

MEETING REPORT

TITLE: Meeting Report on: The Second Topical Conference on Nuclear Waste Management Quality Assurance, sponsored by the Energy Waste Division of the American Society for Quality Control, at Las Vegas, Nevada, February 9-11, 1987

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PROJECT TITLE: Technical Assistance in Geochemistry

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SUMMARY

The meeting was organized by the American Society for Quality Control, and was devoted entirely to nuclear waste management. Most of the discussion and commentary dealt with the high-level waste repository program. Most of the parties with an interest in the three candidate high-level waste repository sites were present and took advantage of the meeting to air their dissatisfaction with the current status of the program as managed by the DOE. Utility spokesmen indicated that they had lost confidence in the ability of DOE to complete a repository. The planned completion date for the first repository has slipped by five years after only four years of operation under the Nuclear Waste Policy Act. Utilities are contributing \$400 M per year for the repository and DOE has already spent \$ 1 B out of this fund. The schedule is important to utilities because spent fuel is accumulating. Spokesmen for the affected Indian tribes (principally the Yakima and Umatilla nations) stated that their treaty rights to the Hanford site were illegally abrogated and they want the site returned to their control in an uncontaminated condition. Representatives of the states (Texas, Washington, and Nevada) all expressed dissatisfaction with the site selection process as carried out by DOE. The agent from Texas seemed adamant that Deaf Smith county was unacceptable as a waste repository location. Texas will not allow DOE to have access to the land even for site characterization purposes. The representatives of the states of Washington and Nevada focused their criticisms on geotechnical aspects of the respective sites. They suggested that none of the sites may satisfy the

qualifying conditions of the regulations. Representatives of the NRC were critical of the DOE QA program and its implementation by the DOE. NRC spokesman indicated that the NRC would be giving more attention to the DOE QA programs. Mr. Asselstine, NRC Commissioner, delivered a particularly hard-hitting and wide-ranging critique of the DOE repository program. He felt that the DOE had lost creditability with the public and had not properly carried out the site selection process as specified in the Nuclear Waste Policy Act. He suggested that the DOE repository program should be halted, a new nuclear waste law passed by congress, and a new search for suitable repository sites initiated. The various DOE representatives did their best to show that the DOE was following the law, was not at fault for the recent five year slip in the planned completion date of the first repository, and that adequate QA either existed or was planned by the respective site projects.

MEETING HIGHLIGHTS:

The meeting was organized into a number of panel discussions on selected topics. Invited talks by selected speakers were also presented. Highlights of these discussions and talks, especially those aspects relevant to the evaluation of geotechnical information for the repository sites, are summarized below.

1. Keynote Speaker

J. H. Ferguson, President and Chief Executive Officer, Virginia Power

Mr. Ferguson noted that there had been a steady erosion of public support for a nuclear waste repository. There has been little progress, and the nuclear industry has lost confidence in DOE's ability to implement the Nuclear Waste Policy Act (NWPA). The DOE has spent about \$ 1 B to date out of the utilities contribution.

2. Executive Panel

Michael Bell, Deputy Director Nuclear Waste Management Division, NRC
Stephen Kale, Associate Director, OGR, DOE/HQ
Loring Mills, Vice President of Nuclear Activities, Edison Electric Institute

Mr. Bell stated that the NRC is giving increased attention to QA aspects of the DOE repository plans. The increased attention stems from: (i) the fact that the license for construction will be the first repository license from NRC for the DOE, and (ii) examples of poor QA in reactor areas. The QA plans give a formal structure to the development of repository data for licensing application. The NRC is helping DOE in QA planning by: (i) giving non-prescriptive guidance as to what constitutes acceptable QA, and (ii) staffing and preparing for audits of DOE QA plans. He noted that past problems often were in implementation of QA plans, not in the plans per se. The recent DOE slippage in the repository schedule gives an opportunity for improved QA.

Mr. Mills reported that the utilities have a vested interest in the repository; they are making a substantial financial contribution and need a means of waste disposal. Utilities are not satisfied with the progress to date. It is now four years since the NWPA was enacted, and the schedule has slipped by five years! [Note: The NWPA, Public Law 97-425, was approved by Congress on January 7, 1983. Thus, at the time of this meeting, the law had been in effect for 4 years and one month.] He felt that it was very important that there be a resolution of technical issues between the NRC and the DOE. The DOE and NRC must understand how key issues are to be resolved, otherwise the repository Construction Application is in serious trouble.

Mr. Kale said that DOE is committed to managing for quality. He discussed DOE management plans, and said that DOE intends to meet the requirements of the NWPA.

