



**ROCKY MOUNTAIN  
ENERGY**

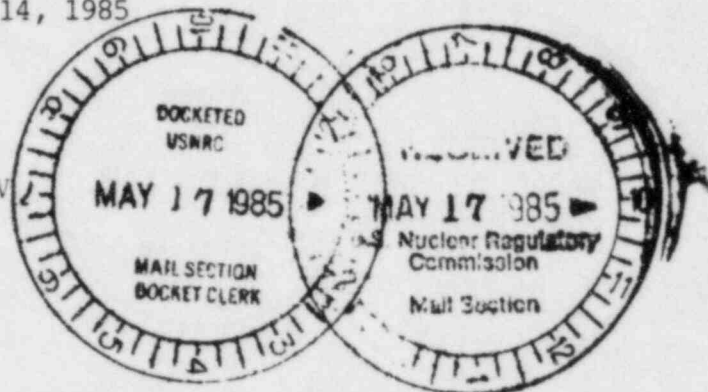
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Union Pacific Corporation

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8697  
RETURN TO ~~██████████~~, PDR

May 14, 1985

Mr. R. Dale Smith  
U.S. Nuclear Regulatory Commission  
Uranium Recovery Field Office, Region IV  
Box 25325  
Denver, CO 80225



Dear Mr. Smith:

RE: License SUA-1338, Docket No.40-8697 (Reno Creek)  
Quarterly Report: First Quarter, 1985

License condition 29 requires a quarterly report summarizing environmental surveillance at the Reno Creek R & D project. This report covers the period January 1, 1985 through March 31, 1985.

#### OPERATIONS

Leaching and restoration activities ceased in 1981. Site activities the past four years have been primarily limited to maintenance and environmental monitoring.

#### ENVIRONMENTAL MONITORING

##### Groundwater

Sulfuric acid leaching tests commenced on Pattern 1 during February and ran until November, 1979 at which time restoration efforts began. Restoration activities ceased June 1, 1981. Monthly samples have been collected from production and monitor wells since shut down to verify groundwater stability. First quarter data for Pattern 1 wells are displayed in Tables 1 and 2.

Both NRC and The Wyoming DEQ approved Pattern 2 restoration adequacy in the Spring of 1983. All groundwater surveillance was halted at that time.

##### Reservoir

Approximately three million gallons of solution remain to be evaporated in the twelve million gallon reservoir. The reservoir was frozen over during the quarter, therefore no analyses are available.

##### Radon Gas

Monthly samples are collected upwind, downwind and inside the process building. All results displayed in Table 3 are below 10 CFR 20 limits.

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DESIGNATED ORIGINAL

Certified By Mary C. Hovel

**FEE EXEMPT**

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#### Air Particulates

Radionuclide particulate data for the fourth quarter are shown in Table 4. High-volume filters are collected using EPA's six day schedule. The filters are combined into a quarterly composite. All reported values are significantly less than 10 CFR 20 limits. First quarter values will be reported on the next quarterly report.

#### Area Dosimetry

TLD badges are located in several working areas. Table 5 lists results for the fourth quarter.

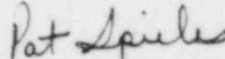
#### PROPOSED ACTIVITIES

Further R&D work to develop in-situ technology is not planned at Reno Creek. Upon receiving concurrence of Pattern 1 restoration adequacy, both Patterns 1 and 2 wells will be abandoned in accordance with State of Wyoming regulations.

Environmental surveillance, including radon gas, air particulates and area dosimetry will continue through facility decommissioning.

If you have questions, call me at the Casper office or Mike Neumann in our Broomfield office.

Sincerely,



Patrick Spieles  
Facility Superintendent

cc: S. Wastler, NRC  
NRC, Document Management Branch  
T. Mueller (DEQ, District IV)  
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TABLE 1  
RENO CREEK  
GROUNDWATER SAMPLING FIRST QUARTER, 1985  
PATTERN 1

	Sample Date	pH	TDS mg/l	Calcium mg/l	Sulfate mg/l	U <sub>3</sub> O <sub>8</sub> mg/l
M-1	CL*	6.5	2858	286	1606	1.102
	Jan	8.2	1200	91	688	0.016
	Feb	7.8	1140	94	719	0.027
	Mar	7.8	1160	84	708	0.064
M-2	CL*	6.5	2744	278	1644	1.027
	Jan	8.2	1240	103	770	0.003
	Feb	8.0	1220	99	786	0.013
	Mar	8.1	1220	96	759	0.085
M-3	CL*	6.5	3104	286	1657	1.750
	Jan	8.7	1370	112	878	0.133
	Feb	8.4	1300	108	863	0.118
	Mar	8.4	1375	113	878	0.166
M-4	CL*	6.5	3096	304	1783	1.550
	Jan	8.6	1540	125	987	1.06
	Feb	8.6	1400	123	908	1.02
	Mar	8.5	1420	123	899	1.06
LSM-1	CL*	6.5	994	207	137	1.022
	Jan	11.9	340	35	16	0.010
	Feb	10.5	400	25	31	0.024
	Mar	11.6	530	20	47	0.052
USM-1	CL*	6.5	987	32	137	1.029
	Jan	7.4	405	34	5	< 0.001
	Feb	7.4	422	31	3	0.021
	Mar	7.5	460	33	11	0.014
P-1	CL*	6.5	2771	267	1673	5.00
	Jan	5.9	2040	246	1229	0.428
	Feb	5.9	1980	224	1276	0.380
	Mar	5.9	2040	236	1346	0.454
P-2	CL*	6.5	2771	267	1673	5.00
	Jan	5.6	2280	258	1408	0.371
	Feb	5.6	2280	244	1469	0.436
	Mar	5.6	2260	248	1494	0.410

