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February 26, 2008

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 #2
White Flint, T7E18
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 through December 31, 2007

Dear Mr. McConnell:

In accordance with 10 CFR 40.65 and 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 through December 31, 2007.

A copy of this report is also being forwarded to Mr. Doug Mandeville, USNRC Headquarters, and Mr. Leonard Wert, Director DRSS, Region IV.

IE17

If you have any questions regarding the report, please contact me at (307) 358-6541, ext. 46.

Sincerely,

John McCarthy
Manager-Health, Safety
& Environmental Affairs

JM/bj

Enclosure

cc: Mr. Doug Mandeville, USNRC Headquarters
Mr. Leonard Wert, Director DRSS, Region IV, USNRC
S.P. Collings w/o atta C. Foldenauer w/o atta File SR 4.6.4.1
Arlene Crook, Assisting RSO w/attachment

POWER RESOURCES, INC.

SMITH RANCH - HIGHLAND URANIUM PROJECT

SEMI-ANNUAL EFFLUENT AND ENVIRONMENTAL MONITORING REPORT

FOR THE PERIOD

JULY 1 THROUGH DECEMBER 31, 2007

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

During the period July 1 through December 31, 2007, there was one bio-assay which exceeded the action level of 15 µg/L Uranium. This elevated bio-assay was incurred by a drilling contractor and was the result of not following proper established scanning procedures prior to eating or chewing tobacco. The individual was provided further training to ensure proper procedures are followed in the future and follow-up bio-assays have all been undetectable for Uranium.

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

The required information for each Satellite facility for the 3rd and 4th Quarters of 2007 is presented in Tables 1A, 1B, 1C, and 1D included in Attachment A.

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.

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

The injection rates, recovery rates, and injection pressure data for Satellite No. 2, Satellite No. 3, Satellite SR-1, and the Central Processing Plant (CPP) are contained in Table 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 as 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. Therefore, no stack tests were conducted during the report period. It is anticipated that the CPF at Highland will remain on standby status during several upcoming report periods.

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. It is anticipated that the Highland CPF will remain in standby status for several upcoming reporting periods and 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. However, 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 twelve water wells and six stock ponds throughout the permit area. Water samples are collected from the water wells and stock ponds on a quarterly basis for analysis of uranium and radium-226. Table 4 provides the analytical data for samples collected during the report period. A review of data collected during the report period shows that four stock ponds (Stations SW- 1, 2, 4, and 9) remained dry during the report period and seven water wells (GW- 5, 6, 7, 8, 9, 10, and 18) did not run during the report period. A review of data collected from the six 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.

Water Well GW-7, which provided water for a rancher's household, was dismantled and is no longer in use. This water well was replaced with another well designated as GW-20.

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 2007 soil and vegetation sampling at the irrigation areas was conducted in August 2007, and results are shown in Tables 5, 6 and 7.

3.4.2 *Irrigation Fluid*

In accordance with the approved license application and the WDEQ Wastewater Land Application permits, PRI monitors the treated irrigation fluid that is disposed of at both irrigation facilities. 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, and were less 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 slightly 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 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 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*

In accordance with the approved license application and the WDEQ Wastewater Land Application Facility permits, 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. Sampling was conducted on June 29, 2007, but due to drought conditions and the relatively limited amount of irrigation, there was 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. Therefore, 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*

In accordance with the approved license application, 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 these two 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 August 31 and November 29, 2007. Results are shown in Table 12.

Comparison of water level data collected during the report period with previous data continues to show a trend of higher water levels during the spring-summer months and lower water levels during the fall-winter months.

4.0 ANNUAL DOSE TO THE PUBLIC (2007)

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 2007annual 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. During the period January 1 through December 31, 2007, PRI completed the following Safety and Environmental Evaluations:

Safety and Environmental Evaluation No. 2007-1 - Dated March 12, 2007, for change of

type of passive gamma dosimetry utilized on site.

Safety and Environmental Evaluation No. 2007-2 – Dated April 17, 2007, for assessment of results of decontamination efforts regarding shredded poly pipe.

Safety and Environmental Evaluation No. 2007-3 – Dated July 13, 2007 for Addition of Bicarbonate in Southwest.

Summaries of the completed SERP evaluations are provided in Attachment B

6.0 RUTH ISR PROJECT

The Ruth Project is licensed for commercial ISR uranium activities, however none has been initiated. The existing buildings and evaporation ponds, along with a few remaining wells, are left from research and development testing conducted by Uranerz, USA, one of the previous licensees. The facilities at the project are non-operational and on stand-by status. Therefore, radiation and effluent monitoring was not conducted and is not required by the NRC or the Wyoming Department of Environmental Quality. The quantity of radionuclides released to unrestricted areas in liquid and in gaseous effluents is considered negligible and is not applicable at this time.

Activities conducted during the report period consisted of quarterly inspections of the existing facilities. Inspection of the perimeter fence, pond embankments, and pond liners yielded no deficiencies during the report period.

7.0 NORTH BUTTE ISR PROJECT

The North Butte Project is also licensed for commercial ISR uranium operations; however, construction of facilities has not commenced and is currently on hold. Since there are no radioactive materials present on site, no radionuclides were released to unrestricted areas in liquid or in gaseous effluents.

License Condition 9.5 requires PRI to submit, for the NRC and WDEQ-LQD approval, an itemized cost estimate for implementation of the NRC-approved decommissioning/restoration plan prior to commencement of construction of a commercial facility at the North Butte/Ruth sites. Currently, PRI is in the process of updating the Operations and Reclamation Plan for the North Butte ISR Project in pursuit of approval to commence construction activities at the North Butte site.

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-07	0	0	0	0	0	0	0	0	0
Aug-07	0	0	0	0	0	0	0	0	0
Sep-07	0	0	0	0	0	0	0	0	0
Oct-07	0	0	0	0	0	0	0	0	0
Nov-07	0	0	0	0	0	0	0	0	0
Dec-07	0	0	0	0	0	0	0	0	0

TABLE 1B
AVERAGE INJECTION RATES (GPM)

MONTH	Satellite No. 2	Satellite No. 3	Satellite SR-1	Central Processing Plant
Jul-07	1,914	3,496	3,687	2,590
Aug-07	2,195	3,641	3,492	2,715
Sep-07	2,152	3,488	3,404	3,030
Oct-07	2,108	3,505	3,497	3129
Nov-07	1,953	3,377	3,721	3241
Dec-07	2,029	3,254	3,771	3083

TABLE 1C
AVERAGE RECOVERY RATES (GPM)

MONTH	Satellite No. 2	Satellite No. 3	Satellite SR-1	Central Processing Plant
Jul-07	1,931	3,557	3,691	2,627
Aug-07	2,216	3,696	3,493	2,759
Sep-07	2,173	3,546	3,404	3,068
Oct-07	2,128	3,565	3,497	3,173
Nov-07	1,973	3,437	3,721	3,287
Dec-07	2,049	3,320	3,771	3,131

TABLE 1D
INJECTION TRUNK LINE PRESSURES (PSI)

MONTH	Satellite No. 2	Satellite No. 3	Satellite SR-1	Central Processing Plant
Jul-07	89	132	83	148
Aug-07	95	145	86	159
Sep-07	83	140	86	160
Oct-07	20	60	0	43
Nov-07	20	60	0	46
Dec-07	20	66	0	48

TABLE 2

AIR SAMPLING DATA - 2007
ENVIRONMENTAL MONITORING SITES
3rd and 4th Quarters 2007

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 %
FENCE LINE	3rd	U-Nat	6.18E-16	N/A	1.00E-16	9.00E-14	0.7
Air Station	Quarter	Th-230	3.96E-16	1.9E-16	1.00E-16	3.00E-14	< 1.0
Restricted Area		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	< 1.0
Boundary		Pb-210	1.62E-14	1.11E-15	2.00E-15	6.00E-13	2.7
		Rn-222			3.00E-10	1.00E-08	
	4th	U-Nat	5.40E-16		1.00E-16	9.00E-14	0.6
	Quarter	Th-230	4.60E-16		1.00E-16	3.00E-14	< 1.0
		Ra-226	<1.00E-16		1.00E-16	9.00E-13	< 1.0
		Pb-210	1.51E-14		2.00E-15	6.00E-13	2.5
		Rn-222	2.00E-09		3.00E-10	1.00E-08	20.0
VOLLMAN RANCH	3rd	U-Nat	2.48E-16	N/A	1.00E-16	9.00E-14	0.3
Air Station	Quarter	Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	< 1.0
Downwind Nearest		Ra-226	1.40E-16	1.09E-16	1.00E-16	9.00E-13	< 1.0
Residence		Pb-210	1.69E-14	1.13E-15	2.00E-15	6.00E-13	2.8
		Rn-222			3.00E-10	1.00E-08	0.0
	4th	U-Nat	2.50E-16		1.00E-16	9.00E-14	0.3
	Quarter	Th-230	<1.00E-16		1.00E-16	3.00E-14	< 1.0
		Ra-226	<1.00E-16		1.00E-16	9.00E-13	< 1.0
		Pb-210	1.72E-14		2.00E-15	6.00E-13	2.9
		Rn-222	1.60E-09		3.00E-10	1.00E-08	16.0
DAVE'S WATER WELL	3rd	U-Nat	1.77E-16	N/A	1.00E-16	9.00E-14	0.2
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	1.28E-14	1.06E-15	2.00E-15	6.00E-13	2.1
		Rn-222			3.00E-10	1.00E-08	0.0
	4th	U-Nat	<1.00E-16		1.00E-16	9.00E-14	< 1.0
	Quarter	Th-230	<1.00E-16		1.00E-16	3.00E-14	< 1.0
		Ra-226	<1.00E-16		1.00E-16	9.00E-13	< 1.0
		Pb-210	1.12E-14		2.00E-15	6.00E-13	1.9
		Rn-222	1.60E-09		3.00E-10	1.00E-08	16.0

TABLE 3

DIRECT RADIATION (GAMMA) MEASUREMENT DATA - 2007
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS

SAMPLE LOCATION	SAMPLE PERIOD	EXPOSURE RATE (mR/qtr)
FENCE LINE		
Air Station	3rd Quarter	43
Restricted Area		
Boundary	4th Quarter	38
VOLLMAN'S RANCH		
Air Station	3rd Quarter	39
Downwind		
Nearest Residence	4th Quarter	41
DAVE'S WATER WELL		
Air Station	3rd Quarter	35
Background		
Site	4th Quarter	45

TABLE 4

WATER SAMPLING DATA - 2007
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS 2007