During the panel discussion period, Mr. Bell was questioned about the NRC level of effort. He stated that the NRC's budget had been reduced and his division will lose about 5 MY in FY 1988. The questioner expressed amazement that NRC staff was being reduced at the time when interaction between DOE and NRC was increasing. Mr. Bell stated that NRC was prioritizing and allocating resources. The NRC Waste Management Division currently has a budget of about \$ 10 M/year and 97 full time staff, including 50 professionals. He noted that they were trying to consolidate all activities in an FFRDC for more efficient use of funding. Mr. Kale agreed that DOE and NRC must agree on technical issues; DOE is working on a strategy to achieve this goal. A question was asked as to which DOE QA areas are now ready for an NRC audit. Mr. Bell stated that the NRC was working on establishing a schedule to meet with the DOE to identify the suitable areas.

3. Managing for Quality

Don Vieth, Project Manager, WMPO, DOE/NV
Michael Bell, Deputy Director Nuclear Waste Management Division, NRC
Stephen Kale, Associate Director, OGR, DOE/HQ
Carl Johnson, State of Nevada
Gene Langston, OCRWM QA Manager, DOE/HQ

Mr. Bell stated that lessons learned by the NRC from the licensing of reactors are being taken into account by the NRC. The NRC findings show shortcomings in the project management QA of the DOE. Mr. Johnson felt that the DOE QA program was overly general and lacking in specifics. He felt that the DOE was overlooking the importance of the need to obtain a license, and said that the DOE should identify all activities necessary to carry out the performance objectives of 10 CFR 60. Mr. Kale responded that the DOE first issued QA plans in September 1984 and a revision in August 1986. DOE is reviewing comments received on the August 1986 issue. He stated that the stop-work orders issued by DOE to the site projects resulted from identified need for corrective actions. The new repository schedule has slipped the first repository date by five years due to: (i) state and indian problems, (ii) the original schedule specified in the NWPA was not realistic or achievable, and (iii) the schedule should not be followed at the expense of

technical excellence or public interaction. Mr. Vieth said that regulatory review has been characterized by suspicion, and that the emphasis has been on the site rather than on repository design and construction. The DOE has been collecting data on the Yucca Mountain site for 15 years now. He said he doesn't always see the relationship between the NRC QA actions and licensing activities. A repository is very different in nature from a reactor, and the repository licensing decision will be based on a description derived from mathematical theory. He felt much work must be done before a mutually acceptable QA plan can be established.

During the discussion period, the comment was made that the Ford Amendment study of the utilities development of reactors showed relevance to repository development. The study revealed that utilities which had great difficulty or failed to complete reactor projects and bring them on line usually had a matrix organization management structure, while utilities that were successful in developing reactors usually had a line organization management structure. The commenter suggested that many of DOE's problems may stem from the fact that it is a matrix organization.

4. New Guidance and Approaches for Quality Management
Stan Goldsmith, QA Director, PNL
Clarence Williams, Battelle Project Management
Jim Kennedy, QA section leader, NRC

Mr. Williams is the new director of the national committee on NQA-1 activities. A major NQA-1 activity initiated this year was the creation of a Waste Management subcommittee to better relate NQA to the repository environment. Mr. Kennedy discussed the need for peer review of technical positions. He suggested reevaluation of the DOE Q-list (the Q-list is a list of items which must be done at the NQA-1 level of QA). Mr. Goldsmith said that PNL has several hundred different programs which all need or have QA plans.

5. What do States and Indian Tribes Expect of the DOE and NRC?
Terry Husseman, Office of High-Level Waste Management, State of Washington
Russell Jim, Nuclear Waste Project Manager, Confederated Indian Tribes and Bands, Yakima Indian Nation
William Burke, Waste Programs Director, Umatilla Indian Nation
Steve Frishman, Director, Nuclear Waste Programs Office, State of Texas
Carl Johnson, State of Nevada

Mr. Burke stated that the Umatilla Reservation once extended into the Hanford area and included tribal rights to fish on the Columbia River and its tributaries, and to hunt and collect berries on public lands. Tribal comments on the quality of performance by the government include:

(i) dependence on the government to ensure that treaty rights are recognized and protected, (ii) tribes must have a voice and status in repository work, they feel they have gotten lip service but little cooperation from the government, (iii) tribes want to observe any QA audits, (iv) the tribes

want to be involved in repository characterization, selection, and operation, and (v) they expect both DOE and NRC to provide opportunities to participate in future developments.

Mr. Frishman said that he believes the DOE program is running on divergent tracks consisting of: (i) getting the license as fast as possible, and (ii) doing the Environmental Impact Statement (EIS) later. He said the State of Texas will insist on an EIS based on complete site characterization. He believes that transportation is a "sleeper" which is being overlooked by DOE. The transportation issue keeps the entire country aware of the repository.

Mr. Husseman's position was that the DOE QA should be an outstanding model for the nation, and he encouraged the NRC to push DOE in this direction. He believes the site selection process is headed toward total collapse, and the repository project should be stopped and the game plan changed.

