



**ROCKY MOUNTAIN  
ENERGY**

A Subsidiary of  
Union Pacific Corporation

January 27, 1986

40-8380390E

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

RETURN ORIGINAL TO PDR, HQ.

Re: License SUA-1228, Docket No. 40-8380 (Nine Mile Lake)  
Quarterly Report: Fourth Quarter, 1985

Dear Mr. Smith:

License condition 36 requires a quarterly report summarizing environmental surveillance and site activities at the Nine Mile Lake project. This report covers the period of October 1, 1985 through December 31, 1985.

#### SITE ACTIVITIES

Leaching circuits have been inactive since the fall of 1981. Restoration efforts were halted February 1, 1982. Site activities at the Nine Mile Lake R & D project since February, 1982 have been primarily limited to environmental surveillance and decommissioning.

Decommissioning activities began during May of 1985 and were completed in December. Major tasks included well abandonment, wellfield reclamation, removal of all process equipment, decontamination of remaining buildings and hauling reservoir sludge and contaminated soil to Bear Creek for disposal. Details of decommissioning are not included in this report, but will be available for your review in the "Decontamination and Decommissioning Report" to be submitted in the near future.

Data reported in this report are routine environmental surveillance.

#### ENVIRONMENTAL MONITORING

Groundwater - All wells were plugged and abandoned during the third quarter of 1985; therefore, groundwater data are not available for the fourth quarter or any subsequent quarter. Final wellfield reclamation was completed during the fourth quarter. Twelve acres were disced and seeded with a "dryland pasture mix".

Air Quality - Radionuclide particulate data for the third and fourth quarters are listed in Table 1. Sample stations located upwind, downwind and inside the process building are well below 10CFR20 limits.

Radon gas values are shown in Table 2. Grab samples are collected monthly.

Radon daughter results are listed in Table 3. All radon gas and radon daughter results for the quarter are below 10CFR20 limits.

DESIGNATED ORIGINAL

Certified By

*George C. Hord*  
(Signature)  
ATTN: PDR

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PDR ADOCK 04008380  
C PDR

FILE EXEMPT

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Table 4 displays area TLD values for the fourth quarter. Included are badges attached to contractor vehicles used during decommissioning.

Miscellaneous Monitoring - Removable alpha contamination surveys were conducted at selected sites. Table 5 lists the results, all well below the limit of 1000 dpm/100cm<sup>2</sup>.

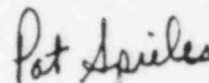
Special monitoring during decommissioning was significant. These data are reported in the "Decommissioning and Decontamination Report".

PROPOSED ACTIVITIES

Further research and development activities are not planned for Nine Mile Lake. Decommissioning activities were completed during the fourth quarter. Unless RME hears differently, consider this the final quarterly report.

If you have any questions, call me at (307)235-0175 or Mike Neumann at (303)469-8844.

Sincerely,



Patrick Spieles  
Facility Superintendent

PRS/jd  
Attachments

cc: C. Jierree, NRC, Region IV  
NRC, Document Managment Branch  
Roy Spears (DEQ, District I)  
L. W. Hersloff  
K. W. Loest  
M. R. Neumann

TABLE 1  
RADIOMETRIC AIR PARTICULATE  
NINE MILE LAKE

<u>Site</u>		<u>Ra-226</u>	<u>Th-230</u>	<u>U(nat)</u>
Upwind Control	3rd quarter, 1985	12.0 ± 7.0	11.0 ± 4.0	2.6
Upwind Control	4th quarter, 1985	1.3 ± 3.3	1.9 ± 1.6	2.3
Downwind #3	3rd quarter, 1985	6.3 ± 5.1	13.0 ± 4.0	3.3
Downwind #3	4th quarter, 1985	1.4 ± 3.8	16.0 ± 4.0	5.9
Downwind Control	3rd quarter, 1985	-1.5 ± 5.4	7.8 ± 3.4	4.8
Downwind Control	4th quarter, 1985	2.1 ± 4.0	22.0 ± 5.0	4.9
Process Building	3rd quarter, 1985	2.0 ± 4.6	14.0 ± 4.0	9.4
Process Building	4th quarter, 1985	0.6 ± 2.6	9.3 ± 2.9	14.0

