



August 26, 2011

**ATTN: Document Control Desk**

Mr. Keith J. McConnell, Deputy Director  
Decommissioning and Uranium Recovery Licensing Directorate  
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RE: NRC License SUA-1548, Docket No. 40-8964, Semi-Annual Effluent and Environmental Monitoring Report, January 1 through June 30, 2011

Dear Mr. McConnell:

In accordance with 10 CFR 40.65 and per License Condition No. 12.2 of Source Materials License SUA-1548, please find enclosed the Semi-Annual Effluent and Environmental Monitoring Report for the period January 1 through June 30, 2011. Copies of this report are also being forwarded to Mr. Douglas Mandeville, USNRC Headquarters and Mr. Arthur Howell, Director, Division of Nuclear Materials Safety, Region IV.

If you have questions regarding the report, please contact me at (307) 316-7588.

Sincerely,

A handwritten signature in black ink, appearing to read "Josh Leftwich".

Josh Leftwich  
Director of Radiation Safety and Licensing

JL/sab

Att: Semi-Annual Effluent and Environmental Monitoring Report

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

ec: CR-Cheyenne

**POWER RESOURCES, INC.  
D/B/A CAMECO RESOURCES**

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

**DOCKET NO. 40-8964**

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

**FOR THE PERIOD**

**JANUARY 1 THROUGH  
JUNE 30, 2011**

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

During the report period one bio-assay exceeded the 15 µg/l action level for Uranium. A baseline sample provided on March 14, 2011 by a contract worker tested positive for inhaled or ingested uranium at 50.6 µg/l. A second sample was provided on April 1, 2011, and results were non-detectable. Per standard procedure all samples are analyzed in triplicate. An albuminuria test was performed on the March 14, 2011 sample and the results were reported as non-detect, indicating that no uranium passed through the worker's system.

Investigation revealed that it was highly unlikely the worker's intake was a result of his job activities at the Smith Ranch-Highland site, and that lab error was the most likely cause of the elevated bioassay.

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

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

### **2.1 Satellite No. 1**

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

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

The injection rates, recovery rates, and injection trunk line pressure data for Satellite No. 2, Satellite No. 3, Satellite SR-1, Satellite SR-2, and the Central Processing Plant (CPP) are contained in Tables 1B, 1C, and 1D. The injection rates represent the total recovery rates minus the purge (clean-out circuit) flow. The purge flow from Satellites No. 2 and No. 3 is treated for uranium, radium and selenium removal and pumped to the Satellite No. 2 Purge Storage Reservoir (PSR-2) prior to disposal by irrigation at the Satellite No. 2 Land Application Facility (Irrigator #2). Purge flow from Satellites SR-1 and SR-2, and the CPP is disposed by deep well injection through permitted waste disposal wells.

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

### **3.1 Stack Emission Surveys**

When the Central Processing Facility (CPF) at the Highland Uranium Project is operational, Cameco Resources (Cameco) monitors the Yellowcake Dryer and Packaging scrubber exhaust stacks to determine the emission rate of particulates, including uranium, radium, and thorium. During the report period, the Highland CPF remained on non-operating standby status and is anticipated to maintain that status during several upcoming report periods. All yellowcake processing activities (elution, precipitation, drying, and packaging) were conducted at the Smith Ranch CPP. The dryers at the CPP are zero emission vacuum dryers that do not require emission stack testing. Therefore, no stack tests were conducted during the report period.

### 3.2 Air Particulate, Radon, and Gamma Radiation Monitoring

Cameco maintains an Air Monitoring Station program at six various locations on and around the licensed area. The air monitoring stations are used to monitor air particulates, passive radon gas, and passive gamma radiation. Two of these stations (AS-4 and AS-5) are used to monitor downwind conditions of the Highland CPF and are operated only when yellowcake processing operations are active at the Highland CPF. One additional station (AS-6) will be used to monitor conditions downwind of the Reynolds Ranch Satellite Facility once the facility is constructed and becomes operational. Monitoring conditions at AS-6 will commence during construction of the facility and before it becomes operational.

The air stations are located as follows:

- Air Station No. 1 (AS-1; Dave's Water Well): This station monitors background conditions, upwind of both the Smith Ranch and HUP wellfields and yellowcake processing facilities.
- Air Station No. 2 (AS-2; Smith Ranch Restricted Area): This station monitors conditions downwind of the Smith Ranch CPP Restricted Area Boundary.
- Air Station No. 3 (AS-3; Vollman Ranch): This station monitors the nearest downwind resident to the Smith Ranch CPP Restricted Area.
- Air Station No. 4 (AS-4; HUP Restricted Area): This station monitors conditions downwind of the HUP CPF Restricted Area Boundary (when the HUP CPF is operating).
- Air Station No. 5 (AS-5; Fowler Ranch): This station monitors the nearest downwind resident to the HUP CPF Restricted Area (when the HUP CPF is operating).
- Air Station No. 6 (AS-6; Reynolds Ranch Satellite Area): This station will monitor conditions downwind of the Reynolds Ranch Satellite Facility once the facility is constructed and becomes operational.

Monitoring at stations AS-4 and AS-5 was not conducted during the report period since the Highland CPF remains on standby status. Monitoring of conditions at AS-4 and AS-5 will only resume if the Highland CPF becomes operational. In addition, monitoring at station AS-6 was not conducted during the report period since the Reynolds Ranch Satellite Facility has not been constructed. Monitoring of conditions at AS-6 will commence during construction of the facility and before it becomes operational.

Table 2 shows the air particulate and radon data collected at stations AS-1 through AS-3 during the report period. Review of data collected during the report period shows that the concentrations of all parameters are significantly less than the 10 CFR 20, Appendix B, Effluent Concentration Limits.

