



Smith Ranch - Highland
Uranium Project
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August 18, 2004

ATTN: Document Control Desk
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Fuel Cycle Facilities Branch,
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
11545 Rockville Pike, Two White Flint North
Rockville, MD 20852-2738

RE: Smith Ranch-Highland Uranium Project
NRC License SUA-1548, Docket No. 40-8964
Semi-Annual Effluent and Environmental Monitoring Report, January 1 - June 30, 2004

Dear Mr. Janosko:

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 January 1 through June 30, 2004. A copy of this report is also being forwarded to Mr. John Lusher, USNRC Headquarters, and Mr. Dwight Chamberlain, Director DRSS, Region IV.

If you have any questions regarding the report, please contact me at (307) 358-6541, ext. 62.

Sincerely,

A handwritten signature in black ink that reads 'Bill Kearney'. The signature is written in a cursive, flowing style.

W.F. Kearney
Manager-Health, Safety
& Environmental Affairs

WFK/klm

Enclosure

cc: Mr. John Lusher, USNRC Headquarters (Addressee Only)
Mr. Dwight Chamberlain, Director DRSS, Region IV, USNRC
S.P. Collings w/o atta

R. Knode w/o atta
K. L. Milmine w/o atta
File SR 4.6.4.1

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POWER RESOURCES, INC.
SMITH RANCH - HIGHLAND URANIUM
PROJECT

SEMI-ANNUAL EFFLUENT AND
ENVIRONMENTAL MONITORING
REPORT

FOR THE PERIOD

JANUARY 1, 2004 THROUGH
JUNE 30, 2004

USNRC SOURCE MATERIAL LICENSE
NO. SUA-1548

DOCKET NO. 40-8964

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ATTACHMENT A

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 January 1 through June 30, 2004, no urinalyses exceeded the action level of 15 µg/L 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 1st and 2nd Quarters of 2004 is presented in Tables 1A, 1B, 1C, and 1D included in Attachment A.

2.1 Satellite No. 1

The monthly recovery and injection data for Satellite No. 1 reflect the operation of the Reverse Osmosis (RO) units. During RO activities, clean water (permeate) is injected into the wellfield and the RO concentrate is disposed. During the report period, permeate from RO #1, and RO #3 was injected only into the B-Wellfield. The RO concentrate is treated for the removal of uranium and radium and pumped to the Satellite No. 1 or No. 2 Purge Storage Reservoirs prior to disposal by irrigation. The total “purge” at Satellite No. 1 is reflected in the column labeled “Purge Flow”. The monthly average recovery and injection data for Satellite No. 1 is shown in Table 1A.

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): 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 has been discontinued and 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, Effluent Concentration Limits. Somewhat elevated uranium concentrations were observed in the 1st, 2nd, and 4th Quarters of 2003 at Vollman Ranch site (AS-3). Uranium concentrations at this site during the 1st and 2nd Quarter of 2004 were significantly less and exhibited more normal conditions.

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 are within normal background conditions and show no discernable trends with previous data.

3.3 Water Sampling Data

3.3.1 *Groundwater and Surface Water Monitoring Stations*

During the report period, monitoring was completed at four 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 the five stock ponds (Stations #2, #3, #4, and #5) remained dry during the report period. A review of data collected from the nine water wells and four stock ponds show that the concentrations of uranium and radium-226 are well below the 10 CFR 20, Appendix B, Effluent Concentration Limits of $3.0E-07$ $\mu\text{Ci/mL}$ and $6.0E-08$ $\mu\text{Ci/mL}$, respectively.

3.4 Wastewater Land Application Facilities Monitoring

3.4.1 *Soil and Vegetation Sampling*

In accordance with the approved license application and the WDEQ permits for the Satellite No. 1 and Satellite No. 2 Wastewater Land Application Facilities, soil and vegetation sampling of the irrigation areas is conducted in late summer of each year. The soil and vegetation data are collected to monitor and evaluate any adverse effects to the irrigation areas. The 2004 soil and vegetation sampling at the irrigation areas is scheduled for August.