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				3.0E-07	
		Ra-226					6.0E-08	
	4th Quarter	U-Nat	DRY				3.0E-07	
		Ra-226					6.0E-08	
SW-2 Stock Pond Section 2 T35N, R74W	3rd Quarter	U-Nat	DRY				3.0E-07	
		Ra-226					6.0E-08	
	4th Quarter	U-Nat	DRY				3.0E-07	
		Ra-226					6.0E-08	
SW-3 Stock Pond Section 35 T36N, R74W	3rd Quarter	U-Nat	0.0232			1.6E-08	3.0E-07	5.2
		Ra-226		1.8	4.00E-01	0.0E+00	6.0E-08	0.0
	4th Quarter	U-Nat	DRY				3.0E-07	
		Ra-226					6.0E-08	0.0
SW-4 Stock Pond Section 36 T36N, R74W	3rd Quarter	U-Nat	DRY				3.0E-07	
		Ra-226					6.0E-08	
	4th Quarter	U-Nat	DRY				3.0E-07	
		Ra-226					6.0E-08	
SW-5 Stock Pond Section 21 T36N, R73W	3rd Quarter	U-Nat	0.0009			6.1E-10	3.0E-07	0.2
		Ra-226		ND	ND	ND	6.0E-08	
	4th Quarter	U-Nat	FROZEN				3.0E-07	
		Ra-226					6.0E-08	
SW-6 Stock Pond Section 22 T36N, R73W	3rd Quarter	U-Nat	6E-04			4.1E-10	3.0E-07	0.1
		Ra-226		ND	ND	ND	6.0E-08	
	4th Quarter	U-Nat	FROZEN				3.0E-07	
		Ra-226					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
SW-7	3rd Quarter	U-Nat	2E-03			1.2E-09	3.0E-07	0.4
Stock Pond		Ra-226		ND	ND	ND	6.0E-08	
Section 22								
T36N, R73W	4th Quarter	U-Nat	FROZEN				3.0E-07	
		Ra-226					6.0E-08	
SW-8	3rd Quarter	U-Nat	0.0018			1.2E-09	3.0E-07	0.4
Stock Pond		Ra-226		ND	ND	ND	6.0E-08	
Section 18								
T36N, R72W	4th Quarter	U-Nat	FROZEN				3.0E-07	
		Ra-226					6.0E-08	
SW-9	3rd Quarter	U-Nat	DRY				3.0E-07	
Stock Pond		Ra-226					6.0E-08	
Section 18								
T36N, R72W	4th Quarter	U-Nat	DRY				3.0E-07	
		Ra-226					6.0E-08	
SW-10	3rd Quarter	U-Nat	0.0013			8.8E-10	3.0E-07	0.3
Stock Pond		Ra-226		ND	ND	ND	6.0E-08	
Section 19								
T36N, R72W	4th Quarter	U-Nat	DRY				3.0E-07	
		Ra-226					6.0E-08	
GW-1	3rd Quarter	U-Nat	0.0275			1.9E-08	3.0E-07	6.2
Windmill		Ra-226		1.0	0.5	1.0E-09	6.0E-08	1.7
Section 1								
T35N, R74W	4th Quarter	U-Nat	NOT RUNNING				3.0E-07	
		Ra-226					6.0E-08	
GW-2	3rd Quarter	U-Nat	0.0313			2.1E-08	3.0E-07	7.1
Water Well		Ra-226		0.7	3.00E-01	7.0E-10	6.0E-08	1.2
Section 35								
T36N, R74W	4th Quarter	U-Nat	0.0292			2.0E-08	3.0E-07	6.6
		Ra-226		0.6	3.00E-01	6.0E-10	6.0E-08	1.0

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-3	3rd Quarter	U-Nat	0.11			7.4E-08	3.0E-07	24.8
Windmill		Ra-226		ND	ND	ND	6.0E-08	
Section 27								
T36N, R74W	4th Quarter	U-Nat	NOT RUNNING				3.0E-07	
		Ra-226					6.0E-08	#VALUE!
GW-4	3rd Quarter	U-Nat	0.0702			4.8E-08	3.0E-07	15.8
Windmill		Ra-226		ND	ND	ND	6.0E-08	
Section 23								
T36N, R74W	4th Quarter	U-Nat	0.0735			5.0E-08	3.0E-07	16.6
		Ra-226		1.3	4.00E-01	1.3E-09	6.0E-08	2.2
GW-5	3rd Quarter	U-Nat	NOT RUNNING				3.0E-07	
Windmill		Ra-226					6.0E-08	
Section 30								
T36N, R73W	4th Quarter	U-Nat	NOT RUNNING				3.0E-07	
		Ra-226					6.0E-08	
GW-6	3rd Quarter	U-Nat	NOT RUNNING				3.0E-07	
Windmill		Ra-226					6.0E-08	
Section 28								
T36N, R73W	4th Quarter	U-Nat	NOT RUNNING				3.0E-07	
		Ra-226					6.0E-08	
GW-7	3rd Quarter	U-Nat	No Longer Operable				3.0E-07	
Water Well		Ra-226	Replaced by GW-20				6.0E-08	
Section 27								
T36N, R73W	4th Quarter	U-Nat	No Longer Operable				3.0E-07	
		Ra-226	Replaced by GW-20				6.0E-08	
GW-8	3rd Quarter	U-Nat	NOT RUNNING				3.0E-07	
Windmill		Ra-226					6.0E-08	
Section 23								
T36N, R73W	4th Quarter	U-Nat	NOT RUNNING				3.0E-07	
		Ra-226					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-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	
GW-10 Water Well 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	
GW-11 Water Well Section 11 T36N, R73W	3rd Quarter	U-Nat Ra-226	0.0033	ND	ND	2.2E-09 ND	3.0E-07 6.0E-08	0.0
	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	0.0003	ND	ND	2.0E-10 ND	3.0E-07 6.0E-08	0.1
	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	0.0153	1.6	4.00E-01	1.0E-08 1.6E-09	3.0E-07 6.0E-08	3.5 2.7
	4th Quarter	U-Nat Ra-226	0.005	1.2	3.00E-01	3.4E-09 1.2E-09	3.0E-07 6.0E-08	1.1 2.0
GW-14 Water Well Section 10 T36N, R72W	3rd Quarter	U-Nat Ra-226	0.0024	1.3	4.00E-01	1.6E-09 1.3E-09	3.0E-07 6.0E-08	0.5 2.2
	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	0.0202	1.0	3.00E-01	1.4E-08 1.0E-09	3.0E-07 6.0E-08	4.6 1.7
	4th Quarter	U-Nat Ra-226	0.0233	0.6	2.00E-01	1.6E-08 6.0E-10	3.0E-07 6.0E-08	5.3 1.0

TABLE 4 (Continued)

GW-16 Water Well Section 11 T36N, R72W	3rd Quarter	U-Nat	0.144			9.7E-08	3.0E-07	32.5
		Ra-226		1.3	4.00E-01	1.3E-09	6.0E-08	2.2
	4th Quarter	U-Nat	0.17			1.2E-07	3.0E-07	38.4
		Ra-226		3.7	6.00E-01	3.7E-09	6.0E-08	6.2
GW-17 Water Well Section 8 T36N, R72W	3rd Quarter	U-Nat	0.0051			3.5E-09	3.0E-07	1.2
		Ra-226		ND	ND	ND	6.0E-08	
	4th Quarter	U-Nat	0.0034			2.3E-09	3.0E-07	0.8
		Ra-226		1.1	3.00E-01	1.1E-09	6.0E-08	1.8
GW-18 Water Well Section 2 T36N, R72W	3rd Quarter	U-Nat	NOT RUNNING				3.0E-07	
		Ra-226					6.0E-08	
	4th Quarter	U-Nat	NOT RUNNING				3.0E-07	
		Ra-226					6.0E-08	
GW-20 Water Well Section 27 T36N, R73W	3rd Quarter	U-Nat	ND			ND	3.0E-07	
		Ra-226	0.6	0.4		6E-10	6.0E-08	1.0
	4th Quarter	U-Nat	0.0005				3.0E-07	0.0
		Ra-226		0.7	3.00E-01	7E-10	6.0E-08	1.2

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

SAMPLE ID	SAMPLE DATE	CONDUCTIVITY SAT. PASTE mmhos/cm	Sat %	pH SAT. PASTE std. Units	POTASSIUM SOLUBLE mg/kg-dry	SAR	CALCIUM SOLUBLE meq/L	MAGNESIUM SOLUBLE meq/L	SODIUM SOLUBLE meq/L	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
Irrigator #1 S.E. Location 1 0-6"	8/30/07	0.33	89.5	6.7	4.11	1.05	1.40	1.10	1.2	0.040	1.0	0.076	1.180	0.54	4.1	1.4
Irrigator #1 S.E. Location 1 6-12"	8/30/07	0.20	90.1	7.2	2.70	1.48	0.67	0.58	1.2	0.028	1.5	0.060	1.100	0.67	3.6	1.5
Irrigator #1 S.E. Location 2 0-6"	8/30/07	0.48	93.0	7.0	8.39	1.38	2.30	1.20	1.8	0.044	1.3	0.923	8.080	1.10	3.5	1.4
Irrigator #1 S.E. Location 2 6-12"	8/30/07	0.85	91.6	7.0	8.63	1.79	4.30	2.10	3.2	0.035	1.0	0.698	7.110	1.10	3.8	1.4
Irrigator #1 S.E. Location 3 0-6"	8/30/07	1.85	61.3	5.8	34.50	1.88	7.30	3.90	4.4	0.045	0.4	0.776	9.230	1.00	3.9	1.5
Irrigator #1 S.E. Location 3 6-12"	8/30/07	3.54	79.5	5.9	33.90	2.82	16.00	8.80	9.8	0.045	0.2	0.990	3.990	1.00	3.2	1.5
Irrigator #1 S.W. Location 4 0-6"	8/30/07	0.38	81.5	7.0	8.94	1.77	1.40	0.70	1.8	0.054	0.5	0.650	15.900	1.10	4.2	1.6
Irrigator #1 S.W. Location 4 6-12"	8/30/07	0.36	80.8	7.2	6.52	2.61	0.97	0.52	2.3	0.046	1.6	0.547	5.080	0.89	2.7	1.4
Irrigator #1 S.W. Location 5 0-6"	8/30/07	0.90	69.8	6.8	16.50	2.17	3.80	1.80	3.7	0.108	0.4	1.360	25.800	1.10	3.4	1.5
Irrigator #1 S.W. Location 5 6-12"	8/30/07	1.67	84.3	6.4	20.50	2.59	6.60	3.50	5.8	0.044	0.2	1.340	8.660	0.91	3.2	1.5
Irrigator #1 S.W. Location 6 0-6"	8/30/07	3.62	73.3	6.0	90.10	1.55	18.00	9.90	5.8	0.051	0.4	0.984	20.200	1.30	3.4	1.6
Irrigator #1 S.W. Location 6 6-12"	8/30/07	3.51	71.6	6.0	51.50	1.92	17.00	9.30	7.0	0.039	0.5	0.823	12.400	1.00	3.7	1.5
Irrigator #1 S.W. Location 7 0-6"	8/30/07	1.92	79.3	6.9	16.80	2.40	11.00	5.80	7.0	0.030	0.4	0.948	14.000	1.00	3.2	1.6
Irrigator #1 S.W. Location 7 6-12"	8/30/07	1.89	84.2	7.7	11.90	2.59	9.20	4.50	6.8	0.036	1.2	0.653	4.450	0.92	3.7	1.5
Irrigator #1 N.W. Location 8 0-6"	8/30/07	0.35	79.3	7.1	5.24	1.76	1.40	0.72	1.8	0.058	0.4	0.537	8.410	0.94	4.1	1.5
Irrigator #1 N.W. Location 8 6-12"	8/30/07	0.30	87.1	7.2	4.03	2.34	0.96	0.56	2.0	0.030	0.5	0.309	3.590	0.96	2.8	1.4
Irrigator #1 N.W. Location 9 0-6"	8/30/07	0.38	89.4	7.3	9.23	1.76	1.40	0.76	1.8	0.055	0.5	0.413	16.800	0.94	3.1	1.5
Irrigator #1 N.W. Location 9 6-12"	8/30/07	0.60	88.8	7.9	9.31	2.43	2.30	1.20	3.2	0.039	1.0	0.270	5.130	0.70	3.0	1.5
Irrigator #1 N.W. Location 10 0-6"	8/30/07	0.42	54.1	6.6	7.84	2.51	1.40	0.70	2.6	0.047	0.3	0.286	4.010	0.73	1.7	1.4
Irrigator #1 N.W. Location 10 6-12"	8/30/07	0.70	57.2	6.8	7.23	3.28	1.90	1.10	4.0	0.019	<0.2	0.225	1.900	0.98	3.6	1.5
Irrigator #1 N.E. Location 11 0-6"	8/30/07	0.61	59.5	6.5	6.09	3.53	1.80	0.93	4.1	0.024	<0.2	0.484	15.400	0.64	3.2	1.4
Irrigator #1 N.E. Location 11 6-12"	8/30/07	1.06	48.5	6.4	7.30	3.58	3.20	1.70	5.6	0.019	<0.2	0.376	1.490	0.37	2.3	1.3
Irrigator #1 N.E Location 12 0-6"	8/30/07	0.39	50.3	6.8	5.77	1.21	1.70	0.89	1.4	0.059	0.6	2.450	23.200	0.94	5.0	1.6
Irrigator #1 N.E. Location 12 6-12"	8/30/07	0.46	63.0	7.3	6.91	1.60	2.20	1.00	2.0	0.040	0.7	1.100	10.200	0.80	3.7	1.4
Irrigator #1 N.E. Location 13 0-6"	8/30/07	0.38	57.4	6.8	4.84	2.20	1.40	0.71	2.2	0.025	0.4	0.454	7.770	0.66	2.3	1.4
Irrigator #1 N.E. Location 13 6-12"	8/30/07	0.79	68.2	7.6	3.37	2.50	3.30	1.80	4.0	0.022	0.6	0.271	1.410	0.71	3.4	1.4
Irrigator #1 N.E. Location 14 0-6"	8/30/07	5.23	53.5	6.8	25.70	2.72	34.00	16.00	14.0	0.079	<0.2	2.010	11.500	0.79	2.7	1.4
Irrigator #1 N.E. Location 14 6-12"	8/30/07	4.26	44.2	6.7	12.80	2.98	21.00	12.00	12.0	0.025	<0.2	0.894	1.710	0.47	2.4	1.3
Irrigator #1 Background 0-6"	8/30/07	0.66	66.4	7.4	3.86	1.40	3.40		2.3	0.025	2.2	0.053	0.980	0.49	3.3	1.5
Irrigator #1 Background 6-12"	8/30/07	0.45	66.2	8.1	2.61	2.08	1.70	1.10	2.5	0.031	1.9	0.028	1.120	0.55	2.3	1.5
Average		1.34	72.51	6.84	15.38	2.23	6.35	3.35	4.38	0.04	0.68	0.75	8.92	0.87	3.32	1.46