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

### 3.3 Water Sampling Data

#### 3.3.1 *Groundwater and Surface Water Monitoring Stations*

During the report period, monitoring was completed at 18 water wells and 10 stock ponds 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 (SW-2, SW-3, SW-4, and SW-5) were dry for the entire report period and there was no water available for sampling. Nine water wells (GW-4, 5, 6, 8, 11, 12, 14, 17 and 18) did not run during the report period. A review of data collected from the available water wells and stock ponds show that the concentrations of uranium and radium-226 are less than the 10 CFR 20, Appendix B, effluent concentration limits of  $3.0 \text{ E-}7 \text{ } \mu\text{Ci/ml}$  and  $6.0\text{E-}8 \text{ } \mu\text{Ci/ml}$ , 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 2011 soil and vegetation sampling at the irrigation areas will be conducted in August 2011 and results will be included with the July 1 through December 31, 2011 semi-annual report.

### *3.4.2 Irrigation Fluid*

Cameco monitors the treated irrigation fluid that is disposed of at both irrigation facilities per the approved license application and the WDEQ Wastewater Land Application permits. Grab samples are collected at the irrigator pivot during each month of operation and analyzed for various parameters. Irrigator No. 1 was not operational for the entire reporting period, as noted in Tables 5. Irrigation fluid data was collected at Irrigator No. 2 when it became operational in June, 2011. Results of this sampling are provided in Table 6. A review of the data indicates that the concentration of uranium in the monthly grab sample was less than the 10 CFR 20, Appendix B, Effluent Concentration Limit of  $3.0 \text{ E-}7 \text{ } \mu\text{Ci/ml}$  provided in the original license application for the facility. The concentration of radium-226 was below the 10 CFR 20, Appendix B, Effluent Concentration Limit of  $6.0\text{E-}8 \text{ } \mu\text{Ci/ml}$ .

### *3.4.3 Radium Treatment Systems*

Cameco collects grab samples each month to ensure that the radium-226 treatment systems are adequately treating wastewater from Satellites No. 2 and No. 3 prior to discharge into Purge Storage Reservoir No. 2 (PSR-2). No samples were collected from the Satellite No. 1 radium treatment system since Satellite No. 1 did not operate during the report period. The monthly radium-226 grab samples for Satellite No. 2 and No. 3 are collected at the discharge point of the selenium treatment plant. Review of the monitoring data provided in Table 7 shows that radium-226 concentrations were less than the 10 CFR 20, Appendix B, Effluent Concentration Limit of  $6.00\text{E-}8 \text{ } \mu\text{Ci/ml}$ .

### *3.4.4 Soil Water*

In accordance with the approved SUA-1548 license and the WDEQ Wastewater Land Application Facility permits, Cameco collects soil water samples at the irrigation areas in June of each year and analyzes them for various parameters, including uranium and radium-226. Cameco employed a contractor to evaluate the lysimeters and it was determined that they will need to be replaced. A proposal was submitted to CR and is being evaluated. The 2011 sampling will be postponed until the replacement is complete and new lysimeters are operational.

### *3.4.5 Satellite No. 1 Purge Storage Reservoir Monitor Well*

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

### *3.4.6 Satellite No. 2 Purge Storage Reservoir Shallow Wells*

Water levels are measured on a quarterly basis and ground water samples are required on a semi-annual basis from the two shallow monitoring wells located adjacent to PSR-2. Cameco conducts quarterly sampling of both wells. Shallow Wells No. 1 and No. 2 are located adjacent to the south and east sides of the reservoir, respectively. In addition, four new monitoring wells were installed around the perimeter of PSR-2 for supplemental internal investigation regarding the NRC's concern for potential leakage from PSR-2. The wells are designated MW-1S (west), MW-2S (north), MW-3S (south) and MW-4S (east). Monitoring of the wells was conducted on March 16 and 17, and June 28, 2010. Table 9 contains the data for samples taken during this period.

## **4.0 SAFETY AND ENVIRONMENTAL EVALUATIONS**

Per License Conditions 9.4(e) and 12.2, 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 along with one of the semi annual effluent and environmental monitoring reports. All SERP evaluations completed during 2011 will be submitted in the next semi annual report.

## **5.0 NRC ANNUAL INSPECTION**

The Annual Inspection was conducted February 14 through February 17, 2011. No violations resulted from this inspection.

## **6.0 GAS HILLS, RUTH AND NORTH BUTTE ISL PROJECTS**

The Gas Hills, Ruth and North Butte ISL Projects are licensed for commercial ISL uranium recovery activities as satellite facilities to the Smith Ranch-Highland Uranium Project. The projects remained non-operational during the report period, therefore, no effluent or environmental monitoring was conducted during the report period nor is it required by the NRC. Activities conducted during the report period consisted of quarterly inspections of the Ruth evaporation ponds in accordance with License Condition 10.2.2 of SUA-1548. Inspection of the perimeter fence, pond embankments, and pond liners yielded no deficiencies during the report period.



**ATTACHMENT A**

**DATA TABLES 1-9**

**TABLE 1**  
**RATES AND PRESSURES**  
**SATELLITE FACILITIES**  
**1st and 2nd Quarters 2011**

**TABLE 1A**  
**SATELLITE NO. 1 INJECTION RATES, RECOVERY RATES, INJECTION PRESSURES**  
**(Satellite No. 1 has been non-operational since July 2004)**

| MONTH  | Injection Pressure<br>(PSI) |       |       | Grounwater<br>Sweep<br>GPM | Radium<br>Ponds<br>GPM | RO<br>Feed<br>GPM | Injection<br>GPM | RO<br>Concentrate<br>GPM | Purge<br>Flow<br>GPM |
|--------|-----------------------------|-------|-------|----------------------------|------------------------|-------------------|------------------|--------------------------|----------------------|
|        | RO #1                       | RO #2 | RO #3 |                            |                        |                   |                  |                          |                      |
| Jan-11 | 0                           | 0     | 0     | 0                          | 0                      | 0                 | 0                | 0                        | 0                    |
| Feb-11 | 0                           | 0     | 0     | 0                          | 0                      | 0                 | 0                | 0                        | 0                    |
| Mar-11 | 0                           | 0     | 0     | 0                          | 0                      | 0                 | 0                | 0                        | 0                    |
| Apr-11 | 0                           | 0     | 0     | 0                          | 0                      | 0                 | 0                | 0                        | 0                    |
| May-11 | 0                           | 0     | 0     | 0                          | 0                      | 0                 | 0                | 0                        | 0                    |
| Jun-11 | 0                           | 0     | 0     | 0                          | 0                      | 0                 | 0                | 0                        | 0                    |