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. Irrigation fluid data collected at the Satellite No.1 Land Application Facility during the report period is provided in Table 5. A review of the data indicates that the concentrations of uranium in the monthly grab samples did not exceed the 10 CFR 20, Appendix B, Effluent Concentration Limit (ECL) of $3.0E-07$ $\mu\text{Ci/ml}$ and were less than the range of concentrations estimated for injection fluid in the original license application for the facility ($2.93E-07$ to $1.86E-06$ $\mu\text{Ci/mL}$). Similarly, radium-226 concentrations in the monthly grab samples did not exceed the 10 CFR 20, Appendix B, Effluent Concentration Limit of $6.0E-08$ $\mu\text{Ci/mL}$ (60 pCi/L) or the estimate provided in the original license application for the facility ($3.0E-08$ $\mu\text{Ci/mL}$).

Irrigation fluid data collected at the Satellite No. 2 Land Application Facility during the report period is provided in Table 6. A review of the data indicates that the concentration of uranium in the June monthly grab sample ($4.06E-07$ $\mu\text{Ci/mL}$) slightly exceeded the 10 CFR 20, Appendix B, Effluent Concentration Limit of $3.0E-07$ $\mu\text{Ci/mL}$, but was significantly less than the estimate provided in the original license application for the facility ($1.4E-06$ $\mu\text{Ci/mL}$). All

of the monthly grab samples contained radium-226 concentrations below the 10 CFR 20, Appendix B, Effluent Concentration Limit of $6.0E-08$ $\mu\text{Ci/ml}$ (60 pCi/L). The radium-226 concentration was below the estimate provided in the original license application for the facility ($3.0E-09$ $\mu\text{Ci/mL}$) for all of the monthly grab samples.

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. 1, No. 2, and No. 3 prior to discharge into the Purge Storage Reservoirs. The monthly radium-226 grab samples for Satellite No. 1, 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 7A, 7B, and 7C. Review of the monitoring data shows that all radium-226 concentrations were above the 10 CFR 20, Appendix B, Effluent Concentration Limit of $6.0E-8$ $\mu\text{Ci/ml}$ (60 pCi/L) at Satellite No. 1 during February and March of 2004, and also at Satellite No. 3 during May of 2004. The higher average concentrations at Satellite No. 1 can be partially attributed to increased maintenance activity on the filter presses from restoration activities. The high average concentration in February is attributed to a tear in the filter sock for the February 3, 2004 sample, which resulted in an uncommonly high concentration of 2,970 pCi/L. Operations at Satellite No. 1 ceased at the end of June 2004 and will remain on standby status pending approval of the B-Wellfield restoration. As a result, it is unlikely that future sampling of the radium treatment system will be conducted.

The discharge of wastewater containing slightly higher levels of radium-226 described above is not expected to have a significant affect on the quality of irrigation fluid. Evidence to this is provided by the subsequent analytical results of irrigation fluid samples collected from the Satellite No. 1 and No. 2 Wastewater Land Application Facilities. The radium concentrations in June of 2004 at the Wastewater Land Application Facilities were $1.20E-9$ $\mu\text{Ci/mL}$ (Satellite No. 1 irrigation fluid) and $5.00E-10$ $\mu\text{Ci/mL}$ (Satellite No. 2 irrigation fluid), which is significantly less than the 10 CFR 20, Appendix B, Effluent Concentration Limit of $6.0E-8$ $\mu\text{Ci/mL}$ for radium-226.

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 15, 2004, 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 #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.

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 collected on a semi-annual basis from the two shallow monitoring wells located adjacent to the Satellite No. 2 Purge Storage Reservoir (PSR-2). 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 March 31 and June 9, 2004. Table 8 contains the applicable data for the two shallow wells.

Comparison of the uranium data from the two shallow wells does not indicate any significant trends or changes from previous report periods. Concentrations of radium-226 were slightly elevated above previous reported values in the second quarter of 2004 at the Shallow Well No. 2 (East) and at Shallow Well No. 2 (South) during the first quarter. 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 (2004)

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.

PRI demonstrated compliance with the above regulations for 2003 in the previous Semi-Annual Effluent and Environmental Monitoring Report. The demonstration of compliance with these regulations for 2004 will be included in the next report.

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. PRI submitted all SERP evaluations completed in 2003 in the previous Semi-Annual Effluent and Environmental

Monitoring Report. All SERP evaluations completed in 2004 will be included in the next report.

