The Moab Mill Project

A technical report towards reclaiming uranium mill tailings along the Colorado River in Grand County, Utah

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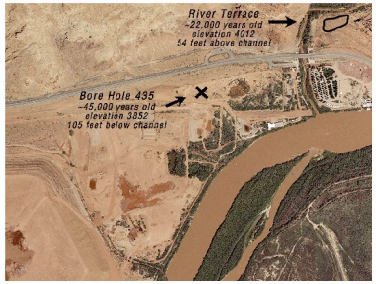
1. THE PROBLEM

Extreme flooding on the Colorado River will compromise the uranium waste pile and pollute downstream resources

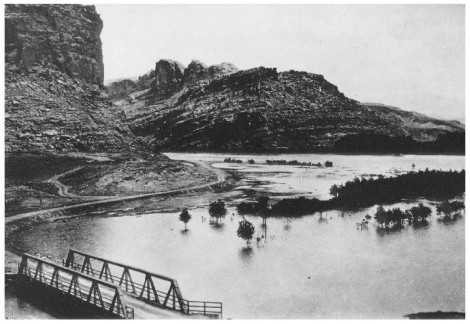
Aerial photo of the Moab Mill Site (Atlas tailings pile) looking downriver. John C. Dohrenwend, 2005.

2. THE PHYSICAL EVIDENCE

Channel migration into the vicinity of the pile has occurred historically



Locations and ages of Colorado River gravels adjacent to Moab Mill Site between the Atlas tailings pile and Courthouse Wash showing the locations of river gravels cited in the DOE report. Dohrenwend, 2005.



Colorado River flood (circa 1920) taken near Courthouse Wash. Utah Historical Society.

Aerial photograph of the northern end of Moab Valley showing the minimum extent of Colorado River gravels beneath the valley floor. Modified from Gardner and Solomon, 2003.

3. THE PALEOFLOOD STUDY

Examination of flood deposits along the Colorado River above the pile indicate a higher frequency for a probable maximum flood (PMF)

Picture of the 14 pits at the paleoflood study site 11 miles above the uranium waste pile. Noam Greenbaum, 2006.

Table 4: Summary of paleofloods at the BLM-TO site, minimal peak stages and slope-area calculations of peak discharges

Location	Pits no.	No. of floods	Stages above SWL* (m)	Peak discharge ($m^3 s^{-1}$)	Peak Discharge (cubic feet/sec)
Lower depression	12-14	12	4.2-6.3	2,200-3,000	78,000-108,000
Lower depression	10-11	8	6.5-8.5	3,200-3,800	113,000-134,000
Lower depression	9	5	8.5-9.7	4,500	163,000
Upper depression	3-8	9	10.6-12.2	5,100-8,000	180,000-282,000
Upper depression	2	4	12.4-13.5	8,700	307,000
Upper depression	1	2	14.8-15.1	10,500	371,000
Total	1-14	40	4.2-15.1	2200-10,500	78,000-371,000

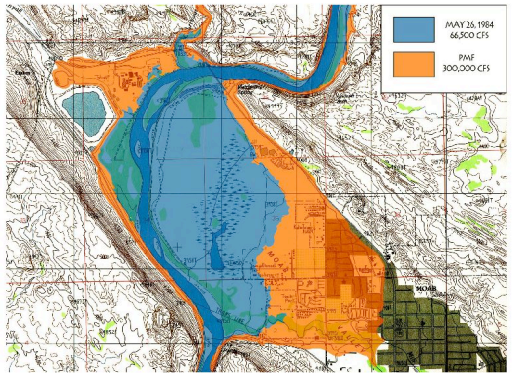
* SWL- Summer water level, June 14, 2005

Tab.e 3: Results of luminescence dating of pale flood deposits at the BLM-TO site

Sample No.	Pit No.	Unit no. in pit	Flood no. in pit	Age (years)
P2U5	2	3	2	1410±110
P4U4	4	4	1	2140±220
P5U1	5	2	2	1300±90
P5U2	5	3	1	1460±80
P9U5	9	3	4	390±100
P10U3	10	1	8	170±40
P10U7	10	3	6	410±70
P11U5	11	2	3	230±60
P12U5	12	2	1	490±150
P13U6	13	3	1	220±70
P14U7	14	3	5	460±110
P14U13	14	7	1	200±60
FPU3	Floodplain	2		650±230
FPU15	Floodplain	13		660±130

4. THE RECOMMENDATION

Do not delay removing the pile and continue paleoflood research for management action basin-wide



Extent of a 300,000 cfs flood (PMF) in the Moab Valley. Dohrenwend, 2005

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