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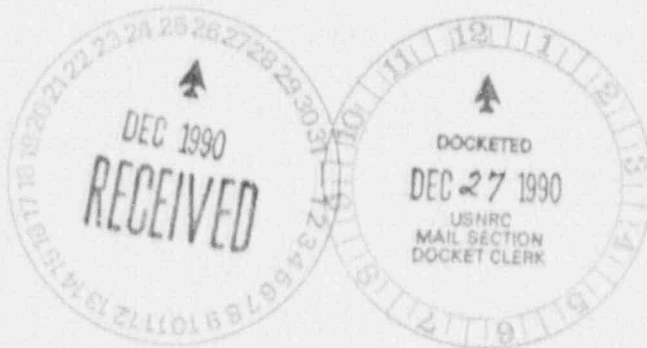
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ATLAS CORPORATION

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December 20, 1990

Mr. Ramon E. Hall, Director
Uranium Recovery Field Office
Nuclear Regulatory Commission
P.O. Box 25325
Denver, CO 80225



Re: Source Material License SUA-917
Docket No. 40-3543
Correction Action Program Review

Dear Mr. Hall:

This report is submitted in accordance with License Condition No. 17, C. of our Source Material License SUA-917. This Corrective Action Program Review summarizes Atlas' progress towards attaining ground water protection standards. Included herein are discussions on the following:

- Dewatering wells (ALARA Demonstration)
- Seepage collection from toe drains
- Enhanced evaporation system.

Atlas' primary effort has been directed at drying the tailings impoundment, thus reducing the hydraulic head upon the groundwater immediately below the tailings facility. Water evaporation has been occurring through (a) natural, and enhanced evaporation from a pump/spray system implemented and reported in 1989, (c) evaporation from seepage collected from existing toe drains, and (d) evaporation from entrained solution recovered by the dewatering wells installed prior to July 1, 1990.

Dewatering Wells

The dewatering wells were installed pursuant to a Corrective Action Plan (CAP) which was prepared by Western Technologies Inc. (WT) in March 1989. After review by the NRC, an addendum to the CAP was prepared and submitted to the NRC in June 1989. A pilot recovery well project was completed during the spring of 1990 and included the installation and testing of two recovery wells, PW-1 and PW-2.

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Certified By

Mary C. Hood

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On June 22, 1990, the NRC amended Source Material License SUA-917 to specify minimum components of the CAP (ALARA Demonstration). The report, "Field Construction Observation Report, Atlas Moab Tailings Impoundment, Moab, Utah, dated August 30, 1990 as prepared by WT (Exhibit 1) describes the actions taken to install the recovery well system.

During the months of July through November, 1990, approximately 706,276 gallons of solution were recovered from the tailings via the recovery well system. Approximately 132,000 gallons will be recovered during the month of December, 1990. Thus the calculated volume of solution pumped from the tailings is 838,277 gallons (table 1).

Based on constituent analyses (enclosed as Exhibits 2 & 2a) performed by Barringer Laboratories Inc. on samples collected by Atlas personnel in July and October, 1990, the constituent mass recovered from the tailings was calculated. Table 2, "Constituent Mass Recovered", shows the calculation results (Exhibit 3). The total dissolved mass recovered is calculated to be 173,226 pounds

Seepage Collected From Toe Drains

Included as a minor component of the CAP is the loss of solution for the tailings facility via the existing toe drains. There are two drain collection sumps, one on the North embankment, and one on the South side.

The sumps have yielded lesser quantities than anticipated, indicative of the continually decreasing hydraulic head within the impoundment.

The South sump has not collected a measurable quantity over the reporting period. The North sump collected solution at a measured rate of 36.5 milliliters per minute, or .01 gpm. Assuming a constant flow and daily evaporation, it is estimated that 2600 additional gallons of tailings solution is lost to evaporation via the seep collection sumps fed by the existing toe drains. The total dissolved solids (TDS) removed from the impoundment is calculated to be 650 pounds. The total calculated quantity of TDS removed via the toe drains and the recovery wells is 173,876 pounds (173,226 + 650). Constituent concentrations for the North sump are shown on Exhibit 4.

