SEMI-ANNUAL REPORT TO NRC

Nine Mile Lake Experimental In Situ Uranium Leach

SUA-1228

The Nine Mile Lake experimental uranium insitu leaching operation has been operational since November, 1976. Our data through June 1979 indicates the leaching operation has not caused an environmental impact in unrestricted areas adjoining the property. Water data, air particulates and radon gas collected at or correlated to the unrestricted site boundary approximates background levels for all radionuclides concerned. On the basis of this data, we have concluded that radioactive materials have not been released to unrestricted areas adjacent to the project. The information as follows summarizes our monitoring programs.

AIR QUALITY

Table I displays maximum Radium-226, Thorium-230, natural uranium and total solid particulate values for the report period. Samples were collected with High-Volume Air Samplers. Comparison of values to 10 CFR 20. 103- 10 CFR 20.106, Appendix B, Tables I and II, indicates no violation due to airborne particulates.

TABLE I

Nine Mile Lake

Maximum Observed Airborne Concentrations[1]

SAMPLE STATIONS[2]	TSP[4]	Ra-226[3]	Th-230[3]	NAT. URANIUM[3]
1	25.2	1.0×10^{-14}	1.0×10^{-14}	0.16×10^{-14}
2	39.4	1.0×10^{-14}	0.4×10^{-14}	0.2×10^{-14}

(1) All samples collected with a GMW high volume air sampler from January 1979 through June 1979.

(2) Sample locations

1) Upwind of Restricted Area Boundary
2) Downwind of Restricted Area Boundary

(3) Concentrations in microcuries per ml.

(4) Concentrations in micrograms per cubic meter.

RADON

Radon gas samples were collected at upwind and downwind restricted area boundaries. The surveys indicate radon levels to be lower than 10 CFR 20 levels. (See Table II).

TABLE II

NINE MILE LAKE

LOCATION	MAXIMUM - RADON GAS CONCENTRATION January 1979 - June 1979
Upwind Boundary	6.92 µci/ml
Downwind Boundary	2.48 µci/ml

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PERSONNEL AND AREA TLD BADGES

All exposure data were insignificant for the report period. Results were less than 0.08 rems per quarter - annual period for personnel monitors and 0.048 rems for external area monitors.

GROUNDWATER

Perimeter monitor wells located in each cardinal direction and in the same aquifer were sampled monthly to show a possible excursion of lixiviant. A well in the adjacent aquifer was also monitored on a monthly basis. Regional wells located beyond the project boundaries were sampled on a quarterly basis. Table III compares baseline water averages to recent water values. As expected, no indications are evident of a possible loss in control of leaching solution.

TABLE III

Nine Mile Lake

June 1979 Monitor Well Water Quality vs (Baseline Average)

Monitor Wells

	M-20	M-21	M-22	M-23	M-24*
pH	(7.2)	(7.3)	(7.1)	(7.2)	(7.1)
	7.0	7.3	6.8	7.3	7.4
Conductivity	(3931)	(2627)	(3294)	(2772)	(2787)
µmhos/cm	3400	3000	4000	2900	2900
U_3O_8 ppm	(0.544)	(0.129)	(0.026)	(0.118)	(0.090)
Gross Alpha	(769)	(477)	(597)	(506)	(1394)
pci/l	670	350	470	640	780
Gross Beta	(321)	(336)	(167)	(146)	(379)
pci/l	550	530	560	530	980
Ra-226	(195)	(262)	(180)	(215)	(553)
pci/l	190	165	180	220	290

*located in adjacent aquifer.

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