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

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	BORON ABDTPA mg/kg-dry	URANIUM - NATURAL TOTAL pCi/g-dry	RADIUM 226 pCi/g-dry	TOTAL ERROR ESTIMATE± pCi/g-dry
Irrigator #2 Location 1 0-6"	8/23/07	3.45	78.2	6.5	16.30	21.0	12.0	5.2	1.27	0.049	0.6	0.812	0.80	6.70	2.8	1.2
Irrigator #2 Location 1 6-12"	8/23/07	2.14	84.4	6.7	7.37	11.0	6.4	4.8	1.63	0.039	<0.2	0.296	0.79	2.20	2.9	1.3
Irrigator #2 Location 2 0-6"	8/23/07	2.96	76.7	6.5	13.60	18.0	11.0	4.9	1.31	0.030	<0.2	0.669	0.83	13.90	3.1	1.4
Irrigator #2 Location 2 6-12"	8/23/07	2.42	91.7	6.6	7.62	13.0	8.5	5.3	1.61	0.018	<0.2	0.438	0.70	3.10	3.1	1.3
Irrigator #2 Location 3 0-6"	8/23/07	2.75	68.0	6.6	17.00	16.0	10.0	4.8	1.32	0.051	<0.2	0.627	0.83	14.10	3.7	1.3
Irrigator #2 Location 3 6-12"	8/23/07	3.20	85.5	6.7	8.57	19.0	12.0	6.1	1.55	0.015	<0.2	0.641	0.57	2.40	2.4	1.2
Irrigator #2 Location 4 0-6"	8/23/07	3.84	75.6	6.8	18.40	29.0	16.0	5.6	1.19	0.026	<0.2	1.090	0.85	13.50	2.9	1.2
Irrigator #2 Location 4 6-12"	8/23/07	3.83	66.6	7.0	5.68	29.0	16.0	5.9	1.26	0.022	0.8	0.429	0.54	9.40	3.0	1.3
Irrigator #2 Location 5 0-6"	8/23/07	4.25	84.3	6.8	15.60	32.0	19.0	7.2	1.43	0.043	<0.2	0.745	0.74	10.90	4.1	1.2
Irrigator #2 Location 5 6-12"	8/23/07	4.23	75.5	7.1	5.07	30.0	17.0	11.0	2.33	0.029	<0.2	0.557	0.33	1.90	2.9	1.3
Irrigator #2 Location 6 0-6"	8/23/07	3.26	80.8	6.7	21.90	22.0	13.0	5.1	1.22	0.030	<0.2	0.586	0.84	13.90	2.9	1.3
Irrigator #2 Location 6 6-12"	8/23/07	4.36	93.9	7.0	9.30	30.0	19.0	9.9	2.01	0.030	<0.2	0.554	0.45	2.00	4.0	1.4
Irrigator #2 Location 7 0-6"	8/23/07	4.10	81.5	7.0	21.50	34.0	16.0	5.7	1.15	0.050	1.0	0.595	0.76	10.00	3.5	1.3
Irrigator #2 Location 7 6-12"	8/23/07	4.16	89.6	7.3	8.78	33.0	14.0	8.4	1.73	0.031	0.8	0.592	0.45	2.50	2.6	1.2
Irrigator #2 Location 8 0-6"	8/23/07	3.88	61.7	6.9	32.60	26.0	15.0	5.6	1.22	0.067	0.4	0.664	1.10	15.90	2.6	1.3
Irrigator #2 Location 8 6-12"	8/23/07	5.03	78.0	6.5	14.30	33.0	25.0	11.0	1.99	0.025	<0.2	0.580	0.63	3.00	2.8	1.2
Irrigator #2 Location 9 0-6"	8/23/07	4.13	68.4	6.4	30.80	32.0	16.0	4.8	0.99	0.049	<0.2	0.719	0.86	13.00	2.7	1.2
Irrigator #2 Location 9 6-12"	8/23/07	5.49	63.2	6.2	8.35	31.0	28.0	14.0	2.60	0.018	<0.2	0.641	0.66	2.40	3.3	1.3
Irrigator #2 Location 10 0-6"	8/23/07	3.89	68.2	6.5	16.70	30.0	17.0	5.2	1.07	0.034	<0.2	0.704	0.77	18.40	3.4	1.3
Irrigator #2 Location 10 6-12"	8/23/07	3.71	74.8	6.9	195.00	41.0	35.0	15.0	2.48	0.026	<0.2	0.371	0.57	6.50	3.2	1.3
Irrigator #2 Location 11 0-6"	8/23/07	3.42	64.2	6.6	23.00	22.0	14.0	5.6	1.33	0.049	0.4	0.693	0.89	14.50	2.8	1.2
Irrigator #2 Location 11 6-12"	8/23/07	4.51	72.7	6.6	7.50	28.0	21.0	9.6	1.93	0.013	<0.2	0.668	0.61	1.80	3.6	1.3
Irrigator #2 Location 12 0-6"	8/23/07	3.79	65.6	6.9	11.60	25.0	13.0	6.0	1.37	0.043	0.9	0.838	0.79	0.90	2.9	1.3
Irrigator #2 Location 12 6-12"	8/23/07	1.93	82.2	7.7	5.03	12.0	5.5	4.5	1.51	0.028	1.5	0.302	0.70	1.80	2.6	1.3
Irrigator #2 Location 13 0-6"	8/23/07	2.29	71.0	7.1	12.90	14.0	7.1	3.9	1.20	0.063	1.0	0.568	1.00	14.90	3.1	1.3
Irrigator #2 Location 13 6-12"	8/23/07	2.43	68.1	7.6	3.96	18.0	5.9	5.0	1.44	0.040	1.1	0.309	0.44	3.00	3.5	1.4
Irrigator #2 Location 14 0-6"	8/23/07	3.19	74.3	6.8	22.10	21.0	12.0	4.8	1.19	0.044	0.2	1.710	0.76	21.40	3.9	1.5
Irrigator #2 Location 14 6-12"	8/23/07	2.15	77.1	7.5	9.38	14.0	7.9	4.2	1.28	0.022	1.4	0.699	0.52	7.30	3.3	1.2
Irrigator #2 Location 15 0-6"	8/23/07	2.62	75.3	7.4	8.54	17.0	7.6	4.7	1.34	0.049	2.0	0.638	0.74	10.10	2.4	1.3
Irrigator #2 Location 15 6-12"	8/23/07	3.33	77.7	7.6	5.49	26.0	9.6	7.0	1.65	0.033	0.9	0.381	0.83	2.80	3.6	1.3
Irrigator #2 Location 16 0-6"	8/23/07	4.05	90.3	6.7	22.70	32.0	15.0	5.7	1.19	0.057	<0.2	0.699	1.10	14.30	3.2	1.4
Irrigator #2 Location 16 6-12"	8/23/07	3.78	91.0	7.3	11.40	29.0	11.0	8.7	1.96	0.058	0.8	0.512	0.66	2.30	2.9	1.4
Irrigator #2 Background 0-6"	8/23/07	0.35	74.3	7.4	3.65	3.0	0.7	0.1	0.11	0.053	0.7	0.710	0.36	2.10	2.2	1.1
Irrigator #2 Background 6-12"	8/23/07	0.21	55.2	7.4	1.67	1.8	0.5	0.2	0.19	0.032	0.5	0.022	0.25	2.50	2.4	1.1
Average		3.52		6.89	19.31	24.63	14.23	6.73	1.52	0.04	0.92	0.64	0.70	8.15	3.12	

