

AUG 30 1982

Ross A. Scarano

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MEMORANDUM FOR: Project File WM-39
FROM: Giorgio N. Gnugnoli
New Facilities Section
Uranium Recovery Licensing Branch

SUBJECT: TRIP REPORT FOR THE UMTRAP TECHNOLOGY STEERING
COMMITTEE AND TECHNOLOGY TASK GROUP SUBCOMMITTEE
MEETINGS, SALT LAKE CITY, UTAH

Dates: July 12 through July 16, 1982

Purpose: To review the quarterly progress of the UMTRAP R&D effort and
to discuss the FY83 funding levels.

Represented Organizations: DOE
Jacobs Engineering Group, Inc.
NRC
Battelle Pacific Northwest Laboratory (PNL)
Sandia
Bendix
Weston
Rogers and Associates Engineering (RAE)
Lawrence Berkeley Laboratory (LBL)
Geochemistry and Environmental Chemistry
Research (GECR)
Colorado State University (CSU)

The meeting began with the introduction of the Jacobs Engineering Group, Inc. as the lead organization in developing the Remedial Action Plan, replacing Sandia. Sandia will however stay on in the role of EIS and EA development. Several suggestions were made by Jacobs Engineering to facilitate peer review and public review of the progress and direction of the technical efforts in the UMTRAP R&D program. Publication in outside journals (not just DOE reports) in conjunction with paper presentations at the various symposia was thought to be the optimal vehicle for eliciting expert peer review. Moreover, a published summary of the

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A major point was to maintain frequent interaction between the various task groups, since cover scenarios may be very dependent on the geochemical nature of the tailings and surrounding soils, e.g., certain clay materials (calcite clays) would not stand up to chemical attack on the part of sulfates and related contaminants in the tailings. It was mutually agreed to devote some of the effort in each task to this interaction of systems.

Other discussions in the area of containment addressed long-term stabilization using rock covers, revegetation and interaction with radon barriers, animal or human intrusions and other threats to the isolation of the tailings systems.

The present draft EPA standards (40 CFR Part 192) and cost-estimates of the various cover options were discussed. Although the asphalt layer/multilayer system is competitive with earthen covers under the previous proposed standards, due to the proposed revised radon flux standard, the earthen cover system still appears to be the most cost-effective radon barrier. Due to the higher average radon source strength at the inactive sites, thick earthen covers (3 m) may still be needed to meet the revised EPA limit.

In addition to the presently accepted cover material options, two unusual options were also discussed: soil cement, mixing tailings with cement and slurring on top of tailings impoundment to create a pavement covered with soil; and rollcrete, an aggregate of concrete and gravel with high density to produce a concrete like pavement cover. These were discussed and both were questioned as a long lasting radon barrier.


The Steering Committee discussed the use of the Monticello site as a preferred testing location for an integrated systems evaluation. It was deemed an optimal site for the following reasons:

- There are separate acid and alkaline piles
- There is a complete history of data and measurements by DOE over a 20-year period.
- There is a relatively shallow water table.
- Documentation of cover soils used, as well as the nearby soil barrow areas, exist in detail.
- Climatic conditions are ideal for prolonged field work and testing.

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ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

To: Distribution

From: Walter C. Barber 

Date: July 21, 1982

Subject: Minutes of July 15-16, 1982 Meeting of
UMTRAP Technology Steering Committee

The sixth meeting of the UMTRAP Technology Steering Committee was held at Park City, Utah, on July 15 and 16, 1982, following meetings of the Geotechnical and Containment Subcommittees on July 12, 13, 14 and 15, 1982. All five members were present - M. Matthews, W. Barber, J. Hartley, V. Rogers and T. Shepherd. Observers included:

G. Birchard - NRC
G. Gnugnoli - NRC
J. Buelte - PNL
G. Gee - PNL
J. Nelson - CSU
M. Jackson - TAC

A. M. Matthews opened the meeting at 1:00pm with a number of items for information and discussion:

- 1) Expression of appreciation to Vern Rogers for arrangements.
- 2) Request to subcommittee chairmen - Nelson and Buelte to prepare subcommittee reports.
- 3) TAC to provide advice on directions for the R&TD program.
- 4) Addressee for reports - Delete Paul O'Brien and John Themelis. Add Walt Barber. Change Jacobs addressee from D. Phoenix to R. Krishnan. A revised distribution list will be provided by DOE to all participants.
- 5) Note new UMTRAP project office location.
- 6) John Nelson and Jim Buelte to send marked up sections of R&TD report, Monday July 19, 1982 by Express Mail. Rogers and Hartley to recheck special studies sections.
- 7) Review of project status - Holmes and Narver protest still outstanding - no schedule for resolution.
- 8) Noted Dave Dreesen's resignation and termination of special studies task group.
- 9) States have expressed interest in information related to their sites:

New Mexico - Ambrosia Lake
Oregon - Lakeview
Utah - Salt Lake City

DOE has promised a personal briefing prior to release of any report related to these sites.