6.0 RUTH ISL PROJECT

The Ruth Project is licensed for commercial ISL 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 monthly inspections of the existing facilities. During May of 2004, moisture was detected in the Evaporation Pond Standpipes. However, there was insufficient water to obtain a sample. This small amount of water most probably resulted from condensation within the standpipe as there was very little water in either pond. Both ponds were dry during June 2004. Inspection of the perimeter fence, pond embankments, and pond liners yielded no deficiencies during the report period.

7.0 NORTH BUTTE ISL PROJECT

The North Butte Project is also licensed for commercial ISL 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.

No activities were conducted during the report period.

ATTACHMENT A

- TABLE 1A- Satellite No. 1 Injection Rates, Recovery Rates, Injection Pressures**
- TABLE 1B- Average Injection Rates (GPM)**
- TABLE 1C- Average Recovery Rates (GPM)**
- TABLE 1D- Injection Trunk Line Pressures (PSI)**
- TABLE 2- Air Sampling Data**
- TABLE 3- Direct Radiation (Gamma) Measurement Data**
- TABLE 4- Water Sampling Data**
- TABLE 5- Satellite No. 1 Land Application Facility Monthly Irrigation Fluid Data**
- TABLE 6- Satellite No. 2 Land Application Facility Monthly Irrigation Fluid Data**
- TABLE 7A- Monthly Radium Grab Samples At The Discharge From The Radium Treatment System at Satellite No.1**
- TABLE 7B- Monthly Radium Grab Samples At The Discharge From The Radium Treatment System at Satellite No.2**
- TABLE 7C- Monthly Radium Grab Samples At The Discharge From The Radium Treatment System at Satellite No.3**
- TABLE 8- Satellite No. 2 Purge Storage Reservoir Shallow Monitoring Wells Quarterly Water Level Data Semi-Annual Water Quality Data**

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

MONTH	Injection Pressure (PSI)			Grounwater Sweep GPM	Radium Ponds GPM	RO Feed GPM	Injection GPM	RO Concentrate GPM	Purge Flow GPM
	RO #1	RO #2	RO #3						
Jan-04	74	0	79	16	49	224	196	56	44
Feb-04	61	0	56	5	47	175	148	43	32
Mar-04	48	0	68	2	45	194	167	49	29
Apr-04	63	0	45	8	27	160	132	42	35
May-04	68	0	59	8	29	178	138	51	48
Jun-04	75	0	6	18	43	83	55	29	46

**TABLE 1B
AVERAGE INJECTION RATES (GPM)**

MONTH	Satellite No. 2	Satellite No. 3	Satellite SR-1	Central Processing Plant
Jan-04	1,766	2,413	2,427	4,161
Feb-04	1,747	2,472	2,637	4,151
Mar-04	1,741	2,548	2,776	4,017
Apr-04	1,795	2,539	2,786	4,099
May-04	1,957	2,474	2,743	4,151
Jun-04	2,083	2,328	2,699	4,071

**TABLE 1C
AVERAGE RECOVERY RATES (GPM)**

MONTH	Satellite No. 2	Satellite No. 3	Satellite SR-1	Central Processing Plant
Jan-04	1,785	2,524	2,438	4,195
Feb-04	1,764	2,534	2,652	4,183
Mar-04	1,762	2,611	2,792	4,049
Apr-04	1,815	2,602	2,801	4,131
May-04	1,977	2,534	2,758	4,184
Jun-04	2,105	2,385	2,713	4,103

**TABLE 1D
INJECTION TRUNK LINE PRESSURES (PSI)**

MONTH	Satellite No. 2	Satellite No. 3	Satellite SR-1	Central Processing Plant
Jan-04	68	53	83	155
Feb-04	74	54	80	158
Mar-04	72	52	81	152
Apr-04	72	53	73	151
May-04	79	55	73	163
Jun-04	81	58	67	163

