



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

WM DOCKET CONTROL
CENTER

February 7, 1986

'86 FEB 12 P3:49

MEMORANDUM FOR: Dr. Dade W. Moeller, ACRS Member
Dr. David Okrent, ACRS Member
Dr. Paul G. Shewmon, ACRS Member

FROM: Dr. S.J.S. Parry, ACRS Senior Fellow *[Signature]*

SUBJECT: MEETING REPORT: MODEL VALIDATION WORKSHOP -
BETHESDA, MD - JANUARY 27-29

The agenda and some ground rules of this workshop are attached. Also included is a copy of a Randall/Costanzi paper presented last year in Tucson on modeling phenomena.

I attended the opening session and the session on the engineered barriers on Wednesday. There continues to be evident an attitude that the development of models and codes should precede the obtaining of laboratory and field test data. This is not an attitude that is limited to the RES staff. It is implied in the Waste Management Division's (WMD) approach to performance allocation, as an example. Further, it is a blatant position of the ONWI staff presented during the DOE/NRC Salt Project Waste Package meeting in January. In fairness it should be noted that during the RES presentation a clear statement was made, by a contractor, that the primary need was for field and laboratory data. Similarly, WMD insists that the development of reliable data is a primary requirement. However, I wonder if the relative expenditures on data confirmation versus modeling support these statements.

These attitudes, I believe, result from two factors. First, a large fraction of the NRC's program is reactive. That is, if DOE is interested in item A, the NRC studies item A, and so forth. Secondly, DOE, since it has not finalized its sites and or the repository design, has had to stress analytical studies of generic conditions. This has led to a heavy dependence upon the use of models and performance assessment techniques. The first point requires that as DOE stresses analytical processes to the minimization of "hard" data that the NRC reacts by shifting their emphasis in a similar manner.

The DOE approach was strikingly demonstrated during a presentation on model development during the 1/22-24 workshop at Columbus. The presenter clearly indicated that the steps to be followed were:

1. Develop model based on theory from literature
2. Gather experimental data to test the model
3. Modify the model as appropriate

WM Record File

WM Project *16*

Docket No. *[Signature]*

PDR *[Signature]*

LPDR *[Signature]*

8701230196 B60202
PDR WASTE
WM-16 PDR

Distribution:

T. Johnson

R. Johnson

1270
WM, 623-SS)

Sac

When the obvious stress on first developing a model was questioned there was an immediate response that the model was developed as a result of experimental studies. From the presentation and my personal observation, I am categorically convinced that this is not the actual situation, but that the process being followed is given above.

The overall result of this approach has been noted in the WMD minutes and my report of the 1/22-24 salt waste package workshop results. These are: 1) no confirmed data as to the corrosion mechanism or its rate exists for brine environments, 2) no viable alternative material has been proposed for the waste package overpack and 3) the dependence upon the "limited brine" theory has focused the Salt Project's efforts on proving that hypothesis rather than investigating the actual situation.

Conclusions:

1. The RES and WMD studies are largely reactive to the work and approaches taken by the DOE and its contractors. This is in opposition to the alternation of focusing our limited resources on gross assumptions or points being ignored by DOE. Dr. McNeil's work on pitting corrosion is an example of this latter approach.
2. By attempting to duplicate DOE's program it is possible that alternative viewpoints may be overlooked, until the licensing review process has been initiated.
3. The quality and competence of the studies is equal to or better than that of DOE and its contractors.

Attachment:
As Stated

cc: ACRS Members
ACRS Technical Staff
ACRS Fellows

CONFEDERATED TRIBES AND BANDS
Yakima Indian Nation

GENERAL COUNCIL
TRIBAL COUNCIL

WM DOCKET CONTROL CENTER
POST OFFICE BOX 151
TOPPENISH, WASHINGTON 98948

August 11, 1986
'86 AUG 25 AIO:41

WM Record File

101.4

WM Project 10

Docket No.

PDR ✓

LPDR ✓

Distribution:

REB MJB

JOE RDM

(Return to WM, 623-SS)

TO: JOE

Hildner and

333 Hale

Bilhorn

Lincoln

DKunihira, Reg. II

Mr. Lee Olson
Department of Energy
BWIP Office
P.O.Box 550
Richland, Washington 99352

Dear Mr. Olson:

This letter is written in response to the August 4, 1986, DOE/NRC management meeting in Richland, Washington. The Yakima Indian Nation (YIN) is very interested in the ongoing work related to the disposal of high level waste (HLW) at Hanford. The goal of our technical program is to review all on-site activities that may be, or have been used to generate data to support the siting and design of a HLW repository. We have two short-term objectives in order to reach this goal: 1) attend any NRC Appendix 7 visits that may occur between now and the SCP release, and 2) set up our own meetings to discuss the "pre-SCP" concerns of the YIN.

We believe Tribal representatives should attend any Appendix 7 visits made by the NRC in order to have access to timely and complete information on plans made for site characterization (NHPA Section 117 (a)(1)). Accordingly, we urge you to open any such visits to tribal representatives. Like the NRC, we feel that it is important to get the technical program out of a reactive mode and into a pro active mode. The Yakima Indian Nation believes this change is essential to fulfilling our responsibilities under the NHPA.

Our second short term objective also reflects this desired change in mode of interaction with the DOE: We are interested in meeting with you and your technical staff to review the "pre-SCP" concerns of the YIN. This meeting would be followed by specific technical meetings to discuss study plans of interest. The initial scoping meeting would be difficult to prepare for without the brief letter report describing ongoing activities that was to be drafted by the project offices after the May 7 - 8, 1986, SCP meeting held in Washington, D.C. (see Attachment 1,p.7).

It is critical that we clearly understand the nature of the ongoing work at Hanford (and that which was ongoing prior to the

2075

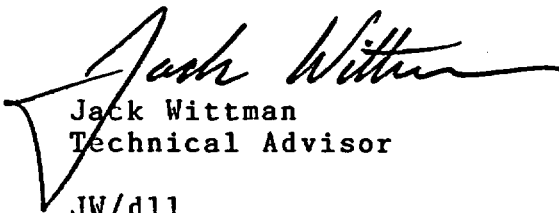
Mr. Lee Olson
August 11, 1986
Page 2

stop work order) to address the Site Characterization Plan in a comprehensive and effective manner. Your efforts in expediting the release of this letter report would be much appreciated.

I look forward to your prompt reply.

Sincerely,

YAKIMA INDIAN NATION



Jack Wittman
Technical Advisor

JW/d11

Enclosure

cc: Nancy Hovis, Hovis, Cockrill, Weaver & Bjur
Georges Abi-Ghanem, EWA, Inc.
Dua Guvanasen, GeoTrans, Inc.
Jim Mecca, DOE, Richland
Ralph Stein, DOE, Washington, D.C.
Joe Bunting, NRC

SUMMARY OF THE NRC/DOE MEETING
ON THE LEVEL OF DETAIL FOR
SITE CHARACTERIZATION PLANS
AND STUDY PLANS

DATE AND LOCATION OF MEETING:

May 7-8, 1986
Room 4A-104
Forrestal Building
Washington, D. C.

LIST OF ATTENDEES:

See Attachment 1

BACKGROUND

The purpose of the meeting was for the NRC and the DOE to reach agreement on the level of detail to be presented by the DOE in the SCP and separate study plans. The DOE's approach to level of detail was described in advance materials provided by the DOE ten working days prior to the meeting (Attachment 2). The DOE presented additional explanatory information in materials distributed at the meeting (