19.7	8.0	1.55	0.030	0.8	0.764	11.1	0.79	6.1	
Location 1 6-12"	8/26/08	5.15	67.5	7.1	7.08	31.5	18.9	13.8	2.76	0.007	0.7	0.533	2.1	0.51	6.5	
Location 2 0-6"	8/26/08	2.63	64.2	7.1	8.37	15.3	8.0	4.5	1.31	0.022	2.5	0.434	6.2	0.66	7.1	
Location 2 6-12"	8/26/08	2.32	66.1	7.6	5.08	12.8	7.5	5.0	1.59	0.032	2.1	0.352	2.5	0.53	2.7	
Location 3 0-6"	8/26/08	2.20	59.8	7.3	7.30	13.1	6.3	4.1	1.33	0.015	2.1	0.244	5.8	0.68	1.9	
Location 3 6-12"	8/26/08	3.72	64.5	7.6	6.55	27.6	11.8	7.5	1.70	0.009	1.1	0.423	2.3	0.40	3.9	
Location 4 0-6"	8/26/08	3.64	58.9	7.2	16.50	23.0	14.4	5.8	1.35	0.079	1.5	0.396	16.1	0.58	3.3	
Location 4 6-12"	8/26/08	4.21	52.6	7.3	7.87	28.8	17.6	7.6	1.58	0.042	0.7	0.292	5.3	0.41	2.2	
Location 5 0-6"	8/26/08	3.47	53.4	7.2	7.94	23.6	13.2	4.8	1.11	0.045	1.7	0.386	8.0	0.52	7.4	
Location 5 6-12"	8/26/08	3.55	63.3	7.2	4.73	24.7	13.3	5.9	1.35	0.014	1.0	0.365	5.9	0.34	1.5	
Location 6 0-6"	8/26/08	4.39	64.0	6.5	22.00	31.6	17.8	6.0	1.20	0.072	0.9	0.610	6.4	0.56	8.5	
Location 6 6-12"	8/26/08	4.87	68.1	7.0	12.10	32.8	18.8	10.3	2.03	0.046	0.8	0.564	1.6	0.43	2.7	
Location 7 0-6"	8/26/08	4.92	63.9	6.6	17.90	34.4	19.4	7.9	1.53	0.051	0.8	0.865	1.9	0.48	2.6	
Location 7 6-12"	8/26/08	4.55	68.7	6.4	6.88	34.6	15.4	11.6	2.33	0.004	1.0	0.707	1.6	0.43	2.4	
Location 8 0-6"	8/26/08	4.48	76.6	6.8	14.30	37.7	14.8	8.2	1.61	0.034	1.3	0.664	8.8	0.44	7.1	
Location 8 6-12"	8/26/08	4.53	57.5	7.1	6.48	36.1	11.9	11.7	2.40	0.016	1.0	0.814	3.1	0.36	3.0	
Location 9 0-6"	8/26/08	4.54	73.4	7.1	25.20	37.0	16.6	6.5	1.26	0.042	0.5	0.614	7.7	0.39	3.1	
Location 9 6-12"	8/26/08	3.83	76.4	7.1	22.30	31.5	13.2	7.9	1.67	0.063	0.6	0.396	4.4	0.24	4.6	
Location 10 0-6"	8/26/08	4.39	61.5	6.8	20.20	36.2	19.5	6.1	1.16	0.036	0.5	0.565	18.1	0.55	4.6	
Location 10 6-12"	8/26/08	4.12	61.8	6.8	7.06	31.8	19.9	6.5	1.28	0.019	0.6	0.371	5.4	0.32	4.5	
Location 11 0-6"	8/26/08	4.79	70.1	6.6	8.69	39.4	18.7	7.1	1.32	0.038	0.9	0.743	8.8	0.48	3.8	
Location 11 6-12"	8/26/08	3.38	63.7	6.6	5.04	27.0	11.7	8.0	1.81	0.024	0.8	0.365	2.3	0.32	4.4	
Location 12 0-6"	8/26/08	3.20	70.9	6.6	16.90	19.3	10.6	6.0	1.55	0.060	1.6	0.649	5.1	0.49	4.2	
Location 12 6-12"	8/26/08	3.60	75.1	7.0	7.69	27.6	13.4	8.6	1.91	0.020	1.1	0.443	1.6	0.40	5.0	
Location 13 0-6"	8/26/08	4.07	66.5	6.8	17.10	28.6	15.3	6.9	1.47	0.070	1.7	0.871	7.5	0.62	5.3	
Location 13 6-12"	8/26/08	3.68	70.3	7.2	7.08	26.0	15.3	8.7	1.92	0.015	1.1	0.413	1.4	0.38	3.9	
Location 14 0-6"	8/26/08	3.96	67.0	6.9	12.30	32.8	16.8	5.7	1.15	0.051	0.8	0.474	11.0	0.41	11.5	
Location 14 6-12"	8/26/08	4.24	64.2	6.9	6.33	32.2	18.1	8.6	1.72	0.035	0.6	0.449	2.6	0.51	3.7	
Location 15 0-6"	8/26/08	3.27	63.7	6.5	15.40	19.2	11.3	5.4	1.40	0.074	2.2	0.800	5.9	0.55	3.3	
Location 15 6-12"	8/26/08	2.71	74.8	6.6	9.77	16.4	10.8	6.4	1.75	0.018	1.2	0.394	1.9	0.70	4.4	
Location 16 0-6"	8/26/08	3.48	73.6	7.0	15.80	25.0	12.2	5.3	1.23	0.035	2.0	0.590	6.8	0.71	6.2	
Location 16 6-12"	8/26/08	3.84	77.4	7.4	8.46	32.2	14.1	7.9	1.65	0.035	1.1	0.271	2.7	0.57	4.2	
Average		3.89	66.21	6.96	11.61	28.24	14.57	7.32	1.59	0.04	1.17	0.53	5.68	0.49	4.55	
Background 0-6"	8/26/08	0.52	39.1	6.5	4.23	3.86	1.46	0.24	0.15	0.059	2.5	0.054	2.3	0.33	5.5	
Background 6-12"	8/26/08	0.59	55.5	7.1	4.29	4.08	2.01	0.66	0.38	0.072	1.6	0.024	2.9	0.42	5.1	