TABLE 2
AIR SAMPLING DATA - 2004
ENVIRONMENTAL MONITORING SITES
1st & 2nd QUARTERS

SAMPLE LOCATION	SAMPLE PERIOD	RADIONUCLIDE ($\mu\text{Ci/ml}$)	CONCENTRATION ($\mu\text{Ci/ml}$)	ERROR EST. +/- ($\mu\text{Ci/ml}$)	L.L.D. ($\mu\text{Ci/ml}$)	EFF. CONC. LIMIT ($\mu\text{Ci/ml}$)	% EFF. CONC. LIMIT %
FENCE LINE Air Station Restricted Area Boundary	1st Quarter	U-Nat	2.81E-16	N/A	1.00E-16	9.00E-14	0.3
		Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	0.0
		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	0.0
		Pb-210	5.23E-15	1.06E-15	2.00E-15	6.00E-13	0.9
		Rn-222	1.40E-09	N/A	3.00E-10	1.00E-08	14.0
	2nd Quarter	U-Nat	3.33E-16	N/A	1.00E-16	9.00E-14	0.1
		Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	<3.33E-01
		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	<1.11E-02
		Pb-210	3.61E-15	7.36E-16	2.00E-15	6.00E-13	3.4
		Rn-222	1.70E-09	N/A	3.00E-10	1.00E-08	17.0
VOLLMAN RANCH Air Station Downwind Nearest Residence	1st Quarter	U-Nat	6.99E-16	N/A	1.00E-16	9.00E-14	0.8
		Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	0.0
		Ra-226	<1.00E-16	N/A	1.00E-16	9.00E-13	0.0
		Pb-210	2.98E-15	1.00E-15	2.00E-15	6.00E-13	0.5
		Rn-222	1.00E-09	N/A	3.00E-10	1.00E-08	10.0
	2nd Quarter	U-Nat	5.15E-16	N/A	1.00E-16	9.00E-14	0.6
		Th-230	1.00E-16	N/A	1.00E-16	3.00E-14	0.3
		Ra-226	1.32E-16	7.92E-17	1.00E-16	9.00E-13	0.0
		Pb-210	2.13E-14	2.56E-15	2.00E-15	6.00E-13	3.6
		Rn-222	9.00E-10	N/A	3.00E-10	1.00E-08	9.0
DAVE'S WATER WELL Air Station Background Site	1st Quarter	U-Nat	2.21E-16	N/A	1.00E-16	9.00E-14	0.2
		Th-230	<1.00E-16	N/A	1.00E-16	3.00E-14	0.0
		Ra-226	2.85E-16	3.70E-17	1.00E-16	9.00E-13	0.0
		Pb-210	9.4E-15	9.25E-16	2.00E-15	6.00E-13	0.0
		Rn-222	1.00E-09	N/A	3.00E-10	1.00E-08	0.0
	2nd Quarter	U-Nat	3.30E-16	N/A	1.00E-16	9.00E-14	0.4
		Th-230	1.00E-16	N/A	1.00E-16	3.00E-14	0.3
		Ra-226	1.00E-16	N/A	1.00E-16	9.00E-13	0.0
		Pb-210	1.68E-14	2.47E-15	2.00E-15	6.00E-13	2.8
		Rn-222	1.70E-09	N/A	3.00E-10	1.00E-08	17.0

TABLE 3

**DIRECT RADIATION (GAMMA) MEASUREMENT DATA - 2003
ENVIRONMENTAL MONITORING SITES
3rd & 4th QUARTERS**

SAMPLE LOCATION	SAMPLE PERIOD	EXPOSURE RATE (mR/qtr)	ERROR ESTIMATE (mR/qtr)
FENCE LINE			
Air Station	1st Quarter	36	0.8
Restricted Area Boundary	2nd Quarter	41	0.7
VOLLMAN'S RANCH			
Air Station	1st Quarter	29	1.1
Downwind Nearest Residence	2nd Quarter	33	0.9
DAVE'S WATER WELL			
Air Station	1st Quarter	31	0.5
Background Site	2nd Quarter	35	0.5

