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URFO:RFB  
Docket File 40-1341  
04001341271E

MEMORANDUM FOR: Docket File No. 40-1341

FROM: Randall F. Brich, Project Manager  
Licensing Branch 1  
Uranium Recovery Field Office, Region IV

SUBJECT: REVIEW OF CONSULTANT'S FIELD TRIP REPORT,  
TVA TAILINGS DISPOSAL FACILITY - EDMONT  
DECOMMISSIONING PROJECT

## BACKGROUND

By letter dated April 25, 1985, Goodson and Associates, Inc. (GAI) submitted a report which details their observations and recommendations based on the site visit to Edgemont conducted on April 16-17, 1985, by Mr. Al Zlaten of their office. The purpose of the field trip was to have a qualified individual examine the exposed shale foundation which will eventually accept the clay blanket key for the perimeter liner and cutoff trench.

## DISCUSSION

Mr. Zlaten of GAI examined the tailings disposal site accompanied by representatives from NRC, TVA, EPA, Silver King Mines, Inc. (SKM), and the designers from Golder Associates and MacLaren Engineers.

Shale Foundation for Clay Blanket

As requested by URFO, Mr. Zlaten examined the shale foundation which will provide a keyway for the perimeter line and cutoff trench clay blanket. The proposed design is to key the clay blanket 5 feet into the competent (fresh) shale. Since the tailings disposal plans require construction of the perimeter blanket prior to full scale disposal operations, a

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significant portion of the perimeter trench has been excavated along the upstream face of the containment dam and along the exterior of Cells 2, 3 and 4. The excavation of the clay blanket foundation is proceeding coincident with Cell 1 excavation.

#### Consultant Conclusions and Recommendations

The following consultant conclusions and recommendations are included, verbatim, as stated in the GAI report:

##### Conclusions:

1. The competent (fresh) shale exposed in a portion of the foundation trench appears to be a dense shale that should be relatively impervious.
2. When the fresh shale has been excavated to final grade in the key trench for the impervious blanket, to prevent dessication and weathering the shale surface should be exposed as briefly as possible before it is covered by compacted clay blanket material.
3. Care should be taken to protect the shale surface in the key trench from damage by compacting equipment during placement of the initial lift.
4. The existing relatively deep trench excavation upstream from the right abutment of the dam may become a potential slope failure area if wet conditions should develop due to inclement weather. This condition will become more critical as the trench is deepened.
5. Permeability tests being conducted, in holes drilled 15-feet into fresh shale, indicate that approximately the top 5-feet is slightly more pervious than the lower 10-feet. This difference in permeability is probably due more to a stress-relief condition in the top 5-feet rather than to a difference in quality of the shale.
6. The stockpiled clay blanket material appears to be satisfactory for clay blanket construction.

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7. Approximately half of Cell No. 1 has been excavated to shale. If the perimeter blanket is keyed into fresh shale, no particular advantage will be obtained by excavating the entire area of Cell No. 1 to competent (fresh) shale.
8. Present laboratory facilities appear to be adequate for the necessary quality control of construction.

## Recommendations:

1. An evaluation should be made as to the amount of stress-relief transfer that will occur when the top 5-feet of the fresh shale is removed and the key trench for the blanket is excavated 5-feet into the deeper fresh shale. (This totals 10-feet into fresh shale.) This evaluation can be made by excavating the top 5-feet of the fresh shale in a short section of the trench and running a permeability test in the top 5-feet of the exposed shale. This should be done in several holes close to the present test holes. The permeability values should be compared to the values obtained prior to excavating 5-feet of fresh shale. This comparison will determine the degree of imperviousness gained by removing the top 5-feet of the fresh shale.
2. In the event it is decided to remove the top 5-feet of the fresh shale, consideration should be given to reducing the key trench depth from the 5-foot depth specified in the design. The rationale for this reduction is that 5-feet of fresh shale has been removed and a shallower key trench will provide an adequate cutoff with the shale foundation.
3. The blanket key trench and blanket located upstream from the containment dam should be constructed first. This would permit use of the stockpiled material located near the slopes of the 50± feet deep trench where a potential slope stability problem exists. Removal of the stockpile should be done before additional excavation is done in the deep section of the foundation trench.
4. To protect the surface of the shale in the blanket key trench, the initial layer of clay blanket material should be compacted by a rubber-tired roller or, if a sheepsfoot roller is used, the initial loose lift of material should be thicker than

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normal and thick enough to prevent the teeth of the sheepsfoot roller from penetrating to the shale surface.

5. The decision for excavating Cell No. 1 entirely to shale should be based on the ultimate need for the additional volume within the facility to accommodate all of the contaminated material. It would appear prudent to obtain maximum space in Cell No. 1 and reduce excavation in the remaining cells after disposal operations have progressed and a more reliable estimate of contaminated waste can be made.
6. To insure that the impervious perimeter clay blanket is constructed to the specified standards of dimensions, gradation, moisture and density, a qualified person representing the owners of the disposal facility and not an employee of the contractor performing the work, should be employed full-time to monitor construction including results of tests made during embankment and blanket construction.

## RECOMMENDATIONS

Based on my review of the GAI report, I recommend that TVA be made aware of the first five GAI recommendations. The letter should be clearly written so that TVA does not construe these recommendations as requirements.

The GAI recommendation No. 6 should not be transmitted to TVA. The staff concerns regarding independence and protection of inspectors have already been discussed with TVA, and they indicated they are preparing a submittal on this subject.

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Randall F. Brich, Project Manager  
Licensing Branch 1  
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Original Signed By  
Edward P. Hawkins

Approved by:

Edward F. Hawkins, Chief  
Licensing Branch 1  
Uranium Recovery Field Office, Region IV

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