TABLE 7A

SATELLITE NO. 1 LAND APPLICATION FACILITY
ANNUAL VEGETATION DATA
2007

SAMPLE SITE SAMPLE DATE		Quarter 1 (NW) 30-Aug-07	Quarter 2 (NE) 30-Aug-07	Quarter 3 (SE) 30-Aug-07	Quarter 4 (SW) 30-Aug-07	Background 16-Aug-06
TRACE METALS (mg/kg): L.L.D SW3050 Dry Ash Extracted						
As	0.05	ND	ND	ND	ND	ND
Ba	0.05	18.9	21.1	18.5	14.2	28.9
B	5	ND	ND	ND	ND	8.9
Se	0.05	13.6	13.0	25.4	12.5	5.2
RADIOMETRIC (µCi/kg): SW3050 Dry Ash Extracted						
U-Nat		1.50E-04	5.70E-05	3.70E-05	3.90E-05	6.75E-05
U-Nat LLD		1.50E-06	1.50E-06	1.10E-06	1.60E-06	2.10E-06
Ra226		4.10E-05	1.70E-05	3.70E-05	1.30E-05	1.1E-04
Ra226 ERR. EST. +/-		1.30E-05	8.90E-06	1.00E-05	7.80E-05	2.8E-05
Ra226 LLD		1.5E-06	1.5E-06	1.10E-06	1.60E-06	2.10E-06

TABLE 7B

SATELLITE NO. 2 LAND APPLICATION FACILITY
ANNUAL VEGETATION DATA
2007

SAMPLE SITE SAMPLE DATE		Quarter 1 (NW) 16-Aug-06	Quarter 2 (NE) 16-Aug-06	Quarter 3 (SE) 16-Aug-06	Quarter 4 (SW) 16-Aug-06	Background 16-Aug-06
TRACE METALS (mg/kg): L.L.D. SW3050 Dry Ash Extracted						
As	0.05	ND	ND	ND	ND	ND
Ba	0.05	11.1	17.1	15.3	12.2	33.3
B	5	11.5	9.6	15.7	ND	ND
Se	0.05	18	22.6	24.8	28.2	6.0
RADIOMETRIC (µCi/kg): SW3050 Dry Ash Extracted						
U-Nat		3.90E-03	3.30E-03	3.80E-03	3.40E-03	ND
U-Nat LLD		7.30E-07	7.00E-07	5.60E-07	6.40E-07	1.10E-06
Ra226		5.70E-05	7.70E-05	5.20E-05	5.60E-05	7.25E-05
Ra226 ERR. EST. +/-		1.20E-05	1.30E-05	9.60E-06	1.10E-05	1.70E-05
Ra226 LLD		7.30E-07	7.00E-07	5.60E-07	6.40E-07	1.10E-06

TABLE 8

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

IRRIGATION CYCLE		Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07
VOLUME (AF)							
MAJOR IONS (mg/L)	REP. LIMIT						
Ca	1.0						
Mg	1.0	Irrigator Did	Irrigator Did	Irrigator Did	Irrigator Did	Irrigator Did	Irrigator Did
Na	1.0	Not Operate	Not Operate	Not Operate	Not Operate	Not Operate	Not Operate
K	1.0						
HCO_3	1.0						
SO_4	1.0						
Cl	1.0						
NON-METALS							
TDS @ 180° C (mg/L)	10.0						
pH (standard units)	0.010						
SAR	0.01						
TRACE METALS (mg/L)							
As	0.001						
Ba	0.10						
B	0.10						
Se	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

IRRIGATION CYCLE		Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07
VOLUME (AF)		28.40	27.40	45.30	31.00		
DATE SAMPLED		16-Jul	10-Aug	18-Sep	12-Oct		
MAJOR IONS (mg/L)	REP. LIMIT						
Ca	1.0	378	359	396	412	IRRIGATOR	IRRIGATOR
Mg	1.0	102	105	127	128		
Na	1.0	103	102	108	105		
K	1.0	30.0	31.0	34.0	32.0	DID	DID
HCO_3	1.0	171	149	146	154		
SO_4	1.0	707	782	809	806		
Cl	1.0	532	528	561	556	NOT	NOT
NON-METALS							
TDS @ 180° C (mg/L)	10.0	2270	2420	2570	2440	OPERATE	OPERATE
pH (standard units)	0.010	8.09	7.91	8.01	7.97		
SAR	0.01	1.22	1.21	1.21	1.16		
TRACE METALS (mg/L)							
As	0.001	0.008	0.004	ND	0.004		
Ba	0.1	0.1	ND	ND	ND		
B	0.10	0.20	0.20	0.20	0.2		
Se	0.001	0.767	0.492	0.508	0.512		
RADIOMETRIC							
U-nat (uCi/mL)	2.03E-10	3.87E-07	3.02E-07	3.57E-07	4.58E-07		
Ra-226 (uCi/mL)	2.00E-10	3.00E-09	4.50E-09	1.30E-09	2E-09		
Ra Err. Est. +/-		5.00E-01	8.00E-10	4.00E-10	4.00E-10		

TABLE 10A

MONTHLY RADIUM GRAB SAMPLES
AT THE DISCHARGE FROM THE RADIUM TREATMENT SYSTEM
SATELLITE NO. 2

SAMPLE DATE		23-Jul-07	10-Aug-07	18-Sep-07	12-Oct-07	15-Nov-07	18-Dec-07
RADIOMETRIC	Rep. Limit						
Ra-226 (uCi/mL)	2.00E-10	1.60E-09	3.10E-09	5.60E-09	1.30E-09	2.50E-09	5.70E-09
Ra Err. Est.+/-		4.00E-10	6.00E-10	7.00E-10	4.00E-10	5.00E-10	9.00E-10

TABLE 10B

MONTHLY RADIUM GRAB SAMPLES
AT THE DISCHARGE FROM THE RADIUM TREATMENT SYSTEM
SATELLITE NO. 3

SAMPLE DATE		23-Jul-07	10-Aug-07	18-Sep-07	12-Oct-07	15-Nov-07	18-Dec-07
RADIOMETRIC	Rep. Limit						
Ra-226 (uCi/mL)	2.00E-10	1.70E-09	2.30E-09	8.00E-10	9.00E-09	3.40E-09	1.71E-08
Ra Err. Est.+/-		4.00E-10	6.00E-10	3.00E-10	1.00E-09	6.00E-10	1.40E-09

TABLE 11A

SATELLITE NO. 1 LAND APPLICATION FACILITY (IRRIGATOR NO. 1)
ANNUAL SOIL WATER DATA

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			
HCO_3	1.0			
SO_4	1.0	INSUFFICIANT WATER FOR SAMPLING		
Cl	1.0			
NON-METALS				
Cond (umho/cm)	1.0			
pH (standard units)	0.010			
TRACE METALS (mg/L)				
B	0.10			
Se	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

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			
HCO_3	1.0			
SO_4	1.0	INSUFFICIANT WATER FOR SAMPLING		
Cl	1.0			
NON-METALS				
Cond (umho/cm)	1.0			
pH (standard units)	0.010			
TRACE METALS (mg/L)				
B	0.10			
Se	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
QUARTERLY WATER LEVEL DATA
SEMI-ANNUAL WATER QUALITY DATA

SAMPLE SITE		Shallow Well No. 1 (South)		Shallow Well No. 2 (East)	
SAMPLE DATE		31-Aug-07	29-Nov-07	31-Aug-07	29-Nov-07
WATER LEVEL (DTW)		13.2	15.4	9.8	11.0
MAJOR IONS (mg/L)	Rep. Limit				
HCO_3	1.0	216		234	204
SO_4	1.0	2730		2650	2500
Cl	1.0	166	DRY	328	
NON-METALS					
Cond (µmho/cm)	1.0	4560		5060	5040
pH (standard units)	0.01	7.66		7.36	6.86
TRACE METALS (mg/L)					
Ba	0.001	ND		ND	ND
Se	0.0025	1.780		0.062	0.042
RADIOMETRIC					
U-nat (uCi/mL)	6.77E-10	9.68E-08		2.61E-10	1.91E-10
Ra-226 (uCi/mL)	2.00E-10	2.80E-09		2.10E-09	2.30E-09
Ra-226 Err. Est. +/- (uCi/mL)		6.00E-10		5.00E-10	5.00E-10

TABLE 13

2007 DOSE TO PUBLIC CALCULATIONS

Monitoring Location/Parameter		Average Concentration/Annual Gamma Dose	Average Concentration/Annual Gamma Dose Above Background	Values	10 CFR 20 App. B, Table 2 mrem/yr[1]
Dave's Water Well (Background)					
	Uranium (µCi/ml)	1.57E-16		9.00E-14	0.00
	Thorium-230 (µCi/ml)	< 1E-16		2.00E-14	0.00
	Radium-226 (µCi/ml)			9.00E-13	0.00
	Lead-210 (µCi/ml)	1.82E-14		6.00E-13	0.00
	Radon-222 (µCi/ml)	1.2E-09		1.00E-08	0.00
	Gamma (mrem/yr)	159		--	
	TEDE (mrem/yr)				**0.00**
Fenceline (Restricted Area Boundary)[2]					
	Uranium (µCi/ml)	4.62E-16	3.05E-16	9.00E-14	0.17
	Thorium-230 (µCi/ml)	4.28E-16	3.28E-16	2.00E-14	0.82
	Radium-226 (µCi/ml)			9.00E-13	0.00
	Lead-210 (µCi/ml)	1.45E-14	0	6.00E-13	0.00
	Radon-222 (µCi/ml)	2.0E-09	8.00E-10	1.00E-08	4.00
	Gamma (mrem/yr)	149	0	--	0
	TEDE (mrem/yr)				**4.99**
Vollman (Nearest Downwind Residence)					
	Uranium (µCi/ml)	3.68E-16	2.11E-16	9.00E-14	0.12
	Thorium-230 (µCi/ml)	< 1E-16		2.00E-14	0.00
	Radium-226 (µCi/ml)	1.35E-16	1.35E-16	9.00E-13	0.01
	Lead-210 (µCi/ml)	2.04E-14	2.23E-15	6.00E-13	0.19
	Radon-222 (µCi/ml)	1.50E-09	3.00E-10	1.00E-08	1.50
	Gamma (mrem/yr)	152	0	--	0
	TEDE (mrem/yr)				**1.81**

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 (mi $\frac{\text{Avg concentration above background in µCi/ml} * 50 \text{ mrem}}{\text{10 CFR 20 AppB, Table 2 value in µCi/ml}}$

ATTACHMENT B

SAFETY AND ENVIRONMENTAL EVALUATIONS COMPLETED IN 2007

Power Resources, Inc.
Inter-Company Memorandum

Date:	March 12, 2007
To:	Chuck Foldenauer, Jon Winter, John McCarthy
From:	Arlene Crook- RSO
Re:	Safety and Environmental Review Panel (SERP) No. 2007-1
Cc:	File SR 4.6.4.2

A. INTRODUCTION

A Safety and Environmental Review Panel was convened on March 12, 2007 to discuss a Self Identified Violation of the Environmental Dosimeter supplier/product described in EHS Volume VI and as described in the License Application.

B. SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP)

NRC License condition 9.4D of SUA-1548 requires that any changes, tests 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 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 requirements. Individuals selected to perform this SERP review include:

C. Foldenauer-Mine Manager
J. Winter- EHS Coordinator
A. Crook- Radiation Safety Officer
J. McCarthy-EHS Manager

D. EVALUATION OF PROPOSED CHANGE/TEST

It is stated in the license application that we will use Spherical TLD's. In EHS Volume VI it is stated that we will use Landauer X9 Environmental TLD Dosimeter.

In January 2006 we switched to comparable National Voluntary Laboratory Accreditation program (NVLAP) certified supplier do to poor service from Landauer. The language of Volume VI needs to be updated to allow changes in Environmental Dosimeter suppliers and advances in technology. In addition a proposed revision to

the License Application to include any provider/product that meets NRC qualifications.

A review of the NRC License 1548 shows that this change will not conflict with any requirements. This change will result in the need to revise Section 5.3.4 of the License Application. A revised Section 5.3.4 that specifies that Passive Gamma Radiation is monitored using Environmental TLD Dosimeters or equivalent, which meet NRC standards is included.

In addition EHS Volume VI, Section 5.3 revisions are included.

The SERP evaluated the changes against the conditions stated in the License Condition 9.4B as shown in the below. The SERP concluded that these changes 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?		X	
Does the proposed change, test, and/or experiment conflict with the Company's ability to meet all applicable NRC regulations?		X	
Is there degradation in the essential safety or environmental commitments in the license application, or provided in the approved reclamation plan?		X	
Does the proposed change, test, and/or experiment conflict with any requirement specifically stated in the source material license?	X		
Is the proposed change, test, and/or experiment not consistent with the conclusions of actions analyzed in the facilities Final Safety Evaluation Report (FSER)?		X	
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?		X	
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)?		X	
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)?		X	
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)?		X	
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)?		X	
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)?		X	
Does the proposed change, test, and/or experiment create a possibility for a		X	

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.)		X	

E. CONCLUSIONS

The SERP concluded that changing the EHS Volume VI to include other suppliers and products should not compromise the effectiveness of the ALARA and environmental compliance programs. Therefore, the SERP approves this change.

Signature: _____ Date: 3-12-07
C. Floddenauer, Mine Manager

Signature: _____ Date: 3.12.07
J. Winter, EHS Coordinator

Signature: Arlene Crook Date: 3/12/07
A. Crook, Radiation Safety Officer

Signature: _____ Date: 3/12/07
J. McCarthy, EHS Manager

Original

5.3.4 Passive Gamma Radiation Monitoring

Passive gamma radiation is monitored at the five Air Monitoring Stations described above. Passive gamma radiation is monitored using spherical TLD's which are exchanged on a quarterly basis. Results of the monitoring are reported to the NRC in the Semi-Annual Report. Gamma radiation is monitored at Air Station Nos. 4 and 5 only when the stations are active in response to yellowcake processing at the Highland Central Plant.

Passive gamma radiation monitoring data collected at the Smith Ranch Air Monitoring Stations for the period 1996 through 2002 is summarized in Table 5-2. Table 5-5 summarizes the passive gamma radiation monitoring at the Higland Air Stations and the three Passive Air Stations. Review of these data show that background gamma radiation levels at the respective upwind and downwind sites for each project range from 33 to 36 mRem per quarter. It should be noted that the downwind sites also represent background due to their distance from any processing areas or gamma radiation sources. In comparison to the background sites, data obtained at the Restricted Area Boundaries of the Smith Ranch CPP and Highland CPF show apparent minimal increases in gamma radiation of only 2 to 5 mRem per quarter.

5.3.5 Environmental Ground Water Monitoring Program

The project wide environmental ground water monitoring program includes the quarterly monitoring of operating domestic and stock wells located within 1 km of operating wellfields. Water samples are obtained from these wells for the analysis of uranium and radium-226. The ground water monitoring stations for current (March 2003) operating wellfields are described in Table 5-6 and shown on Plate 1. Plate 1 also shows the locations of other potential ground water monitoring sites near proposed wellfields that will be added to the monitoring program once wellfield operations commence in those areas.

5.3.6 Environmental Surface Water Monitoring Program

The project wide environmental surface water monitoring program includes the quarterly monitoring of Sage Creek when stream flow is present as well as numerous stock ponds that are located down stream of operating wellfields. The surface water monitoring sites are described in Table 5-7 and shown on Plate 1. Water sampies are obtained from these sites for the analysis of uranium and radium-226 when adequate water exists to permit sampling.

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

Proposed Change

concentrations have averaged less than 5% of the respective Effluent Concentration Limit. A review of this data also shows that no significant difference has been determined between background radionuclide concentrations and those determined at the Restricted Area Boundary at the HUP Central Plant, or the nearest downwind residence (Fowler Ranch). Comparison of historic radionuclide particulate data from the Smith Ranch and Highland Air Monitoring Stations shows no significant variations.

5.3.3 Passive Radon Gas Monitoring

Passive radon gas (radon-222) is monitored at the site to assess background conditions and releases from the facilities to the environment. Radon is monitored using Track-Etch type radon cups (detectors) provided by a contractor specializing in radon detection. The radon cups were historically exchanged on a quarterly basis. The frequency of exchange of the cups has been changed to semi-annually (every 6 months) in order that the 0.2 pCi/L sensitivity level recommended in NRC Regulatory Guide 4.14 can be potentially met. Results of the monitoring are reported to the NRC in the Semi-Annual Report. Radon is monitored at the five Air Monitoring Stations described above. Radon is monitored at Air Station Nos. 4 and 5 only when the stations are active in response to yellowcake processing at the Highland Central Plant.

Radon-222 monitoring data collected at the Smith Ranch Air Monitoring Stations for the period 1996 through 2002 is summarized in Table 5-2. Table 5-4 summarizes the radon-222 monitoring data collected at the Highland Air Monitoring Stations and the three Passive Air Stations. A review of these data shows that radon-222 at all sites has averaged less than 20% of the Effluent Concentration Limit. Review of this data also shows that no significant difference has been determined between background radon-222 concentrations and those determined at the Restricted Area Boundary or nearest downwind residence sites. The data from the Highland Passive Air Stations also show that increases in radon-222 adjacent to Satellite No. 2, where radon is routinely vented during operations, has had a minimal impact on ambient air quality. As the monitoring data shows, any increases in radon-222 have been minimal and well below the Effluent Concentration Limit.

5.3.4 Passive Gamma Radiation Monitoring

Passive gamma radiation is monitored at the five Air Monitoring Stations described above. Passive gamma radiation is monitored using Environmental Dosimeters or equivalent, which meet NRC standards. Dosimeters are exchanged on a quarterly basis. Results of the monitoring are reported to the NRC in the Semi-Annual Report. Gamma radiation is monitored at Air Station Nos. 4 and 5 only when the stations are active in response to yellowcake processing at the Highland Central Plant.

Passive gamma radiation monitoring data collected at the Smith Ranch Air Monitoring Stations for the period 1996 through 2002 is summarized in Table 5-2. Table 5-5 summarizes the passive gamma radiation monitoring at the Higland Air Stations and the three Passive Air Stations. Review of these data show that background gamma radiation levels at the respective upwind and downwind sites for each project range from 33 to 36

5.2 Preoperational Gamma Surveys

The NRC requires that preoperational gamma measurements be performed at the site for processing facilities. The recommended survey pattern consists of readings made at 150-meter intervals on the eight compass points out to a distance of 1,500 meters. These surveys are generally performed during the site characterization process and are not routinely required at Crow Butte or Smith Ranch/Highland.

5.3 Operational Direct Gamma Radiation Monitoring

Environmental gamma radiation monitoring during operations is performed using thermoluminescent dosimeters (TLDs) provided by Landauer, Inc. Landauer's environmental/low level dosimetry service is designed to meet ANSI standards and provides accurate reporting to 0.1 mrem. Monitoring is performed using the Landauer X9 aluminum oxide TLD dosimeter. The X9 has a minimum detectable dose of nominally 0.1 mrem ambient dose equivalent. The gross and net dosage reported, and the minimum detectable dose for the batch is shown on each report. The TLDs exhibit negligible fade of less than 10 percent during three months of extreme environmental conditions. The X9 TLD fully meets ANSI N545 performance, testing, and procedural specifications.

Five lithium fluoride chips are located in the X9 environmental TLD area monitor. The TLD area monitors are white balls, approximately 1" in diameter, with a chain and clasp attached. A location/ID tag is also attached to the chain.

The TLDs are supplied by the vendor before the end of each quarter. Each shipment of dosimeters contains a control dosimeter that measures exposure rates during processing and shipping of the dosimeters. Before deployment of the dosimeters, the control dosimeter must be placed in a storage area with a low ambient background gamma dose rate.

The dosimeters are deployed at the beginning of each quarter. The dosimeters are clipped onto each survey location with the fastener provided with the dosimeter. Each dosimeter has a tag with an identification number. When exchanging the dosimeters, the dosimeter is replaced with the corresponding dosimeter identification number.

After the dosimeters are collected, care is taken to ensure that they are not exposed to any additional gamma radiation or x-rays. Once the dosimeters are collected, they are returned to the vendor in the original box with the provided shipping label. This label cautions against exposure to radioactive materials or x-rays while in transit.

5.2 Preoperational Gamma Surveys

Proposed Change

The NRC requires that preoperational gamma measurements be performed at the site for processing facilities. The recommended survey pattern consists of readings made at 150-meter intervals on the eight compass points out to a distance of 1,500 meters. These surveys are generally performed during the site characterization process and are not routinely required at Crow Butte or Smith Ranch/Highland.

5.3 Operational Direct Gamma Radiation Monitoring

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The TLDs are supplied by the vendor before the end of each quarter. Each shipment of dosimeters contains a control dosimeter that measures exposure rates during processing and shipping of the dosimeters. Before deployment of the dosimeters, the control dosimeter must be placed in a storage area with a low ambient background gamma dose rate.

The dosimeters are deployed at the beginning of each quarter. The dosimeters are clipped onto each survey location with the fastener provided with the dosimeter

After the dosimeters are collected, care is taken to ensure that they are not exposed to any additional gamma radiation or x-rays. Once the dosimeters are collected, they are returned to the vendor in the original box with the provided shipping label. This label cautions against exposure to radioactive materials or x-rays while in transit.

The results of environmental gamma radiation monitoring are recorded in the environmental record system for use by the EHS Department staff to determine trends at particular locations and to analyze potential impacts from site operations. These results are also included in the Semi-annual Radiological Effluent and Environmental Monitoring Report submitted to the NRC. The analytical results should be reviewed to ensure that NRC quality requirements are met. The analytical results include the mean gross and net ambient dose equivalents. The net ambient dose equivalent is determined by subtracting the dose to the control dosimetry from the gross reading for the dosimeter deployed in the field.

Section 2. ASSESSMENT OF SIGNIFICANCE

1. Does the Change Request involve a level of significance great enough to require an ORC/SERP review as described in EHS-6? **Yes X** **No** ☐

2. Were Site Significant Environmental Aspects reviewed **Yes** ☐ **No X**

3. Does change result in result in an increased environmental risk? **Yes** ☐ **No X**

Signed: Don Winslow **Date:** 3-19-07
EHSMS Coordinator

If "No" is answered to question # 1 above, then work may proceed may proceed on the request in accordance with established procedures and safe work practices, or other controls identified in the Work Order.

