

WILLIAMS & ASSOCIATES, INC.

P.O. Box 48, Viola, Idaho 83872

(208) 883-0153 (208) 875-0147

Hydrogeology • Mineral Resources • Waste Management • Geological Engineering • Mine Hydrology

WM DOCKET CONTROL CENTER

'86 JUL 11 P10:44

June 30, 1986
Contract No. NRC-02-85-008
Fin No. D-1020
Communication No. 64

Mr. Jeff Pohle
Division of Waste Management
Mail Stop 623-SS
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

WM-RES
WM Record File
D1020
WEA

WM Project 10, 11, 16
Docket No. _____
PDR ✓
LPDR ✓ (B, N, S)

Distribution:

J Pohle

(Return to WM, 623-SS)

Sac

RE: Trip Report

Dear Jeff:

This letter constitutes the trip report for Williams and Associates, Inc. for the June 16-20 meeting held with the NRC in Silver Spring, Maryland. The meeting was called to discuss the reviews of the Final Environmental Assessments on the high level waste repository sites. Williams and Associates, Inc. were represented by Dr. Roy Williams, Dr. Dale Ralston, Dr. George Bloomsburg, Dr. Stan Miller, Dr. Jim Osiensky, Dr. John Sharp, Mrs. Barbara Williams, and Mr. Gerry Winter.

You opened the meeting on June 16 by discussing the example comments prepared by the NRC. The approach that we were to use for reviewing the EAs and for preparing possible comments was discussed by the group. The group was divided into smaller groups representing the separate high level waste repository sites. Dr. Ralston worked with Mr. Neil Coleman and Mr. Paul Davis (Sandia National Laboratory) on the BWIP site. Dr. Bloomsburg and Dr. Osiensky worked with Mr. Pohle on the Nevada Test Site. Dr. Sharp worked with Mr. Bill Ford on the Richton Dome Site. Mrs. Williams and Mr. Winter worked with Mr. Fred Ross on the bedded salt sites (Deaf Smith County and Davis Canyon). Dr. Roy Williams and Dr. Stan Miller worked with each group.

The group on bedded and domed salt sites developed a list of relevant points that could be raised in a comment that were consistent within the salt travel time support documents and The Final Environmental Assessments (FEAs). The list is as follows:

1. A cumulative frequency distribution of simulated travel times is not a cumulative distribution function of the sampled travel time population. Travel time cannot be sampled.
2. All stochastic procedures use a deterministic base model.
3. A deterministic model requires a conceptual hydrogeologic model.

8608110026 860630
PDR WMRES EECWILA
D-1020 PDR

3183

4. A mathematical model consists of one or more fundamental flow equations.
5. Scale
 - a. The scale of the heterogeneities of the model must match the scale of the field heterogeneities. Subjective input (e.g., expert opinions and parameter values) must be provided with consideration of scale of the intended modeling.
 - b. The scale of the model elements (zones) must be compatible with the scale of testing for field data.
 - c. Exclusive use of small scale tests is not valid in most hydrogeologic environments.
 - d. The scale of the models is not compatible with test data scale. Small scale tests may not yield valid estimates of probability distribution functions of hydrogeologic parameters.
6. The stochastic aspect of groundwater travel time is achieved by manipulating inputs to the mathematical model to get a suite of possible realizations.
 - a. The simulated output represents uncertainty in the input parameters of the mathematical model and not in the mathematical model itself (assuming model is defensible).
 - b. Statistical sensitivity and stability studies of simulation models and their results apparently were not conducted (i.e., number of iterations needed for statistical stability, the relative sensitivity on the output of different input variables, bias in the output mean as a result of the character of the mathematical model, and the combining of the input parameters).
7. When possible simulation results from the stochastic analysis should be compared to output from independent defensible deterministic models.

The groups reconvened on Tuesday to discuss the potential for developing a major comment on the travel time analyses included in the Final Environmental Assessments. A lengthy discussion ensued, primarily instigated by Mr. Mike Fliegel (NRC), Dr. Williams, Mr. Davis, and Mr. Pohle. A primary contention was that comments developed on the FEAs must be comments relevant to the FEAs and not directed at the Site Characterization Plans (SCP's). The discussion covered many aspects of the deterministic-stochastic analysis of travel times for the sites. The procedures discussed initially were presented to the NRC in the Draft Environmental Assessment for BWIP received in December 1984. All of the FEAs contain (new) analyses using the deterministic-stochastic analyses of travel time. A number of points can be raised that are relevant to all the analyses. These points

were outlined by the bedded salt group as outlined earlier in this trip report.

The group then broke into smaller site groups to generate comments on the various sites.

Williams and Associates, Inc. and the associated NRC personnel drafted major comments on the travel time portions of the FEAs. These rough drafts were completed on June 20 prior to the departure of the Williams and Associates team members.

You directed Williams and Associates, Inc. to edit and forward our final views on the major comments on travel times to you by July 2, 1986. We are also to complete detailed comment review sheets on each of the sites and forward these sheets to you at the earliest possible time.

Sincerely,

Gerry Winter

Gerry Winter

GW:s1