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

| MONTH  | Satellite No. 2 | Satellite No. 3 | Central Processing Plant | Satellite SR-1 | Satellite SR-2 |
|--------|-----------------|-----------------|--------------------------|----------------|----------------|
| Jan-11 | 1,630           | 3,348           | 1,952                    | 3,411          | 4,023          |
| Feb-11 | 1,245           | 3,222           | 2,385                    | 3,219          | 4,151          |
| Mar-11 | 1,385           | 3,313           | 2,496                    | 3,465          | 4,245          |
| Apr-11 | 1,594           | 3,414           | 2,410                    | 3,286          | 4,145          |
| May-11 | 1,587           | 3,535           | 2,402                    | 3,229          | 4,044          |
| Jun-11 | 1,607           | 3,322           | 2,303                    | 3,312          | 4,093          |

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

| MONTH  | Satellite No. 2 | Satellite No. 3 | Central Processing Plant | Satellite SR-1 | Satellite SR-2 |
|--------|-----------------|-----------------|--------------------------|----------------|----------------|
| Jan-11 | 1,680           | 3,398           | 1,962                    | 3,428          | 4,048          |
| Feb-11 | 1,295           | 3,270           | 2,398                    | 3,236          | 4,177          |
| Mar-11 | 1,431           | 3,358           | 2,509                    | 3,485          | 4,272          |
| Apr-11 | 1,644           | 3,456           | 2,422                    | 3,302          | 4,170          |
| May-11 | 1,637           | 3,580           | 2,412                    | 3,243          | 4,069          |
| Jun-11 | 1,657           | 3,369           | 2,314                    | 3,326          | 4,117          |

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

| MONTH  | Satellite No. 2 | Satellite No. 3 | Central Processing Plant | Satellite SR-1 | Satellite SR-2 |
|--------|-----------------|-----------------|--------------------------|----------------|----------------|
| Jan-11 | 100             | 142             | 143                      | 75             | 159            |
| Feb-11 | 80              | 136             | 144                      | 71             | 177            |
| Mar-11 | 97              | 137             | 157                      | 80             | 178            |
| Apr-11 | 100             | 126             | 152                      | 78             | 175            |
| May-11 | 99              | 121             | 154                      | 74             | 175            |
| Jun-11 | 100             | 116             | 141                      | 69             | 177            |

**TABLE 2**  
**AIR SAMPLING DATA**  
**ENVIRONMENTAL MONITORING SITES**  
**1st and 2nd Quarters 2011**

| SAMPLE LOCATION           | SAMPLE PERIOD | RADIONUCLIDE<br>(μCi/ml) | CONCENTRATION<br>(μCi/ml) | ERROR EST. +/-<br>(μCi/ml) | L.L.D.<br>(μCi/ml) | EFF. CONC.<br>LIMIT<br>(μCi/ml) | % EFF. CONC.<br>LIMIT<br>% |
|---------------------------|---------------|--------------------------|---------------------------|----------------------------|--------------------|---------------------------------|----------------------------|
| AS-1                      |               |                          |                           |                            |                    |                                 |                            |
| DAVE'S WATER WELL         | 1st           | U-Nat                    | 6.00E-17                  | N/A                        | 1.00E-16           | 9.00E-14                        | 0.1                        |
| Air Station               | Quarter       | Th-230                   | >1E-16                    | 4E-17                      | 1.00E-16           | 3.00E-14                        |                            |
| Background                |               | Ra-226                   | >1E-16                    | 4E-17                      | 1.00E-16           | 9.00E-13                        |                            |
| Site                      |               | Pb-210                   | 7.00E-15                  | 1.00E-15                   | 2.00E-15           | 6.00E-13                        | 1.2                        |
|                           | 2nd           | U-Nat                    | 1.00E-16                  | N/A                        | 1.00E-16           | 9.00E-14                        | 0.1                        |
|                           | Quarter       | Th-230                   | 1.00E-16                  | 4E-17                      | 1.00E-16           | 3.00E-14                        | 0.3                        |
|                           |               | Ra-226                   | 1.00E-17                  | 4E-17                      | 1.00E-16           | 9.00E-13                        | 0.001                      |
|                           |               | Pb-210                   | 9.00E-15                  | 1E-15                      | 2.00E-15           | 6.00E-13                        | 1.5                        |
|                           | All Period    | Rn-222                   | 5.00E-10                  |                            | 3.00E-10           | 1.00E-08                        | 5.0                        |
| AS-2                      |               |                          |                           |                            |                    |                                 |                            |
| FENCE LINE                | 1st           | U-Nat                    | 3.00E-16                  | N/A                        | 1.00E-16           | 9.00E-14                        | 0.3                        |
| Air Station               | Quarter       | Th-230                   | 8.00E-17                  | 5E-17                      | 1.00E-16           | 3.00E-14                        | 0.3                        |
| Restricted Area           |               | Ra-226                   | 1.00E-16                  | 8E-17                      | 1.00E-16           | 9.00E-13                        | 0.01                       |
| Boundary                  |               | Pb-210                   | 1.00E-14                  | 1.00E-15                   | 2.00E-15           | 6.00E-13                        | 1.7                        |
| (Background not deducted) |               |                          |                           |                            |                    |                                 |                            |
|                           | 2nd           | U-Nat                    | 5.00E-16                  | N/A                        | 1.00E-16           | 9.00E-14                        | 0.6                        |
|                           | Quarter       | Th-230                   | 9.00E-17                  | 4E-17                      | 1.00E-16           | 3.00E-14                        | 0.3                        |
|                           |               | Ra-226                   | 2.00E-16                  | 7E-17                      | 1.00E-16           | 9.00E-13                        | 0.02                       |
|                           |               | Pb-210                   | 9.00E-15                  | 1E-15                      | 2.00E-15           | 6.00E-13                        | 1.5                        |
|                           | All Period    | Rn-222                   | 2.00E-10                  |                            | 3.00E-10           | 1.00E-08                        | 2.0                        |
| AS-3                      |               |                          |                           |                            |                    |                                 |                            |
| VOLLMAN RANCH             | 1st           | U-Nat                    | 3.00E-16                  | N/A                        | 1.00E-16           | 9.00E-14                        | 0.3                        |
| Air Station               | Quarter       | Th-230                   | >1E-16                    | 3E-17                      | 1.00E-16           | 3.00E-14                        |                            |
| Downwind Nearest          |               | Ra-226                   | >1E-16                    | 4E-17                      | 1.00E-16           | 9.00E-13                        |                            |
| Residence                 |               | Pb-210                   | 1.00E-14                  | 1.00E-15                   | 2.00E-15           | 6.00E-13                        | 1.7                        |
| (Background not deducted) |               |                          |                           |                            |                    |                                 |                            |
|                           | 2nd           | U-Nat                    | 4.00E-16                  | N/A                        | 1.00E-16           | 9.00E-14                        | 0.4                        |
|                           | Quarter       | Th-230                   | 3.00E-17                  | 4E-17                      | 1.00E-16           | 3.00E-14                        | 0.1                        |
|                           |               | Ra-226                   | >1E-16                    | 7E-17                      | 1.00E-16           | 9.00E-13                        |                            |
|                           |               | Pb-210                   | 1.00E-14                  | 1E-15                      | 2.00E-15           | 6.00E-13                        | 1.7                        |
|                           | All Period    | Rn-222                   | 2.00E-10                  |                            | 3.00E-10           | 1.00E-08                        | 2.0                        |
| AS-4                      |               | STANDBY STATUS           |                           |                            |                    |                                 |                            |
| HUP RESTRICTED AREA       |               |                          |                           |                            |                    |                                 |                            |
| AS-5                      |               | STANDBY STATUS           |                           |                            |                    |                                 |                            |
| FOWLER RANCH              |               |                          |                           |                            |                    |                                 |                            |
| AS-6                      |               | NOT CONSTRUCTED          |                           |                            |                    |                                 |                            |
| REYNOLDS SATELLITE        |               |                          |                           |                            |                    |                                 |                            |

