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January 20, 1988

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Mr. R. Dale Smith
U.S. Nuclear Regulatory Commission
Region IV
Uranium Recovery Field Office
P.O. Box 25325
Denver, CO 80225

Dear Mr. Smith:

The enclosed Figure 1 shows the general groundwater surface elevations in the "perched" zone or aquifer in the vicinity of ANC's Tailings Ponds Nos. 1 and 2. Water elevation shown were measured on December 2, 1987. The R-4 pump, the only pump in the series receiving enough water to operate during 1987, was shut down about October 15, 1987. It is evident that the mound of water in the perched zone as illustrated by Figure 1, "Ground Water Elevations" of F.M. Fox & Associates' (Fox) report entitled "Investigation and Evaluation of Tailings Pond No. 1 Seepage, dated March 8, 1979 has been eliminated.

It is interesting to note that the water surface elevation in Wells TP 1-20, TP 2-1, and TP 2-2, and therefore the 6390 contour, have not changed appreciably from 1978 to the present. Also, the bend of the 6390 contour to the north at Tailings Pond No. 2 must be, as Fox concluded, caused by the influence of the free water migrating in the alluvial sediments associated with the Willow Springs drainage since we have quit ponding water in Tailings Pond No. 2 and the contour loos the same.

Using an average value from the permeability test results obtained by Fox in the perched zone (see Appendix A, Table A-1 of their report entitled "Geotechnical Investigation of the Proposed Extension of Tailings Dams Numbers 1 and 2, Federal-American Project, Gas Hill Mining District, Wyoming, prepared in 1978) the rate or velocity of ground water flow under the tailings impoundments is calculated to be thirty-one (31) feet per year, but could vary from less than one (1) to one hundred seventy-six (176) feet per year due to the variation in those test results in the various locations or strata tested.

The enclosed table showing the water surface elevations and pH in the Recovery Wells, during the over eight (8) years

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the system has been in operation, was prepared to show the effect the pumping and natural functions have had on the mound of water created by the seepage from Tailings Pond No. 1.

The six Recovery Wells were designed for a total pumping capacity of approximately one hundred eighty (180) gpm (Fox, 1979) or about thirty (30) gpm per well. No records are available at this time to show the rate of the actual pumping achieved from each well, but it is my understanding that it was somewhat less than this total designed capacity. After the mill shut down in the late fall of 1981, the pumpback system was not operated through the winter months.

The table shows a gradual draw down of the water elevation in the wells after 1981 when no additional water was being added to the Pond. Irregularities in the surface elevation readings occurred because measurements were taken while the pumps were running.

In the spring of 1985, the pumps were pulled and the wells bailed. The larger pumps were replaced with small capacity pumps in the wells that still had sufficient inflow of water to pump. The Well R-3 casing was broken when an attempt was made to fish out a rock that had been dropped into it; the recovery rate of R-2 did not justify setting a pump in it; and R-5 was dry. Pumps, then, were set in R-1, R-4 and R-6. At start up, R-4 pumped steadily at the full capacity of the pump which was at a rate calculated to be 6.6 gpm; R-6 cycled at a calculated rate of 6 gpm; and R-1 had to be manually started because it never was observed to recover sufficiently to start on the probe. The water entering R-1 seemed to be coming from high up - probably from a gravel bed in the alluvial sediments. The recovery rate was less than one (1) foot per hour.

Some difficulty was encountered early in August, 1985 in keeping the pumps running, so on August 13th the pumps were pulled, checked out and a larger capacity pump was set in R-4. It was determined then that the R-4 well pumped at a rate of 6.43 gpm and the pump was cycling. The R-6 well pumping rate was 2.09 gpm. By November 4th, the rates had dropped to 4.5 gpm in R-4 and .87 gpm in R-6 and the system was shut down for the winter.

In the spring of 1986 an enhanced evaporation system was installed and the system started up in May. Based on recovery rates in the wells R-4 and R-6, the yields were equal to or slightly less than when they were shut down the previous fall - about 5 gpm. By June 4th, the water elevation in R-6 had dropped far enough that it would not activate automatically on the probe and had to be activated by hand. The R-4 well continued to pump at a slowly diminishing rate until the system was shut down in the fall.

In the spring of 1987, the R-4 well was the only one with sufficient inflow of water to pump and it was restricted to something less than 6 gpm to make it pump steady and not cycle. Between July 29th and August 19th, a very noticeable drop was observed in the surface elevation of the water in R-4 as noted on the enclosed table, and this drop continued into October when the pump was shut down. Pumping continued to be quite steady because the pump was not observed to be cycling.

The recovery in the surface elevation of the water in Well R-4 between October 8th and December 2nd may have been due to water leaking back through the pump from the pipe system because of a faulty check valve, but more likely indicates that R-4 is plumbed into a more permeable sand or gravel filled channel in the surface of the mudstone. Because the mound caused by the Pond seepage has been eliminated, the elevation of the water surface is not expected to increase appreciably from where it was on December 2nd. Very little can now be gained from further pumping and we again ask for your consideration of our request to eliminate seepage collection efforts.