TABLE 7A
SATELLITE NO. 1
LAND APPLICATION FACILITY (IRRIGATOR #1)
ANNUAL VEGETATION DATA
2008

SAMPLE SITE SAMPLE DATE	8/21/2008	Quarter 1 (NW)	Quarter 2 (NE)	Quarter 3 (SE)	Quarter 4 (SW)	Background
TRACE METALS (mg/kg): SW3050 Dry Ash Extracted	Lower Limit of Detection					
Arsenic	0.05	ND	ND	ND	ND	ND
Barium	0.05	11.6	14.9	14.4	10.7	28.1
Boron	5	9	22	7	8	8
Selenium	0.05	7.5	13.6	11.7	13.3	1.1
RADIOMETRIC (µCi/kg): SW3050 Dry Ash Extracted						
U-Nat		6.7E-05	2.2E-04	1.9E-04	1.3E-04	5.3E-05
U-Nat RL		2.0E-07	2.0E-07	2.0E-07	2.0E-07	2.0E-07
Ra226		6.7E-05	7.1E-05	5.6E-05	3.1E-05	8.0E-05
Ra226 ERR. EST. +/-		1.6E-05	1.3E-05	1.1E-05	1.3E-05	1.5E-05
Ra226 MDC		1.4E-05	1.0E-05	9.0E-06	1.3E-05	1.1E-05