CL\*-Stabilization Control Limits

TABLE 2  
RENO CREEK PATTERN 1  
QUARTERLY GROUNDWATER ANALYSES  
FIRST QUARTER, 1985  
WELL NUMBER

	<u>P-1</u>	<u>P-2</u>	<u>M-1</u>	<u>M-2</u>	<u>M-3</u>	<u>M-4</u>	<u>LSM-1</u>	<u>USM-1</u>
pH	5.9	5.6	8.2	8.2	8.7	8.6	11.6	7.4
Conductivity	2566	2895	1697	1711	1947	1434	938	632
Bicarbonate	40	44	152	104	88	69	0	286
Alkalinity	33	36	125	85	82	132	492	316
Calcium	246	258	91	103	112	125	25	34
Chloride	25	38	19	20	17	21	82	35
Magnesium	44	54	16	17	17	20	2.7	4.3
Potassium	32	59	5.9	6.9	7.5	7.9	3.4	4.8
Sodium	286	301	264	298	290	319	110	132
Sulfate	1229	1408	688	770	878	987	31	5
TDS	2040	2280	1200	1240	1370	1540	400	405
Arsenic	0.044	0.002	0.003	0.001	0.007	0.003	0.006	0.002
Iron	26	46	0.11	0.07	0.11	0.06	0.57	1.9
Selenium	0.048	0.003	0.011	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.334	0.075	0.005	0.008	0.008	0.009	0.182	0.012
Uranium ( $U_3O_8$ )	0.428	0.371	0.016	0.003	0.133	1.06	0.010	<0.001
Radium-226	656	553	151	33	108	60	29	27

Units in mg/l (ppm) except pH (standard units), conductivity ( $\mu$ mhos/cm) and Radium -226 (pci/l).

TABLE 3  
RENO CREEK  
RADON GAS - FIRST QUARTER, 1985

<u>SITE</u>	<u>JAN</u>	<u>FEB</u>	<u>MARCH</u>
UPWIND BOUNDARY #8 *	-0.21 $\pm$ 0.71	0.09 $\pm$ 0.50	1.71 $\pm$ 1.59
DOWNWIND BOUNDARY #10*	-0.27 $\pm$ 0.70	-.02 $\pm$ 0.37	2.05 $\pm$ 1.24
PLANT BUILDING INSIDE**	-0.47 $\pm$ 0.50	0.31 $\pm$ 0.39	2.29 $\pm$ 1.17

\* 10 CFR 20 Limit (Unrestricted area)  $3.0 \times 10^{-9} \mu\text{Ci/ml}$

\*\* 10 CFR 20 Limit (Restricted area)  $3.0 \times 10^{-8} \mu\text{Ci/ml}$

All values reported in  $\mu\text{Ci/ml} \times 10^{-9}$

TABLE 4  
RADIOMETRIC AIR PARTICULATE  
RENO CREEK  
FOURTH QUARTER, 1984

-----10 <sup>-16</sup> $\mu$ Ci/ml			
<u>Site</u>	<u>Ra-226</u>	<u>Th-230</u>	<u>Uranium</u>
Upwind (8)**	1.3 $\pm$ 3.4	-0.6 $\pm$ 0.8	7.8
Downwind (#10)**	-0.6 $\pm$ 3.5	0.8 $\pm$ 1.5	9.7
Plant Building (#9)*	0.6 $\pm$ 3.0	0.3 $\pm$ 1.3	4.2
10 CFR 20 Limit* (restricted area)	3 x 10 <sup>-11</sup>	2 x 10 <sup>-12</sup>	7 x 10 <sup>-11</sup>
10 CFR 20 Limit** (unrestricted area)	2 x 10 <sup>-12</sup>	8 x 10 <sup>-14</sup>	3 x 10 <sup>-12</sup>



TABLE 5  
 AREA DOSIMETRY  
 RENO CREEK  
 FIRST QUARTER, 1985

<u>SITE</u>	<u>MREM/QUARTER</u>
Control	24.17
Upwind Boundary (#8)	30.85
Downwind Boundary (#10)	23.40
Pattern 1	28.93
Pattern 2	19.67
Office	21.47
Lab	25.07
Sump	24.04
Plant Building	46.41

\* Dosimetry service performed by Eberline Instrument Corp.  
 Badges are exchanged quarterly.