POWER RESOURCES

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August 23, 2002

Mr. Dan Gillen, Chief Fuel Cycle Licensing Branch
c/o Document Control Desk, Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Materials Safety and Safeguards, U.S. NRC
11545 Rockville Pike, Two White Flint North
Rockville, MD 20852-2738

RE: Smith Ranch Facility
NRC License SUA-1548, Docket No. 40-8964
Semi-Annual Effluent and Environmental Monitoring Report, January 1 – June 30, 2002

Dear Mr. Gillen:

In accordance with 10 CFR 40.65 and License Condition No. 11.1 of License SUA-1548, please find enclosed the Semi-Annual Effluent and Environmental Monitoring Report for the Smith Ranch Facility. This report covers the period January 1 through June 30, 2002. A copy of this report is also being forwarded to 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,

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

WFK/mjh

Enclosure

cc: Mr. Dwight Chamberlain, Director DRSS, Region IV, USNRC
J. Lusher, USNRC, Headquarters, w/atta
S.P. Collings w/atta
R. Knode w/o atta
M.J. Hagar w/o atta
File

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POWER RESOURCES, INC.
SEMI-ANNUAL EFFLUENT MONITORING REPORT
SMITH RANCH FACILITY
JANUARY 1 THROUGH JUNE 30, 2002

NRC - LICENSE SUA-1548, DOCKET 40-8964

POWER RESOURCES, INC.- SMITH RANCH FACILITY
SEMI-ANNUAL EFFLUENT MONITORING REPORT
JANUARY 1 THROUGH JUNE 30, 2002

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EFFLUENT MONITOR REPORT

The Smith Ranch license, specifically condition 11.1, describes the effluent and environmental monitoring program for the facility. Accordingly, pursuant to 10 CFR §40.65, license condition 11.1, and the parameters from Table 5.3 from the March 31, 1988, license application as amended, the effluent and monitoring results for this semi-annual period are provided.

I. Commercial Operation Data-Injection Rates, Recovery Rates, Pipeline Pressures, and Injection Manifold Pressures

Presented in the tables below are the average injection rates, recovery rates, pipeline pressures, and injection manifold pressures as required by condition 11.1.

Injection and Recovery Rates
(average gallons per minute)

MONTH	WF#1 PC FLOW	WF#1 IC FLOW	WF#3 PC FLOW	WF#3 IC FLOW	WF#4 PC FLOW	WF#4 IC FLOW	WF#4A PC FLOW	WF#4A IC FLOW
Jan.	196 58	192.99	869.01	857.55	1103.88	1083 74	1680 83	1650.17
Feb.	217.25	214.16	803.66	792 52	1116 31	1100 43	2031.10	2002.20
Mar.	131.64	129.51	1370.18	1357.57	1103.35	1085 49	1737.54	1709.42
April	132.07	130.05	1580 18	1567.96	1106.95	1090 05	1743.21	1716.60
May	118.52	117.32	1605.02	1590.51	1056 29	1045 61	1749.88	1732 21
June	179.15	177.24	1699.28	1673 42	1337.11	1322.90	1717.29	1699 05

Pipeline Pressures
(pounds per square inch)

MONTH	CPP PC PRESSURE	CPP IC PRESSURE	SAT PC PRESSURE	SAT IC PRESSURE
Jan.	81	160	77	17
Feb.	69	144	82	39
Mar.	80	167	87	31
April	76	164	90	35
May	80	168	83	35
June	77	157	100	54

Injection Manifold Pressures
(pounds per square inch)

MONTH	WF#1 INJECTION PRESSURE	WF#3 INJECTION PRESSURE	WF#4 INJECTION PRESSURE	WF#4A INJECTION PRESSURE
Jan.	40	35	122	130
Feb.	38	55	125	122
Mar.	33	49	123	137
April	50	54	114	131
May	50	60	118	137
June	55	84	112	129

*This is the injection pressure at the manifold Injection pressure at the individual wellhead is less due to pressure loss through manifold system, pipelines and filters.

