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MEMORANDUM FOR:

Philip S. Justus, Section Leader
Siting Section
High-Level Waste Technical
Development Branch
Division of Waste Management

FROM:

Mark Logsdon
High-Level Waste Technical
Development Branch
Division of Waste Management

SUBJECT:

TRIP REPORT FOR DISCUSSIONS WITH U. S. GEOLOGICAL
SURVEY AND GOLDER ASSOCIATES, TACOMA/SEATTLE,
WASHINGTON, MARCH 23, 1983

Attached is a copy of the trip report for the technical discussions with personnel from the U. S. Geological Survey (USGS) and Golder Associates, (GAI) on March 23, 1983. The discussions in Tacoma/Seattle were held en route to Richland, Washington for the NRC briefing of DOE/RHO, State of Washington and Yakima Indian Nation on March 24, 1983. (See memorandum of H. J. Miller, M. J. Logsdon, R. J. Wright, R. J. Starmer and D. J. Brooks to R. E. Browning, April 20, 1983).

"ORIGINAL SIGNED BY"

Mark Logsdon
High-Level Waste Technical
Development Branch
Division of Waste Management

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TRIP REPORT

Seattle/Tacoma
March 23, 1983

Meeting with USGS

Location: U. S. G. S. Offices, Tacoma, Washington

Date: March 23, 1983

Purpose: (1) To discuss interpretation on RHO's Principal Borehole Report for RRL-2 and plans for the exploratory shaft. (2) To discuss head measurements and large-scale tests at the Hanford site. (3) To discuss the status of the USGS review of the SCR.

Participants: Mark Logsdon, NRC
Bill Myers, USGS
Frank Packer, USGS

Summary: RRL-2 and Exploratory Shaft: Packer indicated that the zones of the core loss in RRL-2 probably represent intervals of highly fractured rock. Myers pointed out that knowing the time interval over which mud loss occurred is important in assessing the significance of the mud loss. Myers and Packer supported Logsdon's statement that the NRC staff is concerned about the significance of hydraulic test data from zones of high mud loss, because a decrease in permeability is to be expected where mud has infiltrated the test interval. Myers and Packer urged the NRC staff to obtain drillers' reports and inspect the core recovered from RRL-2, as well as to review critically the hydraulic test data. Logsdon indicated that the NRC has already begun negotiating with DOE for access to the information USGS recommended. Myers asked if the NRC had developed a position on the need for installing a piezometer network before DOE begins the exploratory shaft construction. Logsdon answered that the NRC staff is developing its position at this time and indicated that there are two components to the staff's thinking at this time:

- 1) To interpret hydrologic tests to be conducted in the in situ test facility, piezometers probably are needed. From this perspective, it depends on how important DOE thinks the hydrologic results will be. If equivalent data can be collected in another way (e.g., large-scale pump tests), DOE might consider modifying or eliminating the in situ hydrologic tests in order to go ahead with the other in situ tests in a timely fashion.

- 2) On the other hand, NRC will need assurance that construction of the exploratory shaft and the in situ test facility has not compromised the natural hydrogeologic setting. This probably can be shown only by hydrologic testing.

Logsdon indicated that, on balance, at this time the NRC staff is leaning toward supporting the USGS position of recommending a piezometer network to DOE. Myers and Packer said that the analysis described above made sense.

Head Measurements: USGS asked for NRC's position on head measurements at Hanford. Logsdon described GAI's report on sources of error in head measurements using packer technology (DSCA Appendix G). All three people discussed the history of DC-1. Packer described additional equipment problems with packers, uncovered in testing in the oil shale programs. Logsdon said that the DSCA will point out NRC's lack of confidence in the measured heads and recommend that DOE use long-term measurements. Myers said that USGS will support the NRC in this recommendation.

Large-Scale Pump Tests: Logsdon described the DSCA's analysis of the suitability of the site for large-scale tests (Appendix E), the problems of intergrating data from small-diameter boreholes (Appendix H), and the recommendation that DOE consider additional large-scale tests beyond DC-16. Meyers and Packer agreed and pointed out that the DC-16 cluster will test too small a region of the Cold Creek Syncline to be used alone to characterize the site. Myers indicated that USGS considers that DOE will need to characterize the entire Pasco Basin.

USGS Review Schedule: Myers said that his review of the SCR is due in Reston on April 15, 1983. He did not venture a guess as to how long it would take to have his comments reviewed and released.

Additional Topics: Myers said that USGS personnel in Reston were doing a detailed analysis of the SCR's use of hydrochemistry to characterize flow systems. Logsdon outlined the NRC analysis, and Myers said he thought the analyses would be quite similar. Logsdon briefly described the sensitivity study of DSCA Appendix D. Meyers and Packer said that is sounded defensible and that the results corresponded to their intuition. They also said that they felt that a sensitivity study should have been a part of the SCR, and they concurred with NRC's approach of emphasizing uncertainties at this stage of site characterization.

Discussion with GAI:

Location: Because there was not sufficient time to drive from Tacoma to Bellevue and back to the airport before Logsdon's scheduled flight to Richland, the discussion with GAI was conducted by telephone from the Seattle airport to GAI offices in Bellevue, Washington.

Date: March 23, 1983

Purpose: To discuss the status of GAI's two-dimensional numerical modeling of groundwater flow using the computer code SWIFT.

Participants: Mark Logsdon, NRC
Eileen Poeter, GAI

Summary: GAI has received the telephone conversation record of the March 9, 1983 call from R. Baca and J. Larue of RHO to Michael Weber of WMHL, concerning clarification questions on input to PORFLO model. GAI has several questions about the DOE response. Logsdon was able to clarify two questions (on the convention for assigning hydraulic conductivities as representative at ambient temperature and on PORFLO's use of heads instead of pressure to define boundary conditions). Two additional questions, on the gridding scheme and on the meaning of the new information on the boundary condition below the repository, need to be answered by Weber. Logsdon directed Poeter to send a mark-up of the telephone record, written questions and a cover memo to NRC and said that he would forward the questions to Weber for clarification.

Conclusions: No further action is required at this time on the discussions with USGS. After USGS has reviewed the DSCA and NRC staff has reviewed the USGS analysis, it may be appropriate to have a technical meeting to discuss the respective comments and conclusions.

Mark Logsdon will transmit GAI's questions on the PORFLO input to Michael Weber (WMHL) for clarification.