TABLE 7B
SATELLITE NO. 2
LAND APPLICATION FACILITY (IRRIGATOR #2)
ANNUAL VEGETATION DATA
2008

SAMPLE SITE / **SAMPLE DATE**	**8/27/08**	**Quarter 1 (NW)**	**Quarter 2 (NE)**	**Quarter 3 (SE)**	**Quarter 4 (SW)**	**Background**
TRACE METALS (mg/kg): SW3050 Dry Ash Extracted	Lower Limit of Detection					
Arsenic	0.05	ND	ND	ND	ND	0.6
Barium	0.05	14.3	14.0	15.7	11.0	12.4
Boron	5	21	27	20	18	6
Selenium	0.05	22.7	20.0	30.7	22.5	3.6
RADIOMETRIC (µCi/kg): SW3050 Dry Ash Extracted						
U-Nat		3.6E-03	3.4E-03	9.5E-03	5.3E-03	3.8E-04
U-Nat RL		2.0E-07	2.0E-07	2.0E-07	2.0E-07	2.0E-07
Ra226		5.7E-05	5.6E-05	8.1E-05	4.7E-05	2.3E-05
Ra226 ERR. EST. +/-		6.0E-06	6.5E-06	5.7E-06	5.5E-06	6.0E-06
Ra226 MDC		2.9E-06	3.4E-06	1.9E-06	2.9E-06	5.7E-06

TABLE 8
SATELLITE NO. 1
LAND APPLICATION FACILITY (IRRIGATOR NO. 1)
MONTHLY IRRIGATION FLUID DATA
2008

IRRIGATION CYCLE		Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08
VOLUME (AF)							
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)	0.010						
SAR	0.01						
TRACE METALS (mg/L)							
Arsenic	0.001						
Barium	0.10						
Boron	0.10						
Selenium	0.001						
RADIOMETRIC							
U-nat (uCi/mL)	2.03E-10						
Ra-226 (uCi/mL)	2.00E-10						
Ra Err. Est. +/-							

TABLE 9
SATELLITE NO. 2
LAND APPLICATION FACILITY (IRRIGATOR NO. 2)
MONTHLY IRRIGATION FLUID DATA
2008

IRRIGATION CYCLE		**Jul-08**	**Aug-08**	**Sep-08**	**Oct-08**	**Nov-08**	**Dec-08**
VOLUME (AF)		31.51	32.57	26.84	11.64		
DATE SAMPLED		22-Jul	18-Aug	12-Sep	9-Oct		
	Reporting						
MAJOR IONS (mg/L)	Limit						
Calcium	1.0	449	452	420	416	**Irrigator**	**Irrigator**
Magnesium	1.0	124	122	116	112	**Did**	**Did**
Sodium	1.0	94	100	94	95	**Not**	**Not**
Potassium	1.0	31	32	30	31	**Operate**	**Operate**
Bicarbonate	1.0	161	167	156	163		
Sulfate	1.0	780	944	847	804		
Chloride	1.0	594	589	596	0.2		
NON-METALS							
TDS @ 180° C (mg/L)	10.0	2340	2480	2460	2450		
pH (standard units)	0.010	7.84	7.99	7.8	7.95		
SAR	0.01	1.0	1.1	1.0	1.1		
TRACE METALS (mg/L)							
Arsenic	0.001	ND	0.005	0.005	ND		
Barium	0.1	0.1	0.1	ND	ND		
Boron	0.10	ND	0.10	ND	0.20		
Selenium	0.001	0.796	0.727	0.512	0.416		
RADIOMETRIC							
U-nat (uCi/mL)	2.03E-10	3.72E-07	3.43E-07	3.18E-07	3.50E-07		
Ra-226 (uCi/mL)	2.00E-10	1.1E-08	2.1E-06	2.3E-09	5.9E-09		
Ra Err. Est. +/-		1.0E-09	3.2E-07	3.1E-10	5.2E-10		