II. Air Sampling

A. Particulates

Pursuant to license condition 11.1 as defined by Table 5.3, air particulates monitoring is performed by continuous air samplers at the nearest downwind residence (Vollman Ranch), downwind of the restricted area boundary (fence line), and an upwind location (Dave's Water Well). Monitoring is required to be conducted quarterly.[1] The results from this quarterly monitoring are presented below.

Vollman Ranch

	1st QUARTER			2nd QUARTER		
PARAMETER	CONC. (μCi/ml)	LLD (μCi/ml)	ERROR ESTIMATE (μCi/ml)	CONC. (μCi/ml)	LLD (μCi/ml)	ERROR ESTIMATE (μCi/ml)
U_{NAT}	<1.00E-16	1.00E-16	N/A	<1.00E-16	1.00E-16	N/A
Th-230	<1.00E-16	1.00E-16	N/A	<1.00E-16	1.00E-16	N/A
Ra-226	<1.00E-16	1.00E-16	N/A	<1.00E-16	1.00E-16	N/A
Pb-210	3.75E-15	2.00E-15	8.11E-17	8.55E-15	2.00E-15	2.00E-15

(1) Samples collected monthly and composited quarterly.

Dave's Water Well

PARAMETER	1st QUARTER			2nd QUARTER		
	CONC. (μCi/ml)	LLD (μCi/ml)	ERROR ESTIMATE (μCi/ml)	CONC. (μCi/ml)	LLD (μCi/ml)	ERROR ESTIMATE (μCi/ml)
U_{NAT}	<1.00E-16	1.00E-16	N/A	<1.00E-16	1.00E-16	N/A
Th-230	<1.00E-16	1.00E-16	N/A	<1.00E-16	1.00E-16	N/A
Ra-226	<1.00E-16	1.00E-16	N/A	<1.00E-16	1.00E-16	N/A
Pb-210	3.04E-15	2.00E-15	9.97E-17	8.61E-15	2.00E-15	9.09E-18

*Dave's Water Well is the upwind or background monitoring location. The elevated Pb-210 values are likely caused by a nearby coal-fired power plant as well as an active strip coal mine.

Fence Line

PARAMETER	1st QUARTER			2nd QUARTER		
	CONC. (μCi/ml)	LLD (μCi/ml)	ERROR ESTIMATE (μCi/ml)	CONC. (μCi/ml)	LLD (μCi/ml)	ERROR ESTIMATE (μCi/ml)
U_{NAT}	<1.00E-16	1.00E-16	N/A	2.64E-16	1.00E-16	N/A
Th-230	<1.00E-16	1.00E-16	N/A	<1.00E-16	1.00E-16	N/A
Ra-226	<1.00E-16	1.00E-16	N/A	<1.00E-16	1.00E-16	N/A
Pb-210	3.04E-15	2.00E-15	7.78E-17	7.74E-15	2.00E-15	3.15E-18

B. Radon

Pursuant to license condition 11.1 as defined by Table 5.3, radon is monitored by continuous samplers (track etch) at the nearest downwind residence (Vollman Ranch), downwind of the restricted area boundary (fence line), and an upwind location (Dave's Water Well). Monitoring is required to be conducted quarterly. The results indicate the values continue to be indistinguishable and within the sphere of background. Accordingly, Rio Algom to show compliance with the provisions of 10 CFR §1301, uses the provisions provided in 10 CFR §1302(b)(1).

Vollman Ranch[(2)]

	1st Quarter	2nd Quarter
Parameter	Conc. (μCi/ml)	Conc. (μCi/ml)
Radon	11.0E-10	4.0E-10

(2) NVLAP Vendor does not provide percent error or lower level of detection.

Dave's Water Well

	1st Quarter	2nd Quarter
Parameter	Conc. (μCi/ml)	Conc. (μCi/ml)
Radon	14.0E-10	3.0E-10

Fence Line

	1st Quarter	2nd Quarter
Parameter	Conc. (μCi/ml)	Conc. (μCi/ml)
Radon	18.0E-10	7.0E-10

III. Water

A. Groundwater

The groundwater monitoring program requires operating livestock or domestic wells within 1 kilometer of operating wellfields be sampled quarterly for natural uranium and radium-226. Vollman's Pond and Smith Windmill #1 are within 1 kilometer of Wellfield #1 and Smith's Windmill #2 and the Solar Pump are within 1 kilometer of Wellfield #3. There are no livestock or domestic wells within 1 kilometer of Wellfield #4. The results of the quarterly samples for the operating livestock wells are presented in the table below.

