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Docket File 40-8084PDR

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OCT 8 1982

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 Docket File No. 40-8084
 04008084130E

MEMORANDUM FOR: Docket File No. 40-8084

FROM: Roger T. Woolsey, Project Manager
 Uranium Recovery Field Office

SUBJECT: REVIEW OF RIO ALGOM CORPORATIONS' (RAC) 40CFR190 AND
 10CFR40.65 REPORTS FOR THE FOURTH QUARTER 1981 AND A
 DELAYED THIRD QUARTER GROUNDWATER REPORT

By letter dated April 30, 1982, the RAC submitted the subject information in response to Section 40.65 of 10CFR40 and License Condition Nos. 36 and 37 of Source Material License No. SUA-1119, and as required by NRC Order dated March 26, 1981.

I have reviewed the fourth quarter 1981 environmental data and find that all required data, including that data required for the third quarter 1981, have now been submitted in complete form.

1. Stacks - Yellowcake and Ore

Unat, Th-230, Ra-226 and Pb-210 were measured in the stacks, the yellowcake dust filter and the yellowcake scrubber during the fourth quarter of 1981. Three stacks in the ore crushing, grinding and transfer area are monitored only on a semi-annual basis and therefore were not covered in this report. Four samples, as tabulated below, were in excess of the restricted area MPC. However, since Section 20.106(d) of 10CFR40 permits concentration limits (for stacks, etc.) to be determined for Appendix B, Table II, at the boundary of the restricted area, I have made this determination by using the data from stations S-1 and S-3 and found that all radionuclides were less than 5% of the applicable MPC limit.

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<u>Stack</u>	<u>Radionuclide</u>	<u>In-Stack Concentration</u>	<u>Percent MPC</u>
Y.C. dust filter	U-nat	15.36E-11	153.6
	Th-230	01.3E-11	650.0
Y.C. Scrubber	Th-230	0.9E-11	30.0
	Pb-210	0.00E-11	0.0

2. Air Samples - Air Particulate Monitors and Radon

Air particulate concentrations and radon were measured at six locations in the environs at distances up to 10.6 miles from the property line.

Sample results for U-nat, Th-230, Ra-226 and Pb-210 measured at these six locations (S-1 through S-6; S-6 is considered a background station) varied from 0.002 to 3.6% of applicable MPCs. The highest result was 3.6% for station S-1.

Results for radon sampling varied from 6.0 to 15.3% of the applicable MPC. The maximum measurement was at station S-2.

3. Direct Radiation - Gamma

A tabulation of direct radiation TLD gamma dosimeter results for the period 8/23 - 11/23/81 follows:

<u>Location</u>	<u>Exposure Rates (mrem/qr)</u>
S-1	37
S-2	42
S-3	31
S-4	37 (nearest residence)
S-6	34 (background station)
Moab City background	40

The net gamma value at the nearest residence (37-34) is less than one standard of deviation (4) and therefore is statistically insignificant in using for contribution to the 50 year dose commitment.

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4. Ground Water

Ten ground water wells were reported for the period 10/1/81 to 12/31/81 including one well NW5 used as a background sample station both for radiological and chemical concentrations. Also chemical concentrations not included in the previous third quarter report were reported for the period 7/81 to 9/81. The groundwater monitoring wells are: MW1, MW2, MW3, MW4, MW8, H48, H54, H56, H71, DM80-1 and MW-5 background.

Wells H54 and H56 were reported as exceeding the applicable radiological unrestricted MPCs for Unat and Pb-210 in the third quarter report. On September 1, 1982, Rio Algom reported in their semiannual survey of land use, that the mill fenceline was extended to the north and west; the land use map now shows these wells to be in the restricted area. The concentration for the previous third quarter and the present fourth quarter are as follows:

Average Gross Concentration (μ Ci/ml)

<u>Well</u>	<u>Radionuclide</u>	<u>4th Quarter</u>	<u>Net % MPC</u>	<u>3rd Quarter</u>
H54	Unat	558.0E-7	5.6	588.4E-7
	Th-230	96.4E-9	0.19	25.1E-9
	Ra-226	3.9E-9	0.84	0.3E-9
	Pb-210	1,160E-9	28.97	285E-9
	Po-210	11.9E-9	0.06	203E-9
H56	Unat	615.8E-7		604.8E-7
	Th-230	37.7E-9		89.6E-9
	Ra-226	0.3E-9		2.3E-9
	Pb-210	209.7E-9		1,310E-9
	Po-210	107.9E-9		11.8E-9

All other radionuclide groundwater concentrations are presently below the applicable MPCs.

The above ten groundwater wells were also sampled and analyzed for the following chemical parameters for the fourth quarter and late results were reported for the third quarter of 1981: calcium carbonate, boron, calcium, chloride, magnesium, manganese, nitrate, selenium, sodium, sulphate and Total Dissolved Solids. Many of

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these wells within the restricted area were noted to have some chemical parameters in excess of applicable drinking water limits.

Specifically, monitor wells MW3, H54, H56 and H48, which are north and close in to the tailings ponds, and wells MW1, MW2 and MW4, south of the ponds and close in, are running the highest. MW5, which is NE of the tailings pond and the furthest out is essentially below applicable limits except for Total Dissolved Solids. RA has already commenced remedial actions to reduce groundwater contamination in this area in accordance with amendment no. 15 to their license. Therefore, the staff will continue to watch these results to evaluate the effectiveness of the mitigative actions taken by the licensee.

5. Surface Water

Surface water samples were collected at five locations in the environs and all samples measured were less than the applicable MPCs.

License Condition No. 37 - 40CFR190 Compliance Review

The licensee provided a 40CFR190 compliance report as required by this license condition. Actual monitoring data for the 4th quarter of 1981, at the locations required by License Condition No. 36, were provided in this report. Rio Algom provided the dose assessment tabulated below based on monitoring data contained in this report. Rio Algom selected a trailer approximately one mile north of the mill as the nearest residence. The sampling data presented in this report was taken from station S-4. The numbers in this table represent concentrations of airborne particulates after subtracting the background concentrations listed for station S-6. The data below represents the 50-year dose commitment (mrem) assuming the concentrations measured this year approximate those measured for the four quarters measured in License Condition No. 37.

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<u>Location</u>	<u>Radio-nuclide</u>	<u>Gross</u>	<u>Bkg</u>	<u>Net</u>	<u>Body</u>	<u>Bone</u>	<u>Lung</u>
S4	Unat	.00182	.0010	.00082	.0037	0.065+	0.138
	Th-230	.0027	.00016	.00254	.421	15.113	8.178
	Ra-226	.00042	.00041	.00001	.0003	0.0031	0.066
TOTAL DOSE IN MREMS					.425	15.209	8.382

Conclusion

The licensee has submitted the data required by Source Material License No. SUA-1119, and the staff has concluded that the Rio Algom Corporation is in compliance with the 40CFR190 standard of 25mrem for the third and fourth quarters of 1981.

ORIGINAL SIGNED BY

Roger T. Woolsey, Project Manager
Uranium Recovery Field Office

Approved by:

ORIGINAL SIGNED BY

Harry J. Pettengill, Section Chief
Uranium Recovery Field Office

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