**TABLE 3**

**DIRECT RADIATION (GAMMA) MEASUREMENT DATA  
ENVIRONMENTAL MONITORING SITES  
1st & 2nd QUARTERS 2011**

| <b>SAMPLE LOCATION</b>              | <b>SAMPLE PERIOD</b>       | <b>EXPOSURE RATE<br/>(mR/qtr)</b> |
|-------------------------------------|----------------------------|-----------------------------------|
| <b>AS-1<br/>DAVE'S WATER WELL</b>   |                            |                                   |
| Air Station                         | 1st Quarter                | 35                                |
| Background<br>Site                  | 2nd Quarter                | 37                                |
| <b>AS-2<br/>FENCE LINE</b>          |                            |                                   |
| Air Station                         | 1st Quarter                | 46                                |
| Restricted Area<br>Boundary         | 2nd Quarter                | 45                                |
| <b>AS-3<br/>VOLLMAN'S RANCH</b>     |                            |                                   |
| Air Station                         | 1st Quarter                | 37                                |
| Downwind<br>Nearest Residence       | 2nd Quarter                | 36                                |
| <b>AS-4<br/>HUP RESTRICTED AREA</b> | <b>STANDBY<br/>STATUS</b>  |                                   |
| <b>AS-5<br/>FOWLER RANCH</b>        | <b>STANDBY<br/>STATUS</b>  |                                   |
| <b>AS-6<br/>REYNOLDS SATELLITE</b>  | <b>NOT<br/>CONSTRUCTED</b> |                                   |
| <b>CONTROL</b>                      | 1st Quarter                | 33                                |
|                                     | 2nd Quarter                | 38                                |

Background has not been deducted  
From any readings

**TABLE 4**  
**WATER SAMPLING DATA**  
**ENVIRONMENTAL MONITORING SITES**  
**1st and 2nd Quarters 2011**

| <b>SAMPLE LOCATION</b>                                | <b>SAMPLE DATE</b> | <b>RADIONUCLIDE</b> | <b>CONCENTRATION (mg/L)</b> | <b>CONCENTRATION (pCi/L)</b> | <b>ERROR EST. +/- (pCi/L)</b> | <b>CONCENTRATION (μCi/ml)</b> | <b>EFF. CONC. LIMIT (μCi/ml)</b> | <b>% EFF. CONC. LIMIT</b> |
|---|--------------------|---------------------|-----------------------------|------------------------------|-------------------------------|-------------------------------|----------------------------------|---------------------------|
| <b>SW-1</b><br>Stock Pond<br>Section 3<br>T35N, R74W  | 1st Quarter        | U-Nat               | 0.0336                      | 0.12                         | 0.18                          | 2.3E-08                       | 3.0E-07                          | 7.6                       |
|   |                    | Ra-226              |                             |                              |                               | 1.2E-10                       | 6.0E-08                          | 0.2                       |
|   | 2nd Quarter        | U-Nat               | 0.0168                      | 0.02                         | 0.11                          | 1.1E-08                       | 3.0E-07                          | 3.8                       |
|   |                    | Ra-226              |                             |                              |                               | 2.0E-10                       | 6.0E-08                          | 0.3                       |
| <b>SW-2</b><br>Stock Pond<br>Section 2<br>T35N, R74W  | 1st Quarter        | U-Nat               | DRY                         |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
|   | 2nd Quarter        | U-Nat               | DRY                         |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
| <b>SW-3</b><br>Stock Pond<br>Section 35<br>T36N, R74W | 1st Quarter        | U-Nat               | DRY                         |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
|   | 2nd Quarter        | U-Nat               | DRY                         |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
| <b>SW-4</b><br>Stock Pond<br>Section 36<br>T36N, R74W | 1st Quarter        | U-Nat               | DRY                         |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
|   | 2nd Quarter        | U-Nat               | DRY                         |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
| <b>SW-5</b><br>Stock Pond<br>Section 21<br>T36N, R73W | 1st Quarter        | U-Nat               | DRY                         |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
|   | 2nd Quarter        | U-Nat               | DRY                         |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |

**TABLE 4**  
**WATER SAMPLING DATA**  
**ENVIRONMENTAL MONITORING SITES**  
**1st and 2nd Quarters 2011**

| <b>SAMPLE LOCATION</b>                   | <b>SAMPLE DATE</b>        | <b>RADIONUCLIDE</b> | <b>CONCENTRATION (mg/L)</b> | <b>CONCENTRATION (pCi/L)</b> | <b>ERROR EST. +/- (pCi/L)</b> | <b>CONCENTRATION (µCi/ml)</b> | <b>EFF. CONC. LIMIT (µCi/ml)</b> | <b>% EFF. CONC. LIMIT</b> |
|--|---------------------------|---------------------|-----------------------------|------------------------------|-------------------------------|-------------------------------|----------------------------------|---------------------------|
| <b>SW-6</b><br>Stock Pond<br>Section 22  | 1st Quarter               | U-Nat<br>Ra-226     | ND                          | 0.25                         | 0.13                          | ND<br>2.5E-10                 | 3.0E-07<br>6.0E-08               | 0.4                       |
|  | T36N, R73W<br>2nd Quarter | U-Nat<br>Ra-226     | 0.0015                      | ND                           | NA                            | 1.0E-09<br>ND                 | 3.0E-07<br>6.0E-08               | 0.3                       |
| <b>SW-7</b><br>Stock Pond<br>Section 22  | 1st Quarter               | U-Nat<br>Ra-226     | 0.0006                      | 0.08                         | 0.11                          | 4.1E-10<br>8.0E-11            | 3.0E-07<br>6.0E-08               | 0.1<br>0.1                |
|  | T36N, R73W<br>2nd Quarter | U-Nat<br>Ra-226     | 0.0008                      | ND                           | NA                            | 5.4E-10<br>ND                 | 3.0E-07<br>6.0E-08               | 0.2                       |
| <b>SW-8</b><br>Stock Pond<br>Section 18  | 1st Quarter               | U-Nat<br>Ra-226     | 0.0017                      | 0.29                         | 0.14                          | 1.2E-09<br>2.9E-10            | 3.0E-07<br>6.0E-08               | 0.4<br>0.5                |
|  | T36N, R72W<br>2nd Quarter | U-Nat<br>Ra-226     | 0.0055                      | 0.39                         | 0.16                          | 3.7E-09<br>3.9E-10            | 3.0E-07<br>6.0E-08               | 1.2<br>0.7                |
| <b>SW-9</b><br>Stock Pond<br>Section 18  | 1st Quarter               | U-Nat<br>Ra-226     | DRY                         |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | T36N, R72W<br>2nd Quarter | U-Nat<br>Ra-226     | ND                          | 0.24                         | 0.14                          | ND<br>2.4E-10                 | 3.0E-07<br>6.0E-08               | 0.4                       |
| <b>SW-10</b><br>Stock Pond<br>Section 19 | 1st Quarter               | U-Nat<br>Ra-226     | DRY                         |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | T36N, R72W<br>2nd Quarter | U-Nat<br>Ra-226     | 0.0011                      | ND                           | NA                            | 7.4E-10<br>ND                 | 3.0E-07<br>6.0E-08               | 0.2                       |

**TABLE 4**  
**WATER SAMPLING DATA**  
**ENVIRONMENTAL MONITORING SITES**  
**1st and 2nd Quarters 2011**

| <b>SAMPLE LOCATION</b>                                | <b>SAMPLE DATE</b> | <b>RADIONUCLIDE</b> | <b>CONCENTRATION (mg/L)</b> | <b>CONCENTRATION (pCi/L)</b> | <b>ERROR EST. +/- (pCi/L)</b> | <b>CONCENTRATION (µCi/ml)</b> | <b>EFF. CONC. LIMIT (µCi/ml)</b> | <b>% EFF. CONC. LIMIT</b> |
|---|--------------------|---------------------|-----------------------------|------------------------------|-------------------------------|-------------------------------|----------------------------------|---------------------------|
| <b>GW-1</b><br>Windmill<br>Section 1<br>T35N, R74W    | 1st Quarter        | U-Nat               | 0.0256                      |                              |                               | 1.7E-08                       | 3.0E-07                          | 5.8                       |
|   |                    | Ra-226              |                             | 2.00                         | 0.33                          | 2.0E-09                       | 6.0E-08                          | 3.3                       |
|   | 2nd Quarter        | U-Nat               | NOT RUNNING                 |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
| <b>GW-2</b><br>Solar Well<br>Section 35<br>T36N, R74W | 1st Quarter        | U-Nat               | 0.0466                      |                              |                               | 3.2E-08                       | 3.0E-07                          | 10.5                      |
|   |                    | Ra-226              |                             | 1.20                         | 0.27                          | 1.2E-09                       | 6.0E-08                          | 2.0                       |
|   | 2nd Quarter        | U-Nat               | 0.0472                      |                              |                               | 3.2E-08                       | 3.0E-07                          | 10.7                      |
|   |                    | Ra-226              |                             | 0.63                         | 0.19                          | 6.3E-10                       | 6.0E-08                          | 1.1                       |
| <b>GW-3</b><br>Windmill<br>Section 27<br>T36N, R74W   | 1st Quarter        | U-Nat               | NOT RUNNING                 |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
|   | 2nd Quarter        | U-Nat               | 0.1490                      |                              |                               | 1.0E-07                       | 3.0E-07                          | 33.6                      |
|   |                    | Ra-226              |                             | 0.92                         | 0.37                          | 9.2E-10                       | 6.0E-08                          | 1.5                       |
| <b>GW-4</b><br>Windmill<br>Section 23<br>T36N, R74W   | 1st Quarter        | U-Nat               | NOT RUNNING                 |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
|   | 2nd Quarter        | U-Nat               | NOT RUNNING                 |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
| <b>GW-5</b><br>Windmill<br>Section 30<br>T36N, R73W   | 1st Quarter        | U-Nat               | NOT RUNNING                 |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |
|   | 2nd Quarter        | U-Nat               | NOT RUNNING                 |                              |                               |                               | 3.0E-07                          |                           |
|   |                    | Ra-226              |                             |                              |                               |                               | 6.0E-08                          |                           |