TABLE 10A
SATELLITE NO. 2
RADIUM TREATMENT SYSTEM DISCHARGE
MONTHLY RADIUM GRAB SAMPLES
2008

SAMPLE DATE		Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08
RADIOMETRIC	Reporting Limit						
Ra-226 (uCi/mL)	2.00E-10	1.90E-09	4.30E-09	7.50E-10	1.20E-09	2.20E-09	1.50E-08
Ra Err. Est.+/-		3.30E-10	4.60E-10	1.80E-10	2.20E-10	2.90E-10	8.50E-10
Eff. Con. Limit	6.00E-08						

TABLE 10B
SATELLITE NO. 3
RADIUM TREATMENT SYSTEM DISCHARGE
MONTHLY RADIUM GRAB SAMPLES
2008

SAMPLE DATE		Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08
RADIOMETRIC	Reporting Limit						
Ra-226 (uCi/mL)	2.00E-10	4.70E-10	3.40E-10	3.00E-11	6.80E-10	2.60E-08	9.80E-10
Ra Err. Est.+/-		2.10E-10	1.70E-10	1.00E-10	1.70E-10	8.70E-10	2.30E-10
Eff. Con. Limit	6.00E-08						

TABLE 11A
SATELLITE NO. 1
LAND APPLICATION FACILITY (IRRIGATOR NO. 1)
ANNUAL SOIL WATER DATA
2008

SAMPLE SITE		2' NW¼ NE¼ SW¼ SE¼ Lysimeter Composite	4' NW¼ NE¼ SW¼ SE¼ Lysimeter Composite	6' NW¼ NE¼ SW¼ SE¼ Lysimeter Composite
SAMPLE DATE				
MAJOR IONS (mg/L)	REP. LIMIT			
Bicarbonate	1.0			
Sulfate	1.0	INSUFFICIANT WATER FOR SAMPLING		
Chloride	1.0			
NON-METALS				
Cond (umho/cm)	1.0			
pH (standard units)	0.010			
TRACE METALS (mg/L)				
Boron	0.10			
Selenium	0.001			
RADIOMETRIC				
U-nat: (mg/L)	0.0003			
Ra-226: (pCi/L)	0.2			
Ra Err. Est. +/-				
U-nat: (uCi/mL)	2.03E-10			
Ra-226: (uCi/mL)	2.00E-10			
Ra Err. Est. +/-				

TABLE 11B
SATELLITE NO. 2
LAND APPLICATION FACILITY (IRRIGATOR NO. 2)
ANNUAL SOIL WATER DATA
2008

SAMPLE SITE		**2' NW¼ NE¼ SW¼ SE¼ Lysimeter Composite**	**4' NW¼ NE¼ SW¼ SE¼ Lysimeter Composite**	**6' NW¼ NE¼ SW¼ SE¼ Lysimeter Composite**
SAMPLE DATE				
MAJOR IONS (mg/L)	REP. LIMIT			
Bicarbonate	1.0			
Sulfate	1.0	INSUFFICIANT WATER FOR SAMPLING		
Chloride	1.0			
NON-METALS				
Cond (umho/cm)	1.0			
pH (standard units)	0.010			
TRACE METALS (mg/L)				
Boron	0.10			
Selenium	0.001			
RADIOMETRIC				
U-nat: (mg/L)	0.0003			
Ra-226: (pCi/L)	0.2			
Ra Err. Est. +/-				
U-nat: (uCi/mL)	2.03E-10			
Ra-226: (uCi/mL)	2.00E-10			
Ra Err. Est. +/-				