TABLE 4
WATER SAMPLING DATA - 2004
ENVIRONMENTAL MONITORING SITES
1st & 2nd QUARTERS

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	1st Quarter	U-Nat Ra-226	0.046	0.3	2.00E-01	3.1E-08 0.0E+00	3.0E-07 6.0E-08	10.4 0.0
	2nd Quarter	U-Nat Ra-226	0.0353	ND		2.4E-08 0.0E+00	3.0E-07 6.0E-08	8.0 0.0
SW-2 Stock Pond Section 2 T35N, R74W	1st Quarter	U-Nat Ra-226	DRY DRY	DRY DRY				
	2nd Quarter	U-Nat Ra-226	DRY DRY	DRY DRY				
SW-3 Stock Pond Section 35 T36N, R74W	1st Quarter	U-Nat Ra-226	DRY DRY	DRY DRY				
	2nd Quarter	U-Nat Ra-226	DRY DRY	DRY DRY				
SW-4 Stock Pond Section 36 T36N, R74W	1st Quarter	U-Nat Ra-226	DRY DRY	DRY DRY				
	2nd Quarter	U-Nat Ra-226	DRY DRY	DRY DRY				
SW-5 Stock Pond Section 21 T36N, R73W	1st Quarter	U-Nat Ra-226	DRY DRY	DRY DRY				
	2nd Quarter	U-Nat Ra-226	DRY DRY	DRY DRY				
SW-6 Stock Pond Section 22 T36N, R73W	1st Quarter	U-Nat Ra-226	0.002	0.4	2.00E-01	1.4E-09 0.0E+00	3.0E-07 6.0E-08	0.5 0.0
	2nd Quarter	U-Nat Ra-226	0.0015	ND		1.0E-09 0.0E+00	3.0E-07 6.0E-08	0.3 0.0

TABLE 4 (Continued)

SAMPLE LOCATION	SAMPLE DATE	RADIONUCLIDE	CONCENTRATION (mg/L)	CONCENTRATION (pCi/L)	ERROR EST. +/- (pCi/L)	CONCENTRATION (µCi/ml)	EFF. CONC. LIMIT (µCi/ml)	% EFF. CONC. LIMIT
SW-7 Stock Pond Section 22 T36N, R73W	1st Quarter	U-Nat Ra-226	ND	ND		0.0E+00	3.0E-07 6.0E-08	0.0 0.0
	2nd Quarter	U-Nat Ra-226	0.0021	ND		1.4E-09 0.0E+00	3.0E-07 6.0E-08	0.5 0.0
SW-8 Stock Pond Section 18 T36N, R72W	1st Quarter	U-Nat Ra-226	0.005	0.4	2.00E-01	3.4E-09 0.0E+00	3.0E-07 6.0E-08	1.1 0.0
	2nd Quarter	U-Nat Ra-226	0.0051	0.4	3.00E-01	3.5E-09 0.0E+00	3.0E-07 6.0E-08	1.2 0.0
SW-9 Stock Pond Section 18 T36N, R72W	1st Quarter	U-Nat Ra-226	0.004	ND		2.7E-09 0.0E+00	3.0E-07 6.0E-08	0.9 0.0
	2nd Quarter	U-Nat Ra-226	0.0021	ND		1.4E-09 0.0E+00	3.0E-07 6.0E-08	0.5 0.0
SW-10 Stock Pond Section 19 T36N, R72W	1st Quarter	U-Nat Ra-226	0.001	ND		6.8E-10 0.0E+00	3.0E-07 6.0E-08	0.2 0.0
	2nd Quarter	U-Nat Ra-226	0.0059	0.7	4.00E-01	4.0E-09 0.0E+00	3.0E-07 6.0E-08	1.3 0.0
GW-1 Windmill Section 1 T35N, R74W	1st Quarter	U-Nat Ra-226	0.034	0.9	4.00E-01	2.3E-08 0.0E+00	3.0E-07 6.0E-08	7.7 0.0
	2nd Quarter	U-Nat Ra-226	0.0271	1.1	4.00E-01	1.8E-08 0.0E+00	3.0E-07 6.0E-08	6.1 0.0
GW-2 Water Well Section 35 T36N, R74W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226		Not Running Not Running				

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 Windmill Section 27 T36N, R74W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226		Not Running Not Running				
GW-4 Windmill Section 23 T36N, R74W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226	0.0728	0.5	4.00E-01	4.9E-08 0.0E+00	3.0E-07 6.0E-08	16.4 0.0
GW-5 Windmill Section 30 T36N, R73W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226		Not Running Not Running				
GW-6 Windmill Section 28 T36N, R73W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226		Not Running Not Running				
GW-7 Water Well Section 27 T36N, R73W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226	0.032	ND		2.2E-08 0.0E+00	3.0E-07 6.0E-08	7.2 0.0
GW-8 Windmill Section 23 T36N, R73W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226		Not Running Not Running				