Local Groundwater Wells

	1st Quarter		2nd Quarter	
Location	Unat (μCi/ml)	Ra-226 (μCi/ml)	Unat (μCi/ml)	Ra-226 (μCi/ml)
Vollman Pond	NO WATER	NO WATER	NO WATER	NO WATER
Smith Pond	NO WATER	NO WATER	NO WATER	NO WATER
Smith's Windmill #1	2.23E-8	1.30E-9	2.71E-8	1.6E-9
Smith's Windmill #2	5.90E-8	8.0E-10	6.53E-8	4.0E-10
Solar Pump	6.84E-9	1.0E-9	6.63E-9	NOT DETECTED

B. Surface Water

The surface water monitoring program requires two (2) samples from Sage Creek and one (1) sample from the outfall of the treatment plant. Each is on a quarterly basis. The Sage Creek samples are to be taken upstream and downstream from the restricted areas when flow is available in the creek.

During the 1ST and 2ND quarter of the report period, there was no flow in Sage Creek and therefore, no analytical results are available. There was no flow above the restricted area during either quarter. Consistent with the correspondence from Power Resources, Inc. to the WDEQ-WQD dated August 20, 2002 PRI has provided notice to terminate NPDES Permit No. WY0022411.

Sage Creek Sample Results

	1st Qtr.		2nd Qtr.	
Sample Location	Unat (μg/ml)	Ra226 (μCi/ml)	Unat (μg/ml)	Ra226 (μCi/ml)
Below Restricted Area	No Flow	No Flow	No Flow	No Flow
Above Restricted Area	No Flow	No Flow	No Flow	No Flow

IV. Soil

Soil sampling is conducted annually at the downwind air sampling station. A sample will be taken during the second half of the calendar year with the results presented in the July 1 through December 31 Semi-Annual Effluent Report.

Soil Sample Result

Location	U_{nat} pCi/g	Ra_{226} pCi/g	Pb_{210} pCi/g
Downwind of Air Sampling Station	N/A	N/A	N/A

V. Vegetation

Vegetation sampling is performed annually at a downwind air-sampling site. The sampling will be performed during the second half of the calendar year with the results reported in the July 1 through December 31, 2002 Semi-Annual Effluent Report.

Vegetation Sample Result

Location	$U_{\mu}Ci/Kg$	$Ra_{226\mu}Ci/Kg$	$Th_{230\mu}Ci/Kg$	$Pb_{210\mu}Ci/Kg$
Downwind of Air Sampling Station	N/A	N/A	N/A	N/A

VI. Direct Radiation

Direct radiation readings are measured at the three (3) air monitoring stations, downwind of the evaporation pond, and at each wellfield using dosimeter badges on a quarterly basis. Provided in the table below are the results from those measurements.

Direct Radiation
(μR/hr)

Location	1st Quarter	2nd Quarter
Vollman Ranch	NO DATA	12.2
Fence Line	19.3	14.7
Dave's Water Well	16.8	12.9
Wellfield #1	18.5	14.7
Wellfield #3	15.9	12.9
Wellfield #4	16.3	13.6
Wellfield #4A	16.3	12.5
Pond	17.2	14.0

-Background has not been subtracted from the above readings. Dave's Water Well is the background.
*Defective dosimeter

VII. Other Effluent Monitoring Results

A. Gamma Radiation Survey

During "Deferred Production Status" of the O-Sand Pilot area, gamma radiation was measured quarterly at the following four (4) locations. Please note that with the initiation of commercial operations in Wellfield #3 on August 10, 1998, the "Deferred Production Status" monitoring requirements are no longer required. Although, not required, measurements obtained during the 1st and 2nd quarter are presented in the table below.

Deferred Production Status
Direct Radiation Measurements

Location	1st Quarter (μR/Hr)	2nd Quarter (μR/Hr)
Downwind of Radon Sampling Location	26	24
Upwind of Process Plant	18	20
Process Leach Tank	27	27
Evaporation Ponds	29	27