TABLE 12
SATELLITE NO. 2
PURGE STORAGE RESERVOIR
SHALLOW MONITORING WELLS
WATER LEVEL AND WATER QUALITY DATA
2008

SAMPLE SITE		Shallow Well No. 1 (South)		Shallow Well No. 2 (East)	
SAMPLE DATE		23-Jul-08	10-Dec-08	23-Jul-08	10-Dec-08
WATER LEVEL (DTW)		13.2	13.2	7.5	10.5
MAJOR IONS (mg/L)	Reporting Limit				
Bicarbonate	1.0	405	227	301	243
Sulfate	1.0	2480	2500	2320	2530
Chloride	1.0	314	198	384	326
NON-METALS					
Cond (µmho/cm)	1.0	4990	4440	5180	5190
pH (standard units)	0.01	7.53	7.95	7.19	7.19
TRACE METALS (mg/L)					
Barium	0.001	ND	ND	ND	ND
Selenium	0.0025	0.9340	2.0900	0.0630	0.0460
RADIOMETRIC					
U-nat (uCi/mL)	6.77E-10	1.03E-06	2.22E-07	3.62E-08	2.59E-08
Ra-226 (uCi/mL)	2.00E-10	1.40E-09	1.50E-09	5.20E-09	1.20E-09
Ra-226 Err. Est. +/- (uCi/mL)		3.00E-10	2.30E-10	2.00E-10	2.10E-10

TABLE 13

2008 DOSE TO PUBLIC CALCULATIONS

Monitoring Location/Parameter		Average Concentration/Annual Gamma Dose	Average Concentration/Annual Gamma Dose Above Background	10 CFR 20 App. B, Table 2 Values	Dose to the Public mrem/yr[1]
Dave's Water Well (Background)					
	Uranium (µCi/ml)	1.08E-16		9.00E-14	
	Thorium-230 (µCi/ml)	2.04E-16		2.00E-14	
	Radium-226 (µCi/ml)	4.08E-16		9.00E-13	
	Lead-210 (µCi/ml)	1.29E-14		6.00E-13	
	Radon-222 (µCi/ml)	1.1E-09		1.00E-08	
	Gamma (mrem/yr)	159		--	
	TEDE (mrem/yr)				**Background**
Fenceline (Restricted Area Boundary)[2]					
	Uranium (µCi/ml)	3.94E-16	2.86E-16	9.00E-14	0.16
	Thorium-230 (µCi/ml)	2.45E-16	4.10E-17	2.00E-14	0.10
	Radium-226 (µCi/ml)	7.62E-16	3.54E-16	9.00E-13	0.02
	Lead-210 (µCi/ml)	9.16E-15	0	6.00E-13	0.00
	Radon-222 (µCi/ml)	1.7E-09	6.00E-10	1.00E-08	3.00
	Gamma (mrem/yr)	149	0	--	0
	TEDE (mrem/yr)				**3.28**
Vollman (Nearest Downwind Residence)					
	Uranium (µCi/ml)	3.89E-16	2.81E-16	9.00E-14	0.16
	Thorium-230 (µCi/ml)	2.44E-16	4.00E-17	2.00E-14	0.10
	Radium-226 (µCi/ml)	4.53E-16	4.50E-17	9.00E-13	0.00
	Lead-210 (µCi/ml)	7.04E-15	0	6.00E-13	0.00
	Radon-222 (µCi/ml)	1.10E-09	5.00E-11	1.00E-08	0.25
	Gamma (mrem/yr)	169	1.00E+01	--	10.00
	TEDE (mrem/yr)				**10.51**

Notes:

TEDE — Total Effective Dose Equivalent (mrem/yr)

< 1 — One or more of the Lower Limits of Detection (LLD) used to determine average concentration.

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

ATTACHMENT B

SAFETY AND ENVIRONMENTAL EVALUATIONS COMPLETED IN 2008

Inter-Company Memorandum

Date:	October 23, 2008
To:	Tom Cannon, John McCarthy, Krista Wenzel, and S. P. Collings
From:	Dawn Kolkman - Environmental Coordinator
Re:	Safety and Environmental Review Panel (SERP): EHS Management Replacement and the addition of Assistant EHS Manager /RSO
cc:	

A. INTRODUCTION

Starting in November of 2008, the position of Environmental Health and Safety Assistant Manager and RSO will be added to the Organizational Reporting Structure (Figure 9-1 of NRC License condition SUA-1548). At this time John McCarthy will be assuming the position.