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	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226		Not Running Not Running				
GW-10 Water Well Section 14 T36N, R73W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226		Not Running Not Running				
GW-11 Water Well Section 11 T36N, R73W	1st Quarter	U-Nat Ra-226	0.002	ND		1.4E-09 0.0E+00	3.0E-07 6.0E-08	0.5 0.0
	2nd Quarter	U-Nat Ra-226	0.0014	ND		9.5E-10 0.0E+00	3.0E-07 6.0E-08	0.3 0.0
GW-12 Water Well Section 7 T36N, R72W	1st Quarter	U-Nat Ra-226		Not Running Not Running				
	2nd Quarter	U-Nat Ra-226		Not Running Not Running				

TABLE 7A

**MONTHLY RADIUM GRAB SAMPLES
AT THE DISCHARGE FROM THE RADIUM TREATMENT SYSTEM
SATELLITE NO. 1**

SAMPLE DATE		¹ Jan-04	² Feb-04	³ Mar-04	⁴ Apr-04	⁵ May-04	09-Jun-04
RADIOMETRIC	Rep. Limit						
Ra-226 (uCi/mL)	2.00E-10	2.75E-08	4.82E-07	1.37E-07	5.43E-08	5.66E-08	2.66E-08
Ra Err. Est.+/-		2.00E-09	5.20E-09	3.30E-09	2.20E-09	3.50E-09	2.10E-09

Notes: ¹, Average Ra-226 concentration of samples collected on January 5, and 27, 2004. ², Average Ra-226 concentration of samples collected on February 3, 10, 19, 2004. ³, Average Ra-226 concentration of samples collected on March 1, and 15, 2004. ⁴, Average Ra-226 concentration of samples collected on April 5, 15, and 29, 2004. ⁵, Average Ra-226 concentration of samples collected on May 3, 10, and 11, 2004.

TABLE 7B

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

SAMPLE DATE		08-Jan-04	02-Feb-04	04-Mar-04	05-Apr-04	13-May-04	14-Jun-04
RADIOMETRIC	Rep. Limit						
Ra-226 (uCi/mL)	2.00E-10	5.00E-10	1.80E-09	1.90E-09	5.00E-10	1.60E-09	5.90E-09
Ra Err. Est.+/-		5.00E-10	6.00E-10	4.00E-10	3.00E-10	5.00E-10	1.60E-09

TABLE 7C

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

SAMPLE DATE		08-Jan-04	02-Feb-04	04-Mar-04	05-Apr-04	13-May-04	14-Jun-04
RADIOMETRIC	Rep. Limit						
Ra-226 (uCi/mL)	2.00E-10	7.00E-10	1.50E-09	1.40E-09	5.57E-08	6.58E-08	7.10E-09
Ra Err. Est.+/-		4.00E-10	5.00E-10	4.00E-10	2.00E-09	2.50E-09	1.10E-09

TABLE 8

**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)		
	31-Mar-04	09-Jun-04	31-Mar-04	09-Jun-04	
SAMPLE DATE					
WATER LEVEL (DTW)	15.92	14.06	10.15	9.83	
MAJOR IONS (mg/L)	Rep. Limit				
HCO ₃	1.0	226	221	102.0	98.1
SO ₄	1.0	2360	2350	2500	2600
Cl	1.0	184	202	181	198
NON-METALS					
Cond (µmho/cm)	1.0	4370	4350	4700	4650
pH (standard units)	0.01	7.83	7.66	6.71	7.14
TRACE METALS (mg/L)					
Ba	0.001	0.017	ND	0.011	ND
Se	0.0025	3.550	3.40	0.105	0.099
RADIOMETRIC					
U-nat (uCi/mL)	6.77E-10	6.97E-08	7.45E-08	4.74E-09	4.40E-09
Ra-226 (uCi/mL)	2.00E-10	1.13E-08	4.80E-09	5.50E-09	1.13E-08
Ra-226 Err. Est. +/- (uCi/mL)		7.00E-10	7.00E-10	5.00E-10	1.10E-09