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ORIGINAL SIGNED BY
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for GDB

ATLAS MINERALS, MOAB, UTAH - LICENSE NO. R-161, DOCKET NO. 40-3453 -
INDEPENDENT ANALYTICAL RESULTS FOR LIQUID SAMPLES

CO:IV:LCR

Attached are the analytical results for liquid samples collected during the inspection of the subject licensee on June 8-9, 1964. The inspection was concluded with an appropriately completed form AEC-591.

As noted in the report of the inspection conducted on November 27-29, 1962, and January 15, 1963, the licensee's analytical procedure for analysis of the tailings pond effluent discharge called for filtration at the first step to remove any suspended solids. The remaining steps in the analysis are reportedly the same as the procedure used by Claude Sill of the Analysis Branch, ID. As a check on this procedure, two effluent discharge samples were collected. One sample (Sample No. 1 in the attached table) was analyzed by the standard method used by Sill, i.e., adding dilute nitric acid as the first step for dissolution of the readily hydrolyzable thorium and radium. The second sample (Sample No. 2 in the table) was first filtered by Sill and then the filtrate and residue solids were each analyzed for Ra-226 and Th-230.

As a basis for comparison, the licensee's analytical results for the first three months of the year are also listed. Perhaps it is worth noting that, while the licensee performs an analysis of the solid residues obtained from the filtration, the results reported to the Commission by letter dated January 28, 1964, include only the data for the filtrate.

You will note that the Pb-210 result for the tailings pond effluent slightly exceeds the permissible concentration of $1 \times 10^{-7} \mu\text{c/cc}$. The licensee, of course, has not performed Pb-210 or Po-210 analyses.

Please contact us if you have any questions regarding the analytical results.

Enclosure: 9612190371 641222
Table PDR ADOCK 04003453
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OFFICE ▶	CO-IV	CO-IV			
SURNAME ▶	LCRouse:nb	GDBrown			
DATE ▶	12/9/64	12/9/64			

Sample Description	AEC Sample Results ($\mu\text{c/ml}$)				
	Ra-226	Th-230	U Nat.	Pb-210	Po-210
1. Tailings Pond Effluent Discharge (not filtered)	2.2×10^{-6}	5×10^{-8}	1.9×10^{-6}	1.7×10^{-7}	1.8×10^{-7}
2. Tailings Pond Effluent Discharge (filtered)					
(a) Filtrate	8.7×10^{-9}	3.9×10^{-8}	-	-	-
*(b) Residue solids	$*4.1 \times 10^{-3}$ ($\mu\text{c/g}$)	$*3.1 \times 10^{-3}$ ($\mu\text{c/g}$)	-	-	-
*Total quantity of residue was 0.034g in a 1 liter sample; this corresponds to $1.4 \times 10^{-7} \mu\text{c}$ Ra-226 and $1.1 \times 10^{-7} \mu\text{c}$ Th-230 as solids per milliliter of effluent.					
3. Colorado River - one mile upstream from mill	$<3 \times 10^{-9}$	$<2 \times 10^{-8}$	$<2 \times 10^{-8}$	$<1 \times 10^{-8}$	$<3 \times 10^{-8}$
4. Colorado River - 10 miles downstream from mill	$<3 \times 10^{-9}$	$<2 \times 10^{-8}$	$<2 \times 10^{-8}$	$<1 \times 10^{-8}$	$<3 \times 10^{-8}$

Atlas Minerals Analytical Results for Tailings Pond Effluent Discharge Samples ($\mu\text{c/ml}$)

<u>Month</u>	<u>Sample</u>	<u>Ra-226</u>	<u>Th-230</u>	<u>U Nat.</u>
January - 1964	Filtrate	1.9×10^{-9}	1.1×10^{-8}	2.6×10^{-6}
	Residue Solids	7.9×10^{-8}	5.8×10^{-8}	3×10^{-9}
February - 1964	Filtrate	2.5×10^{-8}	8.1×10^{-8}	1.7×10^{-6}
	Residue Solids	1.0×10^{-7}	-	-
March - 1964	Filtrate	1.1×10^{-8}	4.1×10^{-8}	1.9×10^{-6}
	Residue Solids	2.1×10^{-7}	-	-