JACOBS WESTON TEAM

- 10) Rogers and Associates - subcontracts - should the current relationship with PNL be continued or shifted to a Jacobs' Subcontract? Vern Rogers indicated a preference for a Jacobs' subcontract, notwithstanding good relations with PNL. M. Matthews indicated that changes will be considered for new initiatives beyond those in the current FY 83 plan.
- 11) TAC/Technology briefing meeting attendees are to include:
 - V. Rogers - Special Studies
 - J. Hartley - Containment
 - T. Shepherd - Geochemical
 - J. Nelson - Geotechnical
 - G. Markos - Site Studies
 - M. Matthews - Chairman
 - o Formal presentations are to be given to TAC Staff with an opportunity to ask questions.
 - o The meeting is tentatively scheduled for the third week in August to be confirmed by Barber and Matthews.
 - o M. Matthews to schedule meeting with Ed Thode from New Mexico State University to discuss K-T analysis.
 - o Attendees should plan on a 2-day session in Albuquerque.
 - o M. Matthews to check on availability of funding for travel to session and advise attendees.
- 12) W. Barber will visit contractors to review projects, M. Matthews to attend one or two meetings.
- 13) Task group chairmen to remind members that future meetings should be limited to discussions of progress in the previous quarter.
- 14) The next meeting will be in Washington and will include a one day session, perhaps in Germantown, to brief NRC, EPA, DOE and possibly the State of Pennsylvania and congressional staff. Presentations to include:
 - o Mechanical stability (Nelson 45 min.)
 - o Reconditioning (Rogers 30 min.)
 - o Hydrogeochemical (LBL, CSU & GEGR - Shepherd 1 1/2 hrs.)
 - o Liners (PNL - Buel 30 min)
 - o Covers (PNL - Hartley 2 hrs.)

The meeting is scheduled for the week of November 15, 1982, with formal presentation in mid-week. Presentations are to be submitted in draft to project office and steering committee by October 1, 1982.
- 15) Monthly reports have been a bit brief - should they be expanded? Generally agreed not to change except for identifying investigators.
- 16) Presentations for task groups are very uneven - some crisp, some rambling - Is it worth changing the ground rules? Hartley suggested tighter presentations. It was agreed to request members to provide handouts.
- 17) Week of July 19, 1982, Barber and Bopp to visit GEGR with intent of developing recommendations for change (subsequently postponed due to scheduling conflict).

- 18) John Nelson's initial site report to be circulated for informal review. TAC to have report reviewed by civil engineers, geotechnical engineers and site managers - Nelson to send copies directly to steering committee - Barber to forward copy to NRC.
- 19) Bendix has \$200K of technology money to support the program - Hartley and Nelson have submitted recommendations, TAC to review. Hartley indicated that planned \$50K support for HGCC was soft. J. Buelt indicated that support for field liner work was soft. Per Shepherd, some support on radiochemistry would be nice, but not critical - probably less than \$10K.

B. Re HGCC - Tom Shepherd suggests that GECR procedure involving complete solid analysis may be inappropriate - perhaps the work should focus on extracts, not total solids - G. Birchard indicated that some knowledge of the total matrix, in addition to extract concentrations, is needed. G. Gee indicated that acid leaching may not be totally appropriate. Extended discussion followed with the conclusion that Barber would ask GECR about availability of sub-pile and background, solid and extract data suitable for comparison.

T. Shepherd suggested that a joint sampling effort be conducted at a single site with LBL to compare results. This idea was endorsed in concept by G. Birchard.

G. Gee would like a better understanding of how acid extract data would be used in a geochemical model.

T. Shepherd will call Art White to review LBL analytical procedures.

C. Technology Transfer - Barber presented the concept of a three part integrating document to present the technical basis for recommended remedial action and the results of the DOE research program. The report would have four chapters as follows:

- 1) Introduction and Overview - DOE/TAC
- 2) Stability - J. Hartley
- 3) Radon Emanation/Attenuation - V. Rogers
- 4) Hydrochemistry - T. Shepherd

Tentative schedule would be:

- 1) Outline and proposed peer review procedure - Jan. 1, 1983
- 2) Rough Draft - May 1, 1983
- 3) Draft - July 1, 1983
- 4) Final - Oct. 1, 1983

Total paper would be on the order of 200 pages. Report to be presented to authors at 1983 CSU Symposium.

It was agreed that such an effort would be worthwhile.