The SERP reviewed this change in relation to the qualifications described in the current License Application. The results of the SERP review are presented in the following sections.

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, with the responsibility of assuring that the proposed activities will conform to radiation safety and environmental requirements. Individuals selected to perform this SERP review include:

T. Cannon- General Manager Operations
J. McCarthy- Environmental, Health, and Safety Manager /RSO
D. Kolkman- Environmental Coordinator

C. EVALUATION OF PROPOSED CHANGE/TEST

The SERP met on October 24, 2008 to review the change to the License Application. Work experience which includes industrial process/production experience and industrial process/production management.

The SERP evaluated the temporary change in management against the conditions stated in the License Condition 9.4b as shown in the table below. The SERP concluded that these changes satisfied those conditions.

LICENSE REQUIREMENT	YES	NO	N/A
Does the proposed change, test, and/or experiment conflict with the ALARA principle?	☐	☑	☐
Does the proposed change, test, and/or experiment conflict with PRI's ability to meet all applicable regulations including NRC, WDEQ, and EPA?	☐	☑	☐
Is there degradation in the essential safety or environmental commitments in the license application, or provided in the approved reclamation plan?	☐	☑	☐
Does the proposed change, test, and/or experiment conflict with any requirement specifically stated in the source material license?	☐	☑	☐
Is the proposed change, test, and/or experiment not consistent with the conclusions of actions analyzed in the facilities Environmental Assessment (EA) or supplemental EAs?	☐	☑	☐
Result in any increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated).	☐	☑	☐
Result in any 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).	☐	☑	☐
Result in any increase in the consequences of an accident previously evaluated in the license application (as updated).	☐	☑	☐
Result in any increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated).	☐	☑	☐
Create a possibility for an accident of a different type than previously evaluated in the application (as updated).	☐	☑	☐
Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated).	☐	☑	☐
Result in the departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report or the environmental assessment (EA) or technical evaluation reports (TERs) or other analysis and evaluations. SSC means any SSC which has been referenced in a NRC staff SER, TER, EA, or environmental impact statement (EIS) and all supplements and amendments.	☐	☑	☐

D. CONCLUSIONS

The SERP concluded that the addition of Environmental Health and Safety Assistant would not require a License Amendment and does not conflict with any other regulatory requirement. Also, this change will not result in the degradation of any essential safety or environmental commitments in the License Application, Environmental Assessments, or current operating procedures.

Signature: _____ ESC Date: 10/29/08

Signature: _____ GM Date: 10.29.08

Signature: _____ EHS Coordinator Date: 10.29.08

Signature: _____ Date: _____

CAMECO RESOURCES
Smith Ranch-Highland Operation

Cameco

Inter-Office Memo

To: Tom Cannon & John McCarthy

From: Dawn Kolkman

Date: October 23, 2008

Cc:

Subject: ORC/SERP Mine Unit 9 Hydrologic Test Report

A. INTRODUCTION

In accordance with the NRC requirements, the Hydrologic Test Document, baseline water quality data, and monitoring well Upper Control Limits (UCLs) must be reviewed by a Safety and Environmental Review Panel (SERP) prior to Wellfield startup to ensure that the results of the hydrologic testing and the planned mining activities are consistent with technical requirements and do not conflict with any requirement stated in the NRC License. In addition to review of the above information, the SERP conducts an Operations/Technical Review, Environmental/Radiation Safety/Industrial Safety review, and a Compliance review for a new Wellfield prior to start-up.

A SERP was convened on10/23/08 to perform the reviews described above for the start-up of the Wellfield. The 9 -Wellfield is currently under development and injection and production operations are nearly ready for start-up at Headerhouse 2, 3, and 4. Preoperational hydrologic testing and baseline water quality data have been completed and submitted to the WDEQ-LQD. The results of the SERP review are presented in the following sections.