If "Yes" is answered to question # 1 above, then an ORC and/or SERP review must be performed in accordance with procedure EHS-6 *Managing Change* and EHS-3, *Hazard Identification, Risk Assessment, and Risk Control.*

ORC Review (See ORC Review Documentation):

Date Performed 3/12/07

Approved X Disapproved ☐

Comments:

SERP SERP

~~ORC~~ Review (See ~~ORC~~ Review Documentation):

Date Performed 3/12/07

Approved X Disapproved ☐

Comments:

Section 3. CHANGE IMPLEMENTATION

Have actions and controls identified by the ORC and/or SERP to be implemented prior to project start-up been completed? Yes ☒ No ☐

If "Yes", then change is ready to Proceed.

Signed: _____ _____
Area Supervisor/Manager Change Originator

Section 4. FOLLOW-UP

Was the change completed according to applicable procedures?	Yes ☒	No ☐
Were controls identified through the Risk Assessment completed	Yes ☒	No ☐
Has the expected performance of the change been achieved?	Yes ☒	No ☐
Has the change control process been executed properly?	Yes ☒	No ☐
Has the results of the change been communicated to appropriate personnel? If so, to whom and how was it communicated? Describe below:	Yes ☒	No ☐

Signatures: _____ _____
Area Supervisor/Manager EHSMS Coordinator

POWER RESOURCES

CHANGE CONTROL

Section 1. CHANGE IDENTIFICAION
Title of Change: Environmental Dosimetry **Change Request Originator: Chuck Foldenauer** **Date: 3/12/07** **Work Order # (If Applicable): _____**
Scope Of Change: Environmental Health and Safety Volume VI describes in detail who provides the Dosimetry and what kind of Passive Gamma Dosimetry we will be using. We changed our distributor of Environmental Gamma Monitoring devices in 2006. Volume VI requires updating to include other Approved providers and equipment available that may change and improve. **In addition our License Application states that we will use Spherical TLD's. A proposed change to state "Environmental Dosimeters or equivalent, which meet NRC standards".**

Is the risk(s) identified acceptable as a result of the controls and mitigative actions described above.	Yes X	No ☐
If "No", describe additional controls or mitigative actions required to bring the risk(s) back to acceptable levels:		

Section 5

Risk Assessment Team Approvals		
Name (Print)	**Signature**	**Date**
CHUCK FOLDENAUER		3.12.07
JOHN McCARTHY		3/12/07
Arlene Crook		3/12/07
Jon Winter		3/12/07

RISK SCREENING/ASSESSMENT

Section 1

Title of Proposed Change: Environmental Dosimetry

Assessment Team: Chuck Foldenauer, Arlene Crook, John Winter

Section 2

Risk Assessment Question	Yes	No	N/A
Will the proposed change result in a potential increase of radiological exposure to employees or the public?	☐	X	☐
Will additional radiological monitoring be required as a result of the proposed change?	☐	X	☐
Will additional radiological controls or personal protective equipment be required as a result of the proposed change?	☐	X	☐
Will the proposed change result in an increase in transportation of radioactive materials or require modification of current transportation methods?	☐	☐	X
Will the proposed change result in an increased potential for a significant release or spill of radioactive material?	☐	☐	X
Has new equipment, facilities, or processes been proposed that introduce potential additional hazards or require engineering controls to reduce hazards?	☐	X	☐
Have new electrical systems been proposed that introduce potential additional hazards or require engineering controls to reduce hazards?	☐	☐	X
Will the proposed change result in an increased exposure to elevated noise levels?	☐	☐	X
Will new potentially hazardous chemicals and/or bulk chemical storage areas be introduced?	☐	☐	X
Will the proposed change introduce potentially hazardous confined space areas or introduce potential hazards to existing confined spaces?	☐	☐	X
Will the proposed change result in abnormal hazards from excavation or construction not predicted in current procedures?	☐	☐	X
Will the proposed change result in an increased fire hazard or will existing fire protection systems be ineffective?	☐	☐	X
Will the proposed change increase potential for a violation of an environmental or radiological regulatory permit or standard?	☐	X	☐
Will the proposed change cause significant surface disturbance outside of the permit area?	☐	☐	X

Will the proposed change result in a significant increase in solid, hazardous, or radiological waste generation?	☐	☐	X
Will the proposed change require approval from a regulatory agency or coverage under a permit?	☐	X	☐
Will special training need to be incorporated beyond the scope of current training programs?	☐	X	☐
Will additional Standard Operating Procedures or Emergency Response Procedures need to be developed prior to change implementation?	☐	X	☐
Will the proposed change introduce potential legal issues or obligations?	☐	X	☐
Will the proposed change result in nonconformance with established company policies?	☐	X	☐
Will the proposed change result in damage to the credibility, public perception, reputation, or public good standing of Power Resources, Crow Butte Resources, or Cameco as a reputable company?	☐	X	☐
Are there any other risk scenarios not included in the above questions that could result from the proposed change?	☐	X	☐
Will proposed change affect the sites Environmental Aspects?	☐	X	☐

Section 3

If yes was answered to any questions above, indicate the controls or mitigative actions to be used to minimize the associated risk:

Section 4

Sept. 2007-2

POWER RESOURCES

CHANGE CONTROL

Section 1. CHANGE IDENTIFICAION

Title of Change: Lab testing for decontamination of shredded materials for potential release. April 17, 2007

Change Request Originator: Dennis Kerstiens

Date: Work Order # (If Applicable): N/A

ORC/SERP to assess results of decontamination efforts regarding shredded poly pipe for potential commercial scale operations. The test will be conducted in the on-site lab with trained personal wearing all appropriate protective equipment as required in Standard Operating Procedures (SOP). A new SOP was prepared and circulated for approval describing the proposed test in detail. The site Radiation Safety Officer (RSO) or designee will assist in evaluating the decontamination results as compared to Nuclear Regulatory Release standards. The testing will be completed with varying strengths of acids and/or solutions and time/agitation in an attempt to maximize the results. Revised and new SOPs associated with this process are listed below:

SOP 2065 Handling of Radiological Materials in the Laboratory revised 4/18/07
SOP NEW Test Work for Cleaning Pipe Chips 2066 4/18/07
SOP 2064 Safe Use of Chemicals 4/18/07

All individuals associated with the test process will read/sign the above listed SOPs prior to beginning the test as described in the above SOP.

Section 2. ASSESSMENT OF SIGNIFICANCE

1. Does the Change Request involve a level of significance great enough to require an ORC/SERP review as described in EHS-6? **Yes** X **No** ☐

2. Were Site Significant Environmental Aspects reviewed **Yes** ☒ **No**

3. Does change result in result in an increased environmental risk? **Yes** ☐ **No** X

Signed: Jack McCarthy per Lou Winter **Date:** 4/11/07
EHSMS Coordinator

If "No" is answered to question # 1 above, then work may proceed may proceed on the request in accordance with established procedures and safe work practices, or other controls identified in the Work Order.

If "Yes" is answered to question # 1 above, then an ORC and/or SERP review must be performed in accordance with procedure EHS-6 *Managing Change* and EHS-3, *Hazard Identification, Risk Assessment, and Risk Control.*

ORC Review (See ORC Review Documentation):

Date Performed 4/17/07

Approved X Disapproved ☐

Comments:

ORC Review (See ORC Review Documentation):

Date Performed 4/17/07

Approved X Disapproved ☐

Comments:

RISK SCREENING/ASSESSMENT

Section 1

Title of Proposed Change: Lab testing for decontamination of shredded materials for potential release.

Assessment Team: C. Foldenauer, P. Drummond, S. Hatten, M. Bryson, Dennis Kerstiens, Arlene Crook, John McCarthy, Erik Heide

Section 2

Risk Assessment Question	Yes	No	N/A
Will the proposed change result in a potential increase of radiological exposure to employees or the public?	☐	☒	☐
Will additional radiological monitoring be required as a result of the proposed change?	☐	☒	☐
Will additional radiological controls or personal protective equipment be required as a result of the proposed change?	☐	☒	☐
Will the proposed change result in an increase in transportation of radioactive materials or require modification of current transportation methods?	☐	☒	☐
Will the proposed change result in an increased potential for a significant release or spill of radioactive material?	☐	☒	☐
Has new equipment, facilities, or processes been proposed that introduce potential additional hazards or require engineering controls to reduce hazards?	☒	☐	☐
Have new electrical systems been proposed that introduce potential additional hazards or require engineering controls to reduce hazards?	☐	☒	☐
Will the proposed change result in an increased exposure to elevated noise levels?	☐	☒	☐
Will new potentially hazardous chemicals and/or bulk chemical storage areas be introduced?	☐	☒	☐
Will the proposed change introduce potentially hazardous confined space areas or introduce potential hazards to existing confined spaces?	☐	☒	☐
Will the proposed change result in abnormal hazards from excavation or construction not predicted in current procedures?	☐	☒	☐
Will the proposed change result in an increased fire hazard or will existing fire protection systems be ineffective?	☐	☒	☐
Will the proposed change increase potential for a violation of an environmental or radiological regulatory permit or standard?	☐	☒	☐

Will the proposed change cause significant surface disturbance outside of the permit area?	☐	☒	☐
Will the proposed change result in a significant increase in solid, hazardous, or radiological waste generation?	☐	☒	☐
Will the proposed change require approval from a regulatory agency or coverage under a permit?	☐	☒	☐
Will special training need to be incorporated beyond the scope of current training programs?	☒	☐	☐
Will additional Standard Operating Procedures or Emergency Response Procedures need to be developed prior to change implementation?	☐	☒	☐
Will the proposed change introduce potential legal issues or obligations?	☐	☒	☐
Will the proposed change result in nonconformance with established company policies?	☐	☒	☐
Will the proposed change result in damage to the credibility, public perception, reputation, or public good standing of Power Resources, Crow Butte Resources, or Cameco as a reputable company?	☐	☒	☐
Are there any other risk scenarios not included in the above questions that could result from the proposed change?	☐	☒	☐
Will proposed change affect the sites Environmental Aspects?	☐	☒	☐

Section 3

If yes was answered to any questions above, indicate the controls or mitigative actions to be used to minimize the associated risk:

Oxalic Acid is the only chemical not previously assessed that will be introduced into this process. The site " Safe Use of Chemical, 2064" Standard Operating Procedure will be used in conjunction with the appropriate Material Safety Data Sheet to ensure safe work practices. Also, "Handling of Radiological Materials in the Laboratory, 2065" will be incorporated into the test. All individuals associated with the test will read and sign off indicating an understanding of requirements. Engineering controls will not be necessary to perform the test under laboratory conditions and operating procedures.

