

Groundwater

Pattern III monitor wells are sampled to serve as excursion indicators. These wells are located in each cardinal direction from the leaching pattern and completed in the same aquifer as the ore zone. An excursion reported in the previous semi-annual report continues to show some parameters for wells M-40 and M-43 to be above the control limits; however, the flow of solution, as mentioned before, is well under control. Producing from the pattern without injection virtually insures control of the solution. We fully expect those few remaining parameters that slightly exceed the control limits to eventually fall within the normal ranges. Table I summarizes Pattern III monitor well data.

Table I
Nine Mile Lake
Pattern III
Maximum Observed Value Vs. (Control Limit)
January - June 1980

	<u>M-40</u>	<u>M-41</u>	<u>M-42</u>	<u>M-43</u>
pH	(6.3) 6.6	(6.3) 6.5	(6.4) 6.8	(6.5) 6.6
Conductivity (umhos/cm)	(3110) 3300	(3404) 2800	(3002) 2500	(3308) 2700
Sulfate (mg/l)	(2522) 1308	(1582) 1332	(1716) 1127	(1266) 1309
U ₃ O ₈ (mg/l)	(0.055) 0.380	(0.069) 0.590	(0.049) 0.649	(0.035) 1.400
Vanadium (mg/l)	(0.42) 2.10	(0.33) 0.70	(0.35) 0.20	(0.28) 0.57

Air Particulates

Table II values for the reporting period show Radium²²⁶, Thorium²³⁰, and natural uranium values. Samples were collected with high volume air samplers. Comparison of data to 10 CFR 20.103-10, CFR 20.106, Appendix B, Table I and Table II indicates airborne radionuclides at the project to be considerably less than the established standards.

Table II
Nine Mile Lake
Maximum Observed Airborne Concentrations
January - June 1980

<u>Location</u>	<u>Ra²²⁶*</u>	<u>Th²³⁰*</u>	<u>Uranium*</u>
Upwind Control (#5)	8 ± 6	4 ± 3	3.0
Downwind Restricted Area Boundary (#3)	8 ± 13	8 ± 13	23.0
Downwind Site (#6)	5 ± 6	3 ± 3	3.0
Downwind Site (#7)	2 ± 4	1 ± 3	3.0

* Value in microcuries per ml x 10⁻¹⁶

Radon Gas

Radon gas is sampled at the restricted area boundary by collecting 48 hour composites using continuous pulse pumps. Maximum values for the report period are significantly less than 10 CFR limits.

Table III
Nine Mile Lake
Maximum Observed Radon Gas Concentrations
January - June 1980

<u>Location</u>	
Upwind Control (#5)	0.27×10^{-9} uCi/ml
Downwind Restricted Area Boundary (#3)	0.85×10^{-9} uCi/ml
Downwind Site (#6)	1.17×10^{-9} uCi/ml
Downwind Site (#7)	0.35×10^{-9} uCi/ml

TLD Area Monitors

A TLD area monitor service provided by Eberline shows all external sampling sites to approximate the background control. Table IV lists the values for the report period.

Table IV
Nine Mile Lake
TLD Area Monitors*

	mrem/week	
	<u>January - March</u>	<u>April - June</u>
Control	2.57	2.31
Upwind Restricted Area Boundary (#1)	2.22	2.34
Upwind Site (#5)	2.37	2.53
Downwind Restricted Area Boundary (#3)	2.28	2.42
Downwind (#6)	2.61	2.80
Downwind (#7)	2.75	2.42

* Quarterly exchange frequency