



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV  
URANIUM RECOVERY FIELD OFFICE  
BOX 25325  
DENVER, COLORADO 80225

FEB 25 1994

URFO:DCW  
Docket No. 40-8681

MEMORANDUM FOR: Docket File No. 40-8681  
FROM: Dana C. Ward, Project Manager  
SUBJECT: MEETING WITH UMETCO WHITE MESA REPRESENTATIVES CONCERNING  
THE POSSIBLE PLACEMENT OF MONTICELLO TAILINGS AT THE MILL  
FACILITY  
MEETING DATE: February 9, 1994  
Participants: NRC

Edward Hawkins, Deputy Director, URFO, RIV  
John Greeves, Director, LLWMD, NMSS  
Joe Holonich, Acting Branch Chief, LLUR, LLWMD, NMSS  
Cynthia Miller-Corbett, Project Manager, URFO, RIV  
Dana Ward, Project Manager, URFO, RIV

UMETCO MINERALS CORPORATION

Rick Van Horn, Director of Operations  
Curt Sealy, Chief Engineer  
John Hamrick, Environmental Coordinator  
Rahe Junge, Environmental Geologist  
Fred Peel, Hydrologist  
W. W. Brice, Mill Manager  
Scott Schierman, RSO  
Gerald Ray, Technical Support  
Patrick Morgan, Technical Support  
Susan Cain, Technical Support

ENERGY FUELS

Bill Almas  
Harold Roberts

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EPA

Paul Mushovic  
Mario Robles  
Philip Nyberg  
Judith Shenk, OSM for USEPA  
Berg Keshian, Weston for USEPA

DOE

Donald Laske, GJPO  
Ron Kowalewski, GTWN  
Michael Tucker, GJPO  
Michael Madson, Rust Geotech  
Jeb Richardson, Rust Geotech

OBSERVERS

Luke Mahier, Booz-Allen/Belfort  
Stan Plaisier, Bingham Environmental for Envirocare, Utah  
Mark Novak, Utah DEQ  
Ty Howard, Utah DEQ

Summary of Discussions: On February 9, 1994, representatives of Umetco Minerals Corporation and Energy Fuels Corporation, met with the NRC in Denver, Colorado. The public meeting was held at the request of Umetco to discuss ground-water issues and the facility's capability for accepting Monticello tailings. This meeting was attended by EPA and DOE representatives who are involved in the final disposition of the Monticello tailings. State of Utah, Department of Environmental Quality representatives were also present.

Edward F. Hawkins, Deputy Director for URFO made a few introductory comments concerning the style and format of the meeting. The meeting was then turned over to Mr. Rick Van Horn of Umetco. Mr. Van Horn made some general introductory remarks, and described the layout and operation of the White Mesa facility. Mr. Van Horn then introduced personnel who would be making presentations during the morning session. The personnel and their subject areas are listed below.

John Hamrick	Tailings System Design
Fred Peel	Characterization Studies
Rahe Junge	Site Characterization
Curt Sealy	Water Quality, Reclamation Cover, Future Studies

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In his discussion on Tailings System Design, Mr. Hamrick reviewed the design criteria for impoundments 3 and 4A. He then proceeded to discuss in detail for cells 3 and 4A their liner and leak detection systems. Mr. Hamrick finished his discussions with an overview of the tailings underdrain and overdrain systems in each cell.

Mr. Fred Peel, in his discussion on Characterization Studies, discussed water well and monitor well locations, presented generic completion diagrams for monitor wells 1-5 and 16-19. Mr. Peel also briefly discussed packer testing, geophysical logs on all existing monitor wells, and laboratory analysis of cores.

In his discussion on Site Characterization, Mr. Rahe Junge discussed regional and local stratigraphic units with some emphasis on the White Mesa joint systems. He stated that the joint system for the White Mesa area was moderate to widely spaced with some joints considered closed while others were found to be open. Mr. Junge presented a set of site and local well location maps and a north to south cross section of the local stratigraphic units. This information was presented in support of the site area ground-water flow. Mr. Junge also discussed saturated thickness and phreatic surface of the Burro Canyon formation. Mr. Junge summarized Umetco's determination of what parameters govern fluid flow at the White Mesa facility. These parameters are as follows:

- Size of liner failure and type of underliner,
- Tailings permeability and head,
- Dakota/Burro Canyon permeability and water content,
- Anisotropic conditions, and
- Permeability of Brushy Basin.