All results reported in  $\mu\text{Ci} \times 10^{-16} / \text{ml}$

TABLE 2  
RADON GAS  
NINE MILE LAKE  
FOURTH QUARTER, 1985

<u>Site</u>		<u>Rn-222 (<math>\mu\text{Ci} \times 10^{-9} / \text{ml}</math>)</u>
Upwind Control (#5)*	Oct, 1985	0.04 $\pm$ 0.06
	Nov, 1985	0.32 $\pm$ 0.47
	Dec, 1985	0.43 $\pm$ 0.76
Downwind Boundary (#3)*	Oct, 1985	0.05 $\pm$ 0.06
	Nov, 1985	0.42 $\pm$ 0.63
	Dec, 1985	0.76 $\pm$ 0.69
Downwind Boundary (#3B)*	Oct, 1985	0.02 $\pm$ 0.04
	Nov, 1985	0.29 $\pm$ 0.41
	Dec, 1985	0.52 $\pm$ 0.56
Process Building ** Upper Deck	Oct, 1985	0.12 $\pm$ 0.14
	Nov, 1985	0.69 $\pm$ 0.71
	Dec, 1985	0.42 $\pm$ 0.39
Process Building ** Lower Deck	Oct, 1985	0.14 $\pm$ 0.36
	Nov, 1985	0.77 $\pm$ 0.85
	Dec, 1985	0.76 $\pm$ 0.48

\* 10 CFR 20 Limit (unrestricted area)  $3.0 \times 10^{-9}$   $\mu\text{Ci}/\text{ml}$   
 \*\* 10 CFR 20 Limit (restricted area)  $3.0 \times 10^{-8}$   $\mu\text{Ci}/\text{ml}$

TABLE 3  
RADON DAUGHTERS  
NINE MILE LAKE  
FOURTH QUARTER, 1985

<u>Site</u>	<u>Working Level</u>		
	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
Surface Discharge Surge Tank Site	< 0.001	< 0.001	< 0.001
Upper Deck	0.002	< 0.001	< 0.001
Lower Deck	< 0.001	< 0.001	< 0.001
Sump Pump	0.001	0.001	0.002
R/O Unit Site	< 0.001	0.002	< 0.001
Assay Station	0.002	0.002	< 0.001
Lunch Room	0.004	0.003	0.003
Water Lab	0.001	< 0.001	0.001
Security Office	0.002	0.002	0.004
Storage Loft	0.002	0.001	0.002

Detection Limit 0.001 WL

10 CFR 20 Limit 0.3 WL

TABLE 4  
 AREA DOSIMETRY  
 NINE MILE LAKE  
 FOURTH QUARTER, 1985

<u>SITE</u>	<u>MREM/QUARTER</u>
Upwind Control	32.07
Downwind Boundary - Site 3	36.41
Downwind Boundary - Site 3B	35.22
Lower Deck	32.99
Upper Deck	51.78
Water Lab	25.89
Superintendent's Office	22.87
Security Office	25.37
Lunchroom	23.26
Assay Station	27.21
Unit 414 (Belly Dump)	21.94
Unit 413 (Belly Dump)	22.34
Unit 304	24.83
Unit 305	25.10

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

TABLE 5  
REMOVABLE ALPHA CONTAMINATION  
FOURTH QUARTER, 1985

<u>Building</u>	<u>Location</u>	<u>Removable Alpha dpm/100cm<sup>2</sup></u>
Office	Outside wall	26
	Floor (entryway)	17
	Wall (entryway)	2
Geology Trailer	Outside surface	2
	Floor	5
	Wall	2
Lab Trailer	Floor (prep area)	1
	Counter (prep area)	5
	Wall (adjoining hood)	1
	Outside surface	9
Generator Building	Floor	2
	Wall	5
Process Building	Break room - wall	14
	Break room - floor	19
	Assay station - wall	14
	Assay station - counter top	26
	Assay station - floor	40
	Restroom - floor	21
	Restroom - wall	28
	West wall above work bench	12
	Floor - eluant tank site	31
	Floor - center area	24
	Floor - core tanks site	40
	North wall - core tanks site	216
	North wall - yellowcake receiver site	367
	North wall - ppt tank site	132
	Floor - yellowcake receiver site	21
	Floor - ppt tank site	14
	E. trench wall - south end	24
	Trench - sump pump site (near bottom)	21
	West trench wall - middle area	49
	Small trench wall	54
	Small trench floor	24
	East trench wall - north end	31
	West trench wall - south end	24
	West trench wall - north end	45
	Trench - sump pump site (near top)	31
	East trench wall - middle area	35
	Support column adjoining yellowcake receiver	52
	Outside wall, west side	12
	South wall below bulletin board	16
	Storage cabinet	26
	East wall near pressure tank	16
	North wall behind yellowcake drum filter	54
	Floor - drum filter site	71
	Floor - line reactor #1 site	38
	Floor - line reactor #2 site	33
	Floor - above precipitation tank	26
	Wall behind ppt tank	136
	Ceiling above ppt tank	14
	Electric panel box - east wall	14
	Attic floor	19
	Attic wall	16
	Wall adjoining main blower site	16
	Styrofoam blocks	31
	Floor - injection tank site	7
	Floor - preg tank site	33