Sincerely,

Niles J Andrus

Niles J. Andrus
Vice President-Operations

NJA/mk

cc: Mark Moxley

RECOVERY WELLS
WATER SURFACE ELEVATION AND pH

Date	R-1 Elev	R-2 Elev	R-3 Elev	R-4 Elev	R-4 pH	R-5 Elev	R-6 Elev	R-6 pH	Remarks
February, 1979	6386	6386	6384	6377	2.6	6371	6370	3.8	
March, 1979	6387	6386	6381	6377	2.5	6371	6367	3.7	
October, 1979	6368	6395	6387	6354	3.3		6368	2.9	
April, 1980	6388	6388	6372		2.6	6367			
October, 1980		6394	6386						
April, 1981	6390	6390	6384				6370	2.91	
October, 1981	6383	6386	6384			6361			
April-July, 1982	6382	6381	6372			6356			
October, 1982					3.7	6357			
April, 1983	6379	6378	6367	6356		6356	6358	3.4	
October, 1983									
April, 1984	6378	6378	6364	6352		6353	6356	2.9	
October, 1984	6376	6377	6363	6352		Dry	6553	2.9	
April, 1985	6376	6377	6362					3.0	
October, 1985	6363	6360	6362	6343		Dry	6350	3.1	
April, 1986	6396		6361	6352	3.45	Dry	6351	3.5	R-4 Pumping R-5 Plugged
October 7, 1986	6383		6360		3.8	Dry	6330	3.6	R-6 Not enough water to run pump
April, 1987	6358		6359	6348	2.9	Dry	6351	2.4	
July 29, 1987	6355	6357	6357	6359	3.6	Dry	6350	3.0	
August 19, 1987	6355	6356	6356	6344	3.7	Dry	6350	2.9	R-4 Large drop in water elevation-may be pumping down and shutting off
September 2, 1987	6355	6356	6357	6344	3.7	Dry	6350	3.0	
September 23, 1987	6354	6356	6356	6344	3.7	Dry	6350	2.9	
October 8, 1987	6354	6356	6356	6341	4.0	Dry	6350	2.9	
December 2, 1987	6353		6358	6363	4.1	Dry	6350	3.0	

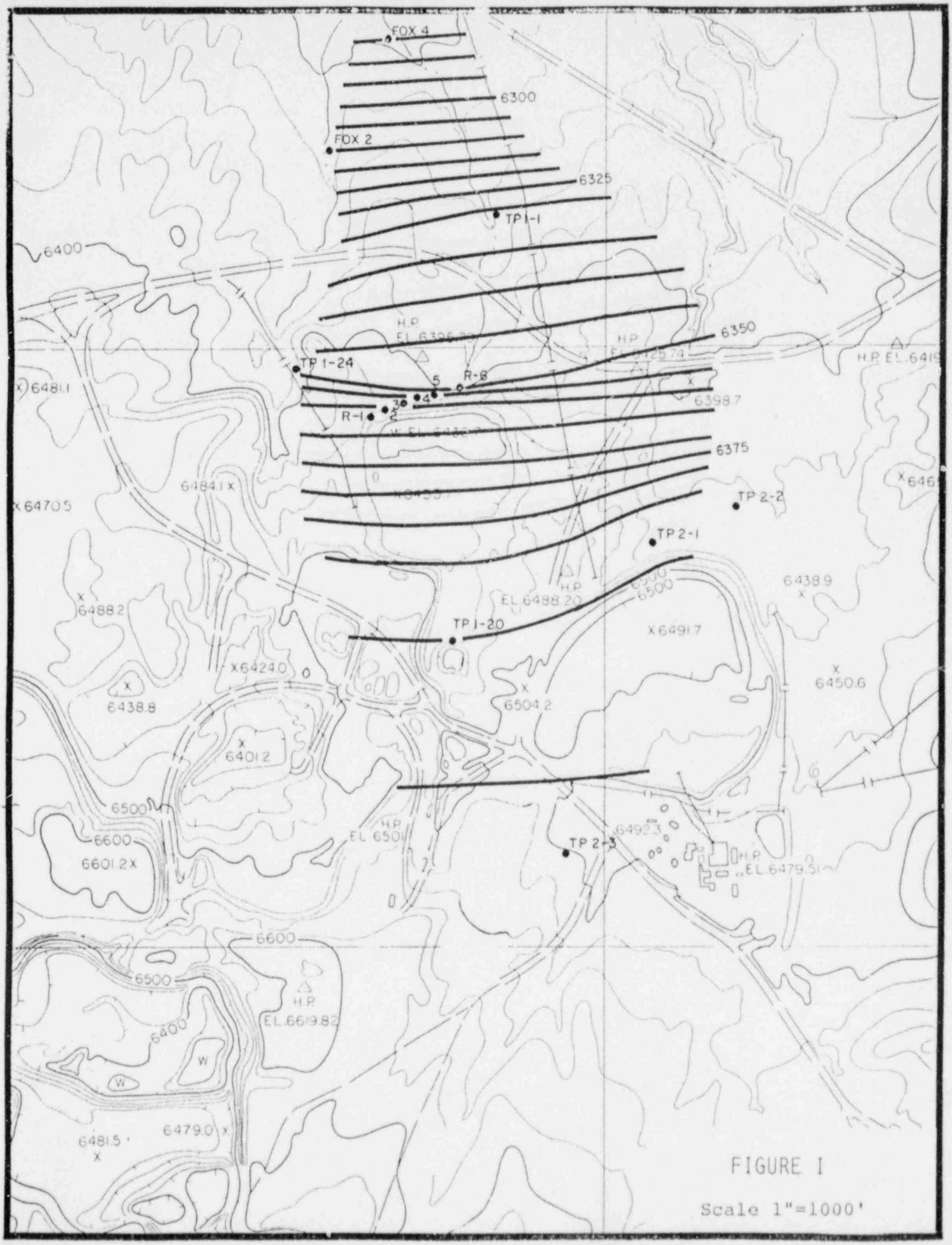

FIGURE I

Scale 1"=1000'