Section 4

Is the risk(s) identified acceptable as a result of the controls and mitigative actions described above.	Yes ☒	No ☐

If "No", describe additional controls or mitigative actions required to bring the risk(s) back to acceptable levels:

Section 5

Risk Assessment Team Approvals		
Name (Print)	**Signature**	**Date**

SEE Signature page

Is the risk(s) identified acceptable as a result of the controls and mitigative actions described above.	Yes ☒	No ☐
If "No", describe additional controls or mitigative actions required to bring the risk(s) back to acceptable levels:		

Section 5

Risk Assessment Team Approvals

Name (Print)	Signature	Date
Pat Drummond		4.17.07
Erik Heide		4/17/07
Dennis Kerstiens		4/17/07
Michael D. Bryson	Michael D. Bryson	4/17/07
Chuck Foldenauer		4.17.07
Steven M. Hatten		4-17-07
Arlene Crook	Arlene Crook	4-17-07

Section 3. CHANGE IMPLEMENTATION

Have actions and controls identified by the ORC and /or SERP to be implemented prior to project start-up been completed? Yes ☑ No ☐

If "Yes", then change is ready to Proceed.

Signed: _____ 4.14.07 _____
Area Supervisor/Manager

_____
Change Originator

Section 4. FOLLOW-UP

Was the change completed according to applicable procedures?	Yes ☒	No ☐
Were controls identified through the Risk Assessment completed	Yes ☒	No ☐
Has the expected performance of the change been achieved?	Yes ☒	No ☐
Has the change control process been executed properly?	Yes ☒	No ☐
Has the results of the change been communicated to appropriate personnel?	Yes ☒	No ☐

If so, to whom and how was it communicated? Describe below:

See Attached memo from J. McCarthy 4/19/07

Signatures: _____ 4.17.07 _____
Area Supervisor/Manager

_____
EHSMS Coordinator

SERP # _____ Date 4/11/07

SERP Evaluation Checklist

NRC LICENSE REQUIREMENT	YES	NO	N/A
Does the proposed change, test, and/or experiment conflict with the ALARA principle?		X	
Does the proposed change, test, and/or experiment conflict with the Company's ability to meet all applicable NRC regulations?		X	
Is there degradation in the essential safety or environmental commitments in the license application, or provided in the approved reclamation plan?		X	
Does the proposed change, test, and/or experiment conflict with any requirement specifically stated in the source material license?		X	
Is the proposed change, test, and/or experiment not consistent with the conclusions of actions analyzed in the facilities Final Safety Evaluation Report (FSER)?		X	
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?		X	
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)?		X	
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)?		X	
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)?		X	
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)?		X	
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)?		X	
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)?		X	
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.)		X	

MSDS Number: O6044 * * * * * *Effective Date: 01/16/06* * * * * *Supercedes: 11/12/03*

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

Mallinckrodt CHEMICALS J.T.Baker

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC®: 1-800-424-9300
National Response in Canada, CANUTEC: 613-996-6666
Outside U.S. and Canada Chemtrec: 703-527-3887
NOTE: CHEMTREC®, CANUTEC and Mallinckrodt Baker emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service at 1-800-582-2537 for assistance.

OXALIC ACID

1. Product Identification

Synonyms: Ethanedioic acid, dihydrate; oxalic acid dihydrate
CAS No.: 144-62-7 (Anhydrous); 6153-56-6 (Dihydrate)
Molecular Weight: 126.07
Chemical Formula: HOOCCOOH.2H2O
Product Codes:
J.T. Baker: 0229, 0230
Mallinckrodt: 2752, 7296

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Oxalic Acid	144-62-7	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

POISON! DANGER! MAY BE FATAL IF SWALLOWED. CORROSIVE. CAUSES SEVERE IRRITATION AND BURNS TO SKIN, EYES, AND RESPIRATORY TRACT. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE KIDNEY DAMAGE.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 4 - Extreme (Poison)
Flammability Rating: 1 - Slight
Reactivity Rating: 1 - Slight
Contact Rating: 3 - Severe (Corrosive)
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: White (Corrosive)

Potential Health Effects

Oxalic acid is corrosive to tissue. When ingested, oxalic acid removes calcium from the blood. Kidney damage can be expected as the calcium is removed from the blood in the form of calcium oxalate. The calcium oxalate then obstructs the kidney tubules.

Inhalation:
Harmful if inhaled. Can cause severe irritation and burns of nose, throat, and respiratory tract.
Ingestion:
Toxic! May cause burns, nausea, severe gastroenteritis and vomiting, shock and convulsions. May cause renal damage, as evidenced by bloody urine. Estimate fatal dose is 5 to 15 grams.
Skin Contact:
Can cause severe irritation, possible skin burns. May be absorbed through the skin.
Eye Contact:
Oxalic acid is an eye irritant. It may produce corrosive effects.
Chronic Exposure:
May cause inflammation of the upper respiratory tract. Prolonged skin contact can cause dermatitis, cyanosis of the fingers and possible ulceration. May affect kidneys.
Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems, or impaired kidney or respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion:
DO NOT INDUCE VOMITING! Give large quantities of limewater or milk to drink. Never give anything by mouth to an unconscious person. Call a physician immediately.
Skin Contact:
In case of contact, wipe off excess from skin then immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.
Eye Contact:
Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

5. Fire Fighting Measures

Fire:
Oxalic Acid is a combustible solid below 101C (215F)
Explosion:
Reacts explosively with strong oxidizing materials and some silver compounds.
Fire Extinguishing Media:
Water spray, dry chemical, alcohol foam, or carbon dioxide. Foam or water on molten oxalic acid may cause frothing. Water spray may be used to keep fire exposed containers cool.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8.

Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Pick up spill for recovery or disposal and place in a closed container. Remove unnecessary people. If material comes in contact with water, neutralize liquid with alkaline material (soda ash, lime), then absorb with an inert material (e.g. vermiculite, dry sand, earth) and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer.

7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
-ACGIH Threshold Limit Value (TLV):
1 mg/m3 (TWA), 2 mg/m3 (STEL)

-OSHA Permissible Exposure Limit (PEL):
1 mg/m3
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, a half-face respirator with an organic vapor cartridge and dust/mist filter may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece respirator with an organic vapor cartridge and dust/mist filter may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
Transparent, colorless crystals.
Odor:
Odorless.
Solubility:
ca. 1g/7mL of water.
Specific Gravity:
1.65 @ 18.5C/4C
pH:
No information found.
% Volatiles by volume @ 21C (70F):
0
Boiling Point:
149 - 160C (300 - 320F) Sublimes.
Melting Point:
101.5C (216F)
Vapor Density (Air=1):
4.4

Vapor Pressure (mm Hg):
< 0.00) @ 20C (68F)
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Heat will contribute to instability.
Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition. May also form formic acid.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Alkalis, chlorites, hypochlorites, oxidizing agents, furfuryl alcohol and silver compounds.
Conditions to Avoid:
Heat, ignition sources and incompatibililites.

11. Toxicological Information

Oral rat LD50: 375 mg/kg; irritation skin rabbit: 500 mg/24H mild; eye rabbit 250 ug/24H severe; investigated as a reproductive effector.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Oxalic Acid (144-62-7)	No	No	None

12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: CORROSIVE,SOLID,ACIDIC,ORGANIC N.O.S. (OXALIC ACID,DIHYDRATE)
Hazard Class: 8
UN/NA: UN3261
Packing Group: III
Information reported for product/size: 12KG

International (Water, I.M.O.)

Proper Shipping Name: CORROSIVE,SOLID,ACIDIC,ORGANIC N.O.S. (OXALIC ACID,DIHYDRATE)
Hazard Class: 8
UN/NA: UN3261
Packing Group: III
Information reported for product/size: 12KG

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\----------

Ingredient	TSCA	EC	Japan	Australia
Oxalic Acid (144-62-7)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\----------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Oxalic Acid (144-62-7)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Oxalic Acid (144-62-7)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\----------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Oxalic Acid (144-62-7)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Mixture / Solid)

Australian Hazchem Code: 2X
Poison Schedule: S6
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: *Health: 3 Flammability: 1 Reactivity: 0*
Label Hazard Warning:
POISON! DANGER! MAY BE FATAL IF SWALLOWED. CORROSIVE. CAUSES SEVERE IRRITATION AND BURNS TO SKIN, EYES, AND RESPIRATORY TRACT. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE KIDNEY DAMAGE.
Label Precautions:
Do not breathe dust.
Do not get in eyes, on skin, or on clothing.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Label First Aid:
If swallowed, DO NOT INDUCE VOMITING! Give large quantities of lime water or milk to drink. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases call a physician immediately.
Product Use:
Laboratory Reagent.
Revision Information:
MSDS Section(s) changed since last revision of document include: 3.
Disclaimer:
****
**Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT *TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES* RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.
****
Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

POWER RESOURCES, INC.
Smith Ranch-Highland Uranium Project

To:	John McCarthy	Kyle Tiensvold
	Greg Kruse	Steve Hatten
	Pat Drummond	Mike Bryson
	Dennis Zimbleman	Todd Bunting
	Chuck Foldenauer	Craig Hiser

Date: April 19, 2007
From: John McCarthy
Re: Sign off Sheets for SOPs

The following new/revised SOPs have been changed in the manuals. Please have your employees review, date, and initial in the space provided. Please print NA next to the name if this SOP is not applicable to the employee and returned to Karen Siebken.

Volume III
Reinstated SOP 2064 - Safe Use of Chemicals
Revised SOP 2065 - Handling of Radiological Materials In the Laboratory
New SOP 2066 - Test Work for Cleaning Pipe Chips
Revised Form SOP F 2220-1 - Headerhouse Startup Sign Off Sheet

CPP

Name	Date	Vol III
Drummond, Patrick	4-23-07	ALL PD
Reimann, Lawrence J.	4-23-07	ALL LJR
Heide, Erik	4/24/07	ALL EH
Caskey, Christopher L.	4/23/07	ALL CC
Brelsford, Michael	4/25/07	all MB
Laird, Duce	5/4/07	
Loden, Tony	5-9-07	ALL TL
Pace, Ben	05-04-07	ALL BP
Baughman, Garth	5/12/07	all GB
Robbins, Ron	5/13/07	all RR
Beynon, Virginia D.	4-25-07	2064, 2065, 2066 VDB
Lehner, Kirk A.	4/25/07	2064, 2065, 2066
Raney, April	4/25/07	2064, 2065, 2066 - AR
Kincaid, Roy		

2007-3

Inter-Company Memorandum

Date: July 13, 2007

To: C. Foldenauer,

From: Jon Winter Sr. EH&S Systems Coordinator

Re: Safety and Environmental Review Panel (SERP) South West Bicarbonate additions.

cc: File SR 4.6.4.2

A. INTRODUCTION

Core from the South West Mine Unit was sent to CTD (Cameco Technical Development) for leach testing in 2006. The final results of the leach testing showed that increasing the bicarbonate (as HCO_3) concentration from the average of 700ppm to 1200ppm raised the overall uranium recovery by an average of 8%. Achieving the higher bicarbonate concentration would require the addition of up to 1700 ppm of $NaHCO_3$. The following outlines the process to apply the extra bicarbonate to the South West Mine Unit lixiviate

The South West Mine Unit is the perfect production area to augment the lixiviate with sodium bicarbonate. The South West Mine Units will be isolated from the current producing mine units. I would like to add the two cautionary statements before going any further with the discussion of the bicarbonate addition:

1. Do not commingle any of the existing mine unit lixiviate with the South West Mine Unit (i.e. adding Mine Unit 15 flow) if bicarbonate addition is used. The final South West Mine Unit lixiviate chemistry will be quite different from existing mining solutions. Commingling existing mining solutions with the South West lixiviate will probably turn the mine unit into a block of calcite.