Mr. Curt Sealy, in his discussions, presented well design and developmental history at White Mesa, water quality at the mill site over time, and the final reclamation of the tailings impoundments to limit infiltration. Mr. Sealy also discussed the unresolved issue of elevated readings in several monitored parameters which occurred in 1986.

#### SUMMARY

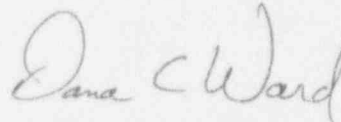
The afternoon session was a question and answer session. Attached to this memorandum is a summary of these questions and answers. Umetco representatives at the conclusion of the meeting stated that they felt that the White Mesa facility was an ideally sited, state of the art uranium processing facility, and that operations there have not impacted the aquifer in the area. Umetco feels that individual wells are highly variable, that each well or similar well groups must be measured against themselves, and that they should not be compared to upgradient wells which are not truly representative of background. Umetco also stated that the perched water table of the Burro Canyon formation provides the best timely indication of any significant leakage from the tailings impoundment. They also stated that

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there is no usage of the Burro Canyon water south of the site, and that Umetco owns the property a minimum of 1.5 miles south of Cell 4A; the direction of ground-water movement. Umetco also feels that the Burro Canyon formation will provide the best basis for rational compliance standards.

Umetco personnel discussed briefly at the end of the meeting with NRC staff, what issues needed to be resolved prior to Monticello tailings being placed at the White Mesa facility. The following items were agreed upon:

1. Umetco will conduct additional studies to better characterize the subsurface geology of the White Mesa landform.
2. Umetco will establish an acceptable program to monitor for potential seepage from the tailings impoundment system.
3. Umetco will formulate a program for protecting the Entrada sandstone, which is the deep fresh water aquifer in the White Mesa area.
4. Umetco will determine what impacts raffinate could have to the clay liner.



Dana C. Ward  
Project Manager

Attachment:  
As stated

## SUMMARY OF QUESTIONS AND ANSWERS FOR THE UMETCO MEETING

This is a summary of the questions and answers submitted in writing and voiced by those present at the Umetco meeting. The majority of the questions were from EPA and DOE personnel. All responses were from Umetco personnel or Umetco representatives. Often there were multiple, complex responses by many individuals; therefore, the response given here is a basic summary of the collective verbal Umetco response.

Question: Are there any event fluctuations?

Response: No, the mill site was selected for its low permeability.

Question: Does the culinary well exhibit elevated readings around March 1986?

Response: Yes, particularly for chlorides.

Question: What does Umetco propose to use as their point of compliance?

Response: Umetco prefers to use wells downgradient of the impoundment.

Question: How are leaks in the tailings impoundment detected?

Response: Visual inspections of the dikes, leak detection system, and monitoring wells.

Question: The volume of Cell 4A is about 2.4 million cubic yards and the Monticello tailings comprise nearly 3 million cubic yards. Where will the remainder go?

Response: The remaining capacity of Cell 3 is 400,000 cubic yards, and we will place materials in that unit until filled. We can also construct Cell 4B if necessary.

Question: What is the effect of raffinate on clay liners?

Response: Our experience has shown that there is relatively minor effect.

Question: Joints and vertical fractures are a concern. The commentor would like to see angle drilling and Packer Tests.

Response: Umetco will perform angle drilling as soon as the weather allows.

Question: Do you see lateral migration into the neighboring canyon?

Response: We have observed three seeps in the Cottonwood Canyon wall. Analysis of the liquid from these seeps shows no mill constituents.

Question: Your phreatic surface map projects beyond the wells to the southeast of Cell 4A. How do you know that it is like this?

Response: We feel this is an appropriate projection, but additional wells would be necessary to verify this assumption.

Question: Where will the liquid from Cell 4A be placed?

Response: Cell 1-I. The Monticello tailings will be dry so we do not anticipate any liquid problems.

Question: Will NORM material be placed in Cell 4A?

Response: No. Only 11 e (2) materials will be accepted.

Question: Will vanadium tailings from Monticello be placed in 4A?

Response: If NRC Headquarters determines that it can be place here, we will.

This completes the question and answer session. Umetco plans to respond to all submitted questions in writing to clarify the company position.

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bcc:  
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PDR/DCS  
URFO r/f  
DDChamberlain, RIV  
DBSpitzberg, RIV  
LCamper, RIV  
LLUR Branch, LLWM, 5E2  
DCWard  
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PM:URFO	DD:URFO <del>EXA</del>	D:URFO:RIV		
DCWard/lv <i>DCW</i>	EFHawkins	REHall		
02/24/94	02/24/94	02/24/94		