**TABLE 4**  
**WATER SAMPLING DATA**  
**ENVIRONMENTAL MONITORING SITES**  
**1st and 2nd Quarters 2011**

| <b>SAMPLE LOCATION</b>                                 | <b>SAMPLE DATE</b> | <b>RADIONUCLIDE</b> | <b>CONCENTRATION (mg/L)</b> | <b>CONCENTRATION (pCi/L)</b> | <b>ERROR EST. +/- (pCi/L)</b> | <b>CONCENTRATION (µCi/ml)</b> | <b>EFF. CONC. LIMIT (µCi/ml)</b> | <b>% EFF. CONC. LIMIT</b> |
|--|--------------------|---------------------|-----------------------------|------------------------------|-------------------------------|-------------------------------|----------------------------------|---------------------------|
| <b>GW-6</b><br>Windmill<br>Section 28<br>T36N, R73W    | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
| <b>GW-8</b><br>Windmill<br>Section 23<br>T36N, R73W    | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
| <b>GW-9</b><br>Windmill<br>Section 14<br>T36N, R73W    | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | 0.0011                      | 0.10                         | 0.11                          | 7.4E-10<br>1.0E-10            | 3.0E-07<br>6.0E-08               | 0.2<br>0.2                |
| <b>GW-10</b><br>Water Well<br>Section 14<br>T36N, R73W | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | 0.0044                      | 0.12                         | 0.13                          | 3.0E-09<br>1.2E-10            | 3.0E-07<br>6.0E-08               | 1.0<br>0.2                |
| <b>GW-11</b><br>Water Well<br>Section 11<br>T36N, R73W | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |



**TABLE 4**  
**WATER SAMPLING DATA**  
**ENVIRONMENTAL MONITORING SITES**  
**1st and 2nd Quarters 2011**

| <b>SAMPLE LOCATION</b>                                 | <b>SAMPLE DATE</b> | <b>RADIONUCLIDE</b> | <b>CONCENTRATION (mg/L)</b> | <b>CONCENTRATION (pCi/L)</b> | <b>ERROR EST. +/- (pCi/L)</b> | <b>CONCENTRATION (µCi/ml)</b> | <b>EFF. CONC. LIMIT (µCi/ml)</b> | <b>% EFF. CONC. LIMIT</b> |
|--|--------------------|---------------------|-----------------------------|------------------------------|-------------------------------|-------------------------------|----------------------------------|---------------------------|
| <b>GW-12</b><br>Water Well<br>Section 7<br>T36N, R72W  | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
| <b>GW-13</b><br>Water Well<br>Section 9<br>T36N, R72W  | 1st Quarter        | U-Nat<br>Ra-226     | 0.0066                      | 1.30                         | 0.23                          | 4.5E-09<br>1.3E-09            | 3.0E-07<br>6.0E-08               | 1.5<br>2.2                |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | 0.0171                      | 0.72                         | 0.18                          | 1.2E-08<br>7.2E-10            | 3.0E-07<br>6.0E-08               | 3.9<br>1.2                |
| <b>GW-14</b><br>Water Well<br>Section 10<br>T36N, R72W | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
| <b>GW-15</b><br>Water Well<br>Section 15<br>T36N, R72W | 1st Quarter        | U-Nat<br>Ra-226     | 0.0243                      | 1.10                         | 0.21                          | 1.6E-08<br>1.1E-09            | 3.0E-07<br>6.0E-08               | 5.5<br>1.8                |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | 0.0178                      | 0.82                         | 0.19                          | 1.2E-08<br>8.2E-10            | 3.0E-07<br>6.0E-08               | 4.0<br>1.4                |
| <b>GW-16</b><br>Water Well<br>Section 11<br>T36N, R72W | 1st Quarter        | U-Nat<br>Ra-226     | 0.1340                      | 2.20                         | 0.27                          | 9.1E-08<br>2.2E-09            | 3.0E-07<br>6.0E-08               | 30.2<br>3.7               |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | 0.1360                      | 1.60                         | 0.26                          | 9.2E-08<br>1.6E-09            | 3.0E-07<br>6.0E-08               | 30.7<br>2.7               |

**TABLE 4**  
**WATER SAMPLING DATA**  
**ENVIRONMENTAL MONITORING SITES**  
**1st and 2nd Quarters 2011**

| <b>SAMPLE LOCATION</b>                                 | <b>SAMPLE DATE</b> | <b>RADIONUCLIDE</b> | <b>CONCENTRATION (mg/L)</b> | <b>CONCENTRATION (pCi/L)</b> | <b>ERROR EST. +/- (pCi/L)</b> | <b>CONCENTRATION (μCi/ml)</b> | <b>EFF. CONC. LIMIT (μCi/ml)</b> | <b>% EFF. CONC. LIMIT</b> |
|--|--------------------|---------------------|-----------------------------|------------------------------|-------------------------------|-------------------------------|----------------------------------|---------------------------|
| <b>GW-17</b><br>Water Well<br>Section 8<br>T36N, R72W  | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
| <b>GW-18</b><br>Water Well<br>Section 2<br>T36N, R72W  | 1st Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | NOT RUNNING                 |                              |                               |                               | 3.0E-07<br>6.0E-08               |                           |
| <b>GW-20</b><br>Water Well<br>Section 27<br>T36N, R73W | 1st Quarter        | U-Nat<br>Ra-226     | ND                          | 0.31                         | 0.14                          | ND<br>3.1E-10                 | 3.0E-07<br>6.0E-08               | 0.5                       |
|  | 2nd Quarter        | U-Nat<br>Ra-226     | ND                          | 1.70                         | 0.30                          | ND<br>1.7E-09                 | 3.0E-07<br>6.0E-08               | 2.8                       |

TABLE 5

**SATELLITE NO. 1  
LAND APPLICATION FACILITY (IRRIGATOR NO. 1)  
MONTHLY IRRIGATION FLUID DATA  
1st and 2nd Quarters 2011**