2. The recirculation of the header houses will no longer be possible because the bicarbonate will be injected at the satellite plant. Lowering the pH by injection carbon dioxide at the header house during recirculation and mixing the main production flow with the circulated fluid will cause problems with calcite.

3. The addition of sodium bicarbonate will be a pH dependant process that will require monitoring to prevent calcite precipitation.

The addition of sodium bicarbonate in ISL mining is not new. The addition of bicarbonate is currently used at Crow Butte Resources and was used at Cogema's Christensen Ranch Mine.

The following is a brief description of the South West Bicarbonate Addition System:

- Sodium Bicarbonate would be delivered in bulk and stored in a silo.
- A small RO unit would be used to treat a portion of the SR2 purge water for bicarbonate makeup.
- The treated water would be stored in a 10,000 gallon tank.
- Sodium Bicarbonate would be mixed at a concentration of 75g/L in an 8000 gallon cone bottomed tank.
- A 15,000 gal. tank would store the mixed bicarbonate solution for injection.
- Injection would be accomplished in a slip stream that is approximately 10% of the total SR2 flow. The slip stream would be used to adjust the initial pH and dilute the reagent stream before injecting the bicarbonate into the main IC line. A similar technique was used in the Mine Unit 15 bicarbonate test.
- The ph would be monitored before and after the bicarbonate injection on the slip stream and on the main IC injection.
- The system would be controlled by a PLC.

A block diagram of the bicarbonate system is included with this SERP.

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:

C. Foldenauer- Mine Manager
John McCarthy Manager- Health, Safety, and Environmental Affairs
Mike Bryson- Superintendent Wellfield Operations
Larry Reimann- Sr. Project Engineer
Catherine Bull- Project Engineer
Arlene Crook - RSO

C. EVALUATION OF PROPOSED CHANGE/TEST

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 Bicarbonate Addition System for the South West area is consistent with NRC License SUA-1548 and should not compromise the effectiveness of the ALARA and environmental compliance programs. Therefore, the SERP approves this change as presented.

Signature: _____ Date: 7-17-07

C. Foldenauer, Mine Manager

Signature: _____ Date: 7/19/07

John McCarthy Manager- Health, Safety and Environmental Affairs

Signature: Michael D. Bryson Date: 7/19/07

Mike Bryson- Superintendent Wellfield Operations

Signature: _____ Date: 7/19/07

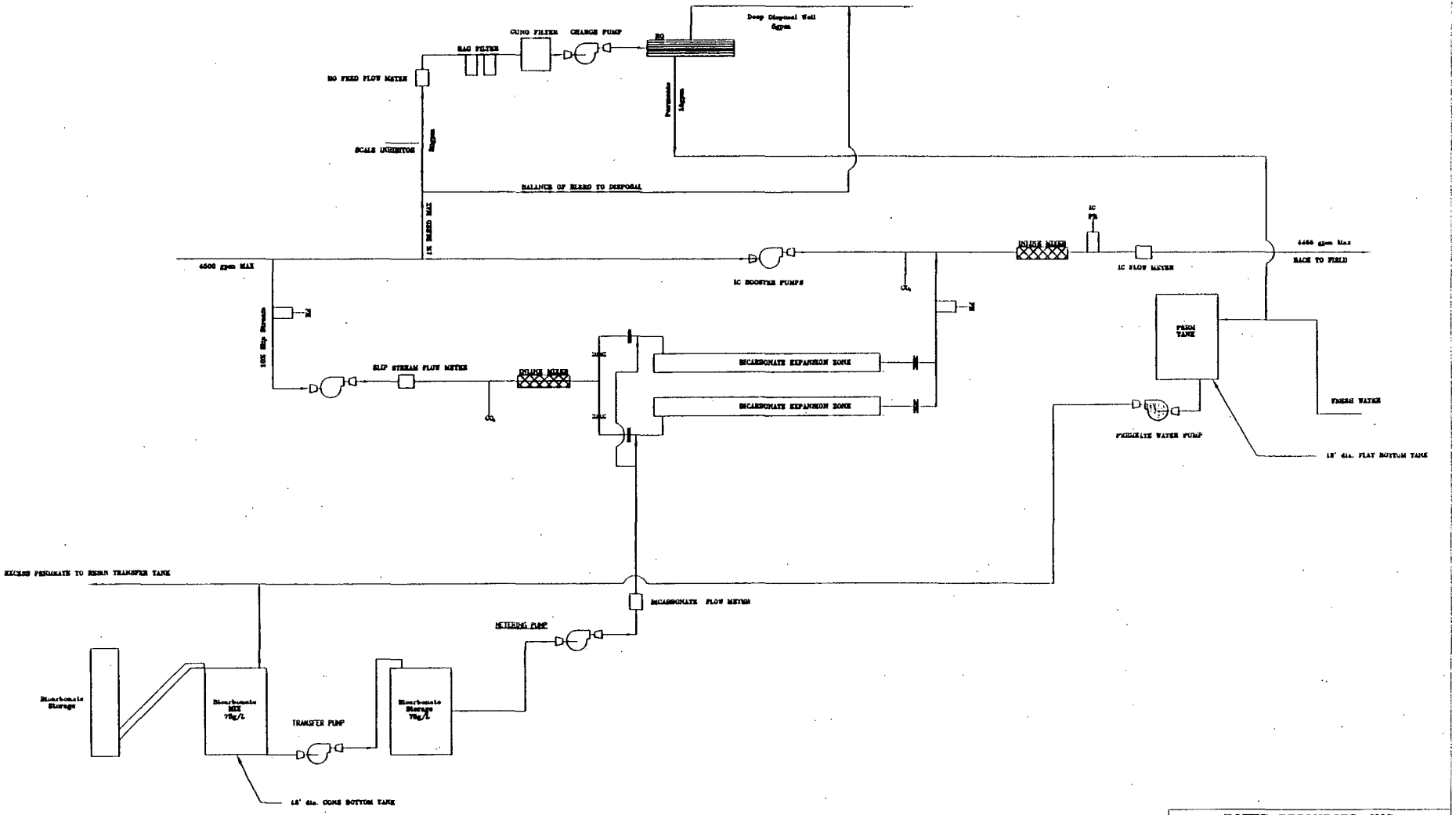
Larry Riemann- Sr. Project Engineer

Signature: NA Date: _____

Catherine Bull- Project Engineer

Arlen Crook 7/25/07

RSO



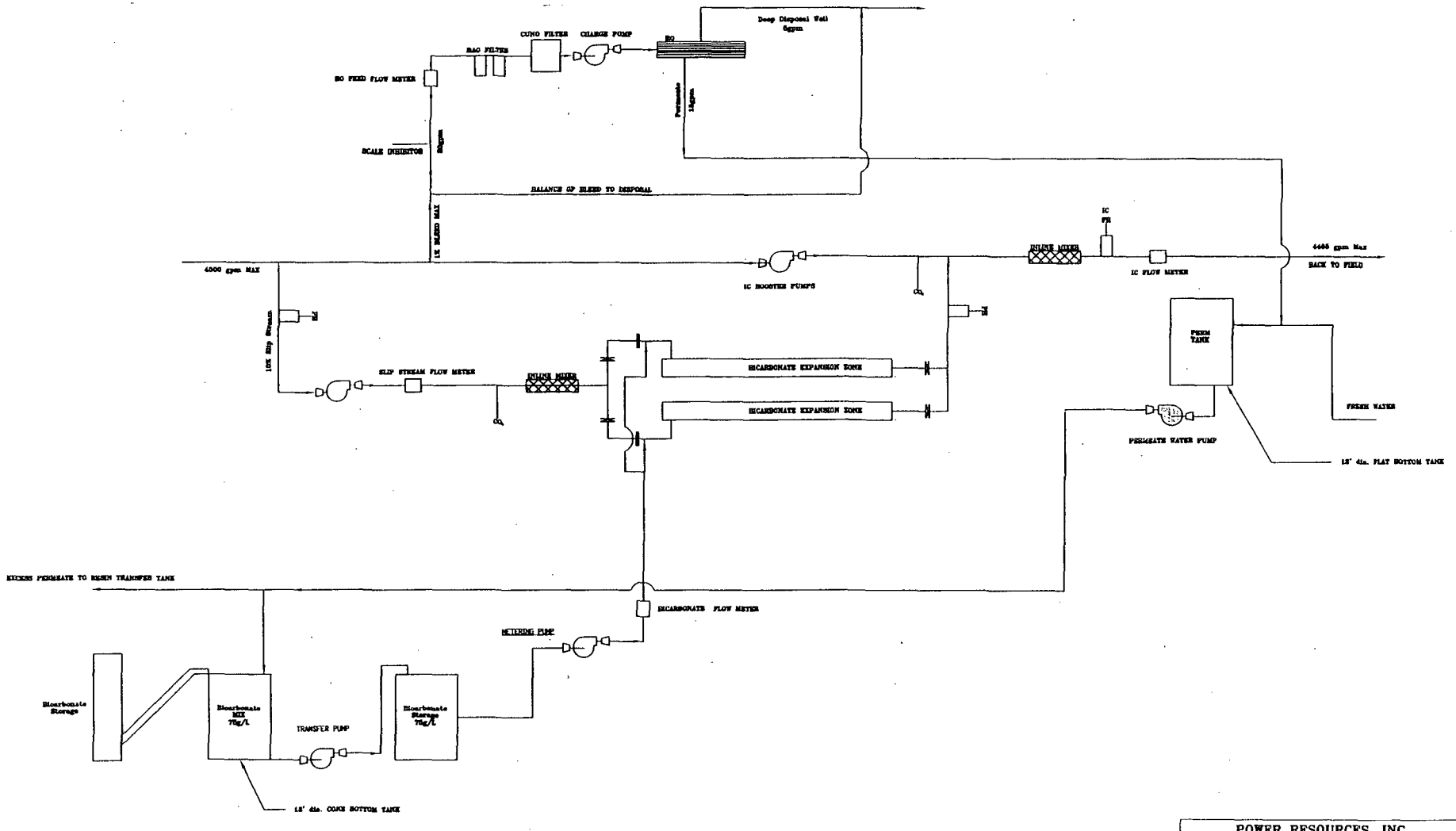
POWER RESOURCES, INC.

P.O. Box 1210 Glenrock, WY 82637 (307) 358-6541 (307) 235-1626

REVISIONS		
NO.	DATE	BY

SMITH RANCH – HIGHLAND URANIUM PROJECT

PROCESS FLOW
SR2 BICARBONATE SYSTEM



POWER RESOURCES, INC.

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NO.	DATE	BY

SMITH RANCH – HIGHLAND URANIUM PROJECT

PROCESS FLOW

SR2 BICAR[illegible]TE SYSTEM