Enhanced and Natural Evaporation

From January through December 1, 1990, the solution level has decreased 4.28 feet. Precipitation during this same period was 8.24 inches (0.69 feet). The net loss is 4.97 feet.

The enhanced evaporation system operated for 137 days at an average of 7.56 hours per day for a total of 1025.7 hours during the period from April 23, 1990 through September 13, 1990. The system did not operate six days during this period due to maintenance and/or repair.

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During calendar year 1989, a decrease of 5.29 feet was calculated for the tailings impoundment. A net loss of 5.69 feet was calculated which takes the recorded 4.76 inches (0.40 ft.) precipitation into account. During 1989 the enhanced evaporation system operated for 68 days.

Assuming no additional evaporation or precipitation during December 1990, we estimate that approximately 6.44 feet of solution will remain in the deepest portion of the tailings impoundment on January 1, 1991.

Also, assuming a net loss of 5.33 feet (3 year average, 1988-1990) it is estimated that approximately 1 foot of solution will remain at the end of 1991.

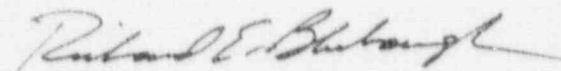
However, based on an experiment conducted at room temperature in the Atlas laboratory, there is reason to believe that crystallization and other chemical reactions may result in a dry pond surface earlier than projected above.

Summary

This review indicates that activities conducted by Atlas to accelerate evaporation and recover solution from within the tailings is decreasing the hydraulic head and constituent mass from the mounded groundwater stem directly beneath the tailings facility.

I trust this review satisfies the requirement contained in License Condition 17.C. Please contact me at your convenience if you have any questions concerning the information herein.

Sincerely,



Richard E. Blubaugh
Vice President of Environmental
and Governmental Affairs

REB/jlb
enclosures

cc: R. R. Weaver
J. M. Mitchell
D. L. Edwards
C. L. Sundblad

Table 1

Monthly Gallons Pumped by Tails Pond Recovery Wells

<u>Month, 1990</u>		<u>Gallons</u>
July	=	117,092.71 measured
August	=	159,640.60 "
September	=	152,844.78 "
October	=	140,399.20 "
November	=	136,299.30 "
December	"	132,000.00 (estimated)
Total (estimated)		838,276.59

Table 2
40ab Uranium Tailings Impoundment
Constituent Mass Recovered (lbs)

<u>PARAMETER</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December (estimated)</u>	<u>TOTAL (lbs)</u>
RA-228	5.10 x 10 ⁻¹²	6.95 x 10 ⁻¹²	6.66 x 10 ⁻¹²	6.21 x 10 ⁻¹²	5.94 x 10 ⁻¹²	5.76 x 10 ⁻¹²	33.63 x 10 ⁻¹²
RA-226	2.83 x 10 ⁻⁸	3.86 x 10 ⁻⁸	3.86 x 10 ⁻⁸	3.45 x 10 ⁻⁸	3.30 x 10 ⁻⁸	3.19 x 10 ⁻⁸	20.33 x 10 ⁻⁸
U	21	28	27	25	24	23	148
TDS	24,135	32,903	31,502	29,390	28,091	27,205	173,236
Se	.25	.35	.33	.31	.30	.29	1.83
V	1.65	2.25	2.16	2.01	1.92	1.86	11.85
Ag	.020	.027	.026	.024	.023	.022	.142
Ni	.24	.33	.32	.29	.28	.28	1.74
Mo	1.38	1.88	1.80	1.65	1.60	1.55	9.86
Pb	.18	.24	.23	.21	.21	.20	1.27
Cr	.010	.013	.013	.012	.011	.011	.07
NO ₃	78	106	101	93	90	87	555
SO ₄	17,000	23,179	22,192	20,414	19,789	19,165	121,739
Cl	1,168	1,592	1,524	1,402	1,359	1,316	8,361
Na	5,042	6,874	6,582	6,054	5,869	5,684	36,105