**IRRIGATION CYCLE**

| DATE SAMPLED | Jan-11 | Feb-11 | Mar-11 | Apr-11 | May-11 | Jun-11 |
|--------------|--------|--------|--------|--------|--------|--------|
|--------------|--------|--------|--------|--------|--------|--------|

**VOLUME (AF)**

| MAJOR IONS (mg/L) | Reporting<br>Limit |
|-------------------|--------------------|
|-------------------|--------------------|

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

**IRRIGATOR DID NOT OPERATE ALL REPORTING PERIOD**

**NON-METALS**

|                     |       |
|---------------------|-------|
| TDS @ 180° C (mg/L) | 10.0  |
| pH (standard units) | 0.010 |
| SAR                 | 0.01  |

**TRACE METALS (mg/L)**

|          |       |
|----------|-------|
| Arsenic  | 0.001 |
| Barium   | 0.10  |
| Boron    | 0.10  |
| Selenium | 0.001 |

**RADIOMETRIC**

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

TABLE 6

**SATELLITE NO. 2**  
**LAND APPLICATION FACILITY (IRRIGATOR NO. 2)**  
**MONTHLY IRRIGATION FLUID DATA**  
**1st and 2nd Quarters 2011**

**IRRIGATION CYCLE**

| <b>DATE SAMPLED</b>        |                 | <b>Jan-11</b> | <b>Feb-11</b> | <b>Mar-11</b>             | <b>Apr-11</b> | <b>May-11</b> | <b>16-Jun-11</b> |
|----------------------------|-----------------|---------------|---------------|---------------------------|---------------|---------------|------------------|
| <b>VOLUME (AF)</b>         |                 |               |               |                           |               |               | 40.07            |
| <b>MAJOR IONS (mg/L)</b>   | Reporting Limit |               |               |                           |               |               |                  |
| Calcium                    | 1.0             |               |               |                           |               |               | 281              |
| Magnesium                  | 1.0             |               |               |                           |               |               | 118              |
| Sodium                     | 1.0             |               |               | Irrigator did not operate |               |               | 79               |
| Potassium                  | 1.0             |               |               |                           |               |               | 27.0             |
| Bicarbonate                | 1.0             |               |               |                           |               |               | 147              |
| Sulfate                    | 1.0             |               |               |                           |               |               | 798              |
| Chloride                   | 1.0             |               |               |                           |               |               | 291              |
| <b>NON-METALS</b>          |                 |               |               |                           |               |               |                  |
| TDS @ 180° C (mg/L)        | 10.0            |               |               |                           |               |               | 1780             |
| pH (standard units)        | 0.010           |               |               |                           |               |               | 8.16             |
| SAR                        | 0.01            |               |               |                           |               |               | 1                |
| <b>TRACE METALS (mg/L)</b> |                 |               |               |                           |               |               |                  |
| Arsenic                    | 0.001           |               |               |                           |               |               | ND               |
| Barium                     | 0.1             |               |               |                           |               |               | ND               |
| Boron                      | 0.10            |               |               |                           |               |               | 0.1              |
| Selenium                   | 0.001           |               |               |                           |               |               | 0.018            |
| <b>RADIOMETRIC</b>         |                 |               |               |                           |               |               |                  |
| U-nat (uCi/mL)             | 2.03E-10        |               |               |                           |               |               | 2.72E-07         |
| Ra-226 (uCi/mL)            | 2.00E-10        |               |               |                           |               |               | 5.60E-10         |
| Ra Err. Est. +/-           |                 |               |               |                           |               |               | 1.70E-10         |

**TABLE 7**

**SELENIUM PLANT  
RADIUM TREATMENT SYSTEM DISCHARGE  
MONTHLY RADIUM GRAB SAMPLES  
2011**

| <b>SAMPLE DATE</b>     | <b>Jan-11</b>   | <b>Feb-11</b> | <b>Mar-11</b> | <b>Apr-11</b> | <b>May-11</b> | <b>Jun-11</b> |
|------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| <b>RADIOMETRIC</b>     |                 |               |               |               |               |               |
| Ra-226 (μCi/mL)        | 1.60E-09        | 1.10E-08      | 5.50E-09      | 7.20E-09      | 2.40E-09      | 1.40E-09      |
| Ra Err. Est. +/-       | 2.30E-10        | 6.90E-10      | 5.70E-10      | 5.00E-10      | 2.70E-10      | 2.20E-10      |
| <b>Eff. Con. Limit</b> | <b>6.00E-08</b> |               |               |               |               |               |

**TABLE 8A**

**SATELLITE NO. 1  
LAND APPLICATION FACILITY (IRRIGATOR NO. 1)  
ANNUAL SOIL WATER DATA  
1st and 2nd Quarters 2011**

| SAMPLE SITE | 2'                     | 4'                     | 6'                     |
|-------------|------------------------|------------------------|------------------------|
|             | NW¼                    | NW¼                    | NW¼                    |
|             | NE¼                    | NE¼                    | NE¼                    |
|             | SW¼                    | SW¼                    | SW¼                    |
|             | SE¼                    | SE¼                    | SE¼                    |
|             | Lysimeter<br>Composite | Lysimeter<br>Composite | Lysimeter<br>Composite |

**SAMPLE DATE**

| MAJOR IONS (mg/L) | LABORATORY<br>REP. LIMIT |
|-------------------|--------------------------|
|-------------------|--------------------------|

|             |     |
|-------------|-----|
| Bicarbonate | 1.0 |
| Sulfate     | 1.0 |
| Chloride    | 1.0 |

Lysimeters under  
evaluation for repair  
or replacement

**NON-METALS**

|                     |       |
|---------------------|-------|
| Cond (umho/cm)      | 1.0   |
| pH (standard units) | 0.010 |

**TRACE METALS (mg/L)**

|          |       |
|----------|-------|
| Boron    | 0.10  |
| Selenium | 0.001 |

**RADIOMETRIC**

|                  |          |
|------------------|----------|
| U-nat: (mg/L)    | 0.0003   |
| Ra-226: (pCi/L)  | 0.2      |
| Ra Err. Est. +/- |          |
| U-nat: (uCi/mL)  | 2.03E-10 |
| Ra-226: (uCi/mL) | 2.00E-10 |
| Ra Err. Est. +/- |          |