Mr. Johnson said that the State of Nevada is pursuing the right to do independent technical work at the site, and is developing its own QA plan. The State of Nevada program will be submitted to the NRC for their consideration. He liked the NRC technical concerns about Yucca Mountain, but was less satisfied about NRC efforts on QA. He believes the NRC should be more prescriptive and tell DOE exactly what to do.

Mr. Jim gave an excellent and evocative account of the desires of the Yakima Indian Nation. They have maintained their culture, language, and religion. The Hanford site was once part of their reservation, given them in a written treaty by the federal government. They feel that their land was wrongfully and illegally appropriated by the government for the Hanford site. They intend to pursue through the courts whatever actions are necessary to reclaim their land. When they do get the land back, they not only do not want a nuclear waste repository in it but they also expect the DOE to decommission and decontaminate the existing reactors, Purex facility, and waste sites before returning the land. Mr. Jim was knowledgeable about the use of computer codes to predict future repository performance and their inherent errors. He was concerned about QA aspects of computer codes.

6. Storage and Shipping

Gordon Beeman, Manager of Fuel Storage Activities, PNL
Lake Barrett, Director of Division of Storage and Shielding, DOE/HQ
Bob Williams, EPRI
Mike Barainca, DOE/Idaho Falls

Mr. Beeman described the documentation which supports the PNL evaluation of computer codes at the NQA-1 level. Documentation includes:

- verification testing (prediction of theoretical solution)
- validation testing (data comparison with the predictions)
- code development
 - theory manual
 - user's manual
 - program manual
 - verification/validation manual

configuration management
QA maintenance plan
code center distribution plan

Mr. Barainca described the three-level approach to QA at the Idaho Operations Office. Level 1 consists of items of significant impact, level 2 items of potential impact, and level 3 items of minor impact.

Mr. Williams reported that EPRI spends \$ 300 M/year on energy R & D, which makes it a major energy agency. The utilities are contributing about \$ 400 M/year to the repository fund, thus utilities feel they should have a significant voice in repository development. Utilities have 14,000 tons of spent fuel in wet pool storage and more is being generated all the time. He suggested that EPRI should collaborate on QA teams for the repositories.

7. Luncheon Speaker
James Asselstine, NRC Commissioner

Mr. Asselstine delivered a particularly hard-hitting and wide-ranging criticism of the DOE repository activities. The meeting was tape recorded by the society, and the tapes are supposed to be distributed to all attendees in a week or so. When the tape of Mr. Asselstine's talk is available, I will have a typed transcript prepared and distributed to recipients of this Meeting Report.

8. Waste Packaging
Mark Frei, Chief Engineering Branch, OGR, DOE/HQ
Edward Benz, Manager Waste Package Development, Roy F. Weston, Inc.
David Dahlem, Chief Geosciences and Technology Branch, DOE/BWIP
Bill Brumley, DWPF Project Office, DOE/Aiken

Mr. Brumley gave a technical talk and described the glass waste plant under construction at the Savannah River Plant. The approximately 4 M gallons of sludge and salt cake will be converted to glass waste in steel canisters at the rate of 400 canisters per year starting in 1990. The glass plant is now more than 50% complete and testing of prototype glass has given low leach rates into water. A question was asked about the potential acceptability of these canisters at the yet-to-be-characterized-and-selected repository. Mr. Brumley basically said the waste would be put in glass in canisters and stored in air at Savannah River until a repository was ready for them.

9. Licensing a Nuclear Waste Repository - What are the Most Likely Causes of Contentions and Delays?
Bill Olmstead, Assistant General Council, NRC

Mr. Olmstead believed that what we don't know (the unknowns) are the most likely cause of delays. He listed three things which we should be doing but are not currently doing. These are:

- (i) Requirement documents have to be clearly written and widely understood. The regulations are too broad and general to

provide precise guidance. The requirement documents include technical positions, regulatory guides, etc. These have to be written so that people doing the work can understand them.

- (ii) QA/QC procedures must be written and followed. If the QA/QC is not done right, the hearings will be endless. Items on the Q-list should cover the broadest categories. Audits should be effective in correcting mistakes.
- (iii) Consultation and cooperation must include more negotiation and less confrontation.

10. Wrap Up/Look Ahead Panel

Abdul Alkezweeny, On-Site Tribal Representative, Council of Energy Resource Tribes

Pier Saget, Director of Quality Systems Division, DOE/Richland

Gene Langston, OCRWM QA Manager, DOE/HQ

Bill Olmstead, Assistant General Council, NRC

Michael Bell, Deputy Director Waste Management Division, NRC

Jim Asselstine, Commissioner, NRC

Jim Kennedy, QA Section Leader, NRC

This wrap up/look ahead panel at the end of the meeting might have been expected to produce some interesting and heated discussion. Instead, little new was said by the panel members and few questions were asked from the floor. It appeared that all parties concerned with the repository program may have taken intransigent positions, and may thus have been unwilling to seriously debate any issues.