- D. J. Hartley raised the question of the impact of the QA plan which DOE has issued for UMTRAP. PNL has developed a QA plan and is ready to transmit to DOE. M. Matthews will retransmit to TAC and other contractors.
- E. M. Matthews outlined tentative budget plans for FY 1984 as follows:

- CSU \$200K
- GECR \$200K
- LANL 0
- Bendix 0
- PNL \$267K covers
\$25K liners
- LBL 0

Total project budget authority for FY 83 is \$23 million with requested add-on to total \$41.9 million.

- F. Regarding RAC, M. Matthews indicated that three firms made the short list:

- Brown & Root
- Morrison Knudsen
- Ralph Parsons

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- G. Discussion of PNL liner work and appropriateness of R&TD funding. M. Matthews indicated the possibility of liner applications at Salt Lake City in addition to Canonsburg.
- H. Further discussion of approach to preparing integrating documents (Item C). Rogers, Shepherd and Hartley to prepare estimates for discussion with DOE/TAC.
- I. Discussion of the relative significance of PNL proposed initiative on capillary barrier/salt integration and CSU/Rogers proposal on settlement and salt integration. Hartley suggested the possibility of using the Grand Junction test plot to study differential settlement rather than the creation of a new test plot at Salt Lake City. Rogers indicated support for the possibility. Nelson expressed concern over ability to control variables in field environment. Purpose of proposed test is not to determine whether settlement took place, rather to look at impact of settlement on covers.

The differential settlement box study would cost approximately \$25K of the total proposed effort of \$170K.

G. Gee suggested that for most tailings, the bulk of initial settlement has already taken place. It would be useful for geotechnical studies to predict amount of settlement expected under a weight of a 2 meter cover.

- J. Barber raised questions on the relative magnitude of funding for revegetation as compared to the overall PNL cover program. J. Hartley agreed to look more closely at this aspect of the program.
- K. Discussion of radon flux QA proposal ended with Matthews and Barber agreeing to look into the possibility of a Bendix subcontract to PNL to accomplish this work at about the \$40K level.
- L. Discussion of prairie dog intrusion focused on potential impact on radon. Probably should have a summary report. J. Nelson will have staff make a rough estimate of numbers of prairie dog holes on several piles.
- M. Discussion of PNL proposal for more work on source term characterization. PNL proposed to develop an approach to predicting source strength as a function of radium content. Radium content is well known for all piles. A model exists for ores but not for tailings. Generally agreed that this is a high priority item.
- N. Discussion of "UNSAT" model. PNL considers this model to be the best documented model they have. One version (UNSAT V) looks at evaporation. The combination of heat and moisture flows are difficult to predict. The proposed work would calibrate the model to geographic areas of concern. PNL will look at the priority of this project relative to other revegetation activities. Fred Bopp and Walt Barber will review model efforts with LBL.
- O. Discussion of CSU proposal to study moisture integration associated with displacement in columns. Edgar at CSU is developing a model for moisture migration through a pile to predict moisture profiles looking to define steady state moisture profiles. CSU would prepare wet columns and let them drain to equilibrium, then close off the column and look at moisture movement and physical condition of tailings. Edgar model would focus on water release as a function of loading and settlement. J. Nelson to insure that Edgar coordinate model with LBL work.
- P. Discussion of Rogers parametric study proposal. Would utilize existing equipment to look at effects of cover differences on radon diffusion. Loadings, stresses, orientation of particles

and moisture would be varied. J. Hartley suggests looking at particle shape. G. Gee suggested that moisture content would have to be so high that material would be unworkable. Nelson indicated that some benefit would be achieved at slightly above optimum water contents. Gee expressed concern over ability to compact clays in the field.

- Q. Discussion of Monticello proposal by V. Rogers. Investigation would include Rogers, Shepherd, Nelson and others. Drilling should commence in fall to have results in FY 83. May be a problem gaining access to site. Key features of site are that it has separate acid and alkaline tailings piles. Construction procedures and maintenance records are available. Earthen cover of local soils and climate conditions are representative. Has a relatively shallow water table. J. Hartley expressed concern over reported disturbance and construction at site.

Rogers indicated that baseline data is important feature. Intend to measure moisture profiles and salt content.

- R. G. Gnugnoli indicated that the final EIS for the TVA site would be issued shortly.
- S. Next action is for PNL and LBL to prepare draft "189's" for review and comment. Matthews and Barber will review current and proposed work scopes and after laboratory visits will prepare final recommendations and allocations for FY 83.
- T. The meeting was adjourned at 11am.

Distribution:

M.L. Matthews, DOE/ALO-UMTRAP
J.N. Hartley, PNL
V.C. Rogers, RAECO
T.A. Shepherd, CSU
D.D. Gonzales, SNLA
F. Bopp, RFW

Copy to:

G. Gnugnoli, NRC
G.F. Birchard, NRC
R.H. Campbell, DOE/ALO-UMTRAP
D.R. Dreesen, LANL
D.H. Groelsema, DOE/NEW
K.R. Krishnan, JEG
J.D. Nelson, CSU