TABLE 8B

**SATELLITE NO. 2**  
**SATELLITE NO. 2 LAND APPLICATION FACILITY (IRRIGATOR NO. 2)**  
**ANNUAL SOIL WATER DATA**  
**1st and 2nd Quarters 2011**

| SAMPLE SITE | 2'                     | 4'                     | 6'                     |
|-------------|------------------------|------------------------|------------------------|
|             | NW¼                    | NW¼                    | NW¼                    |
|             | NE¼                    | NE¼                    | NE¼                    |
|             | SW¼                    | SW¼                    | SW¼                    |
|             | SE¼                    | SE¼                    | SE¼                    |
|             | Lysimeter<br>Composite | Lysimeter<br>Composite | Lysimeter<br>Composite |

**SAMPLE DATE**

| <b>MAJOR IONS (mg/L)</b> | LABORATORY<br>REP. LIMIT |
|--------------------------|--------------------------|
| Bicarbonate              | 1.0                      |

|          |     |
|----------|-----|
| Sulfate  | 1.0 |
| Chloride | 1.0 |

Lysimeters under  
evaluation for repair  
or replacement

**NON-METALS**

|                     |       |
|---------------------|-------|
| Cond (umho/cm)      | 1.0   |
| pH (standard units) | 0.010 |

**TRACE METALS (mg/L)**

|          |       |
|----------|-------|
| Boron    | 0.10  |
| Selenium | 0.001 |

**RADIOMETRIC**

|                  |          |
|------------------|----------|
| U-nat: (mg/L)    | 0.0003   |
| Ra-226: (pCi/L)  | 0.2      |
| Ra Err. Est. +/- |          |
| U-nat: (uCi/mL)  | 2.03E-10 |
| Ra-226: (uCi/mL) | 2.00E-10 |
| Ra Err. Est. +/- |          |

**TABLE 9**  
**SATELLITE NO. 2**  
**PURGE STORAGE RESERVOIR (PSR-2)**  
**SHALLOW MONITORING WELLS**  
**WATER LEVEL AND WATER QUALITY DATA**  
**1st and 2nd Quarters 2011**

| SAMPLE SITE                   |                            | Shallow Well<br>(No. 1 South) |         | Shallow Well<br>(No. 2 East) |          | MW-1S<br>(West) |         | MW-2S<br>(North) |         | MW-3S<br>(South) |         | MW-4S<br>(East) |         |
|-------------------------------|----------------------------|-------------------------------|---------|------------------------------|----------|-----------------|---------|------------------|---------|------------------|---------|-----------------|---------|
| SAMPLE DATE                   |                            | 3/17/11                       | 6/28/11 | 3/17/11                      | 6/28/11  | 3/16/11         | 6/28/11 | 3/17/11          | 6/28/11 | 3/16/11          | 6/28/11 | 3/17/11         | 6/28/11 |
| WATER LEVEL (DTW)             | Laboratory Reporting Limit | 13.9                          | 13.4    | 11.2                         | 18.8     | 20.3            | 19.6    | 22               | 21.4    | 23.2             | 22.8    | 23.7            | 21.4    |
| <b>MAJOR IONS (mg/L)</b>      |                            |                               |         |                              |          |                 |         |                  |         |                  |         |                 |         |
| Bicarbonate                   | 1.0                        | Not                           | Not     | 294                          | 430      | 366             | 357     | 363              | 367     | 402              | 414     | 497             | 488     |
| Sulfate                       | 1.0                        | Enough                        | Enough  | 2430                         | 2320     | 1920            | 1960    | 248              | 256     | 1040             | 1020    | 1730            | 1580    |
| Chloride                      | 1.0                        | Water                         | Water   | 409                          | 517      | 317             | 320     | 73               | 72      | 473              | 432     | 138             | 139     |
|                               |                            | To                            | To      |                              |          |                 |         |                  |         |                  |         |                 |         |
|                               |                            | Sample                        | Sample  |                              |          |                 |         |                  |         |                  |         |                 |         |
| <b>NON-METALS</b>             |                            |                               |         |                              |          |                 |         |                  |         |                  |         |                 |         |
| Cond (µmho/cm)                | 1.0                        |                               |         | 5090                         | 5420     | 4430            | 4470    | 1170             | 1170    | 3370             | 3320    | 3660            | 3450    |
| pH (standard units)           | 0.01                       |                               |         | 7.30                         | 7.53     | 7.23            | 7.3     | 7.52             | 7.7     | 7.51             | 7.6     | 7.24            | 7.73    |
| <b>TRACE METALS (mg/L)</b>    |                            |                               |         |                              |          |                 |         |                  |         |                  |         |                 |         |
| Barium                        | 0.001                      |                               |         | ND                           | ND       | ND              | ND      | ND               | ND      | ND               | ND      | ND              | ND      |
| Selenium                      | 0.0025                     |                               |         | 0.029                        | 0.071    | 2.3             | 2.24    | 0.003            | 0.004   | 0.178            | 0.204   | 0.84            | 0.751   |
| <b>RADIOMETRIC</b>            |                            |                               |         |                              |          |                 |         |                  |         |                  |         |                 |         |
| U-nat (µCi/mL)                | 6.77E-10                   |                               |         | 3.69E-08                     | 6.80E-08 | 3.4E-08         | 3.4E-08 | 1E-09            | 1.9E-09 | 5.6E-07          | 5.9E-07 | 1.6E-07         | 1.8E-07 |
| Ra-226 (µCi/mL)               | 2.00E-10                   |                               |         | 1.10E-09                     | 8.50E-10 | 5.2E-10         | 3.5E-10 | 2E-10            | 4.3E-10 | 3.9E-10          | 6.5E-10 | 2.1E-09         | 1.7E-09 |
| Ra-226 Err. Est. +/- (µCi/mL) |                            |                               |         | 1.70E-10                     | 1.90E-10 | 1.5E-10         | 1.6E-10 | 1.9E-10          | 1.7E-10 | 1.4E-10          | 1.9E-10 | 1.8E-10         | 2.6E-10 |