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	TITLE
[illegible]	[illegible]
[illegible]	EHS Mgr & RSO
[illegible]	[illegible]

C. EVALUATION OF PROPOSED CHANGE/TEST

Operations/Technical Review

The test results were reviewed and compared with the requirements stated in NRC License SUA-1548, Docket No. 40-8964, Chapter 5, 5.1.3 "Mine Unit Hydrological Test Document". As stated in 5.1.3 a Safety and Environmental Review Panel is to ensure that the document contains the eight listed items.

P.1-1	1. A description of the proposed mine unit (location, extent, etc.)
Fig 1-2	2. A map(s) showing the proposed production patterns and locations of all monitor wells.
Fig. 2-1 to 2-7	3. Geologic cross-sections and cross-section location maps.
Fig. 2-8	4. Isopach maps of the Production Zone sand, overlying confining unit and underlying confining unit.
Chp. 3-4	5. Discussion of how the hydrologic test was performed, including well completion reports.
Chp. 4	6. Discussion of the results and conclusions of the hydrologic test including pump test raw data, drawdown match curves, potentiometric surface maps, water level graphs, drawdown maps and when appropriate, directional transmissivity data and graphs.
Chp. 6	7. Sufficient information to show that wells in the monitor well ring are in adequate communication with the production patterns.
N/A	8. Any other information pertinent to the area tested will be included and discussed.

Environmental/Safety Review

It was determined that there is no increased environmental or safety risk from start-up of the 9-Wellfield and current wellfield start-up procedures are adequate (see attached Risk Assessment).

Compliance Review

The SERP evaluated the start-up of 9-Wellfield against the conditions stated in the License Condition 9.4 as shown in the table below. The SERP concluded that the start-up of 9-Wellfield satisfied those conditions.

SERP Evaluation Checklist

NRC LICENSE REQUIREMENT	YES	NO	N/A
Does the proposed change, test, and/or experiment conflict with the ALARA principle?			
Does the proposed change, test, and/or experiment conflict with the Company's ability to meet all applicable NRC regulations?			
Is there degradation in the essential safety or environmental commitments in the license application, or provided in the approved reclamation plan?			
Does the proposed change, test, and/or experiment conflict with any requirement specifically stated in the source material license?			
Is the proposed change, test, and/or experiment not consistent with the conclusions of actions analyzed in the facilities Final Safety Evaluation Report (FSER)?		✓	
Is the proposed change, test, and/or experiment not consistent with the conclusions of actions analyzed in the facilities Environmental Assessment (EA) or supplemental EAs?		✓	
Does the proposed change, test, and/or experiment result in any increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated)?		✓	
Does the proposed change, test, and/or experiment result in any 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)?		✓	
Does the proposed change, test, and/or experiment result in any increase in the consequences of an accident previously evaluated in the license application (as updated)?		✓	
Does the proposed change, test, and/or experiment result in any increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated)?		✓	
Does the proposed change, test, and/or experiment create a possibility for an accident of a different type than previously evaluated in the application (as updated)?		✓	
Does the proposed change, test, and/or experiment create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated)?		✓	
Does the proposed change, test, and/or experiment result in the departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report or the environmental assessment (EA) or technical evaluation reports (TERs) or other analysis and evaluations? (SSC means any SSC which has been referenced in a NRC staff SER, TER, EA, or environmental impact statement (EIS) and all supplements and amendments.			

D. CONCLUSIONS

The ORC/SERP concluded the document "Mine Unit 9 Hydrologic Test Report" did contain all of the information listed in the eight point questionnaire.

SERP Member Signatory Approvals

Signature: [signature] Date: [illegible]

Signature: [signature] Date: [illegible]

Signature: [signature] Date: [illegible]

Signature: ______________________ Date: __________

Signature: ______________________ Date: __________

Signature: ______________________ Date: __________

Signature: ______________________ Date: __________

Signature: ______________________ Date: __________

E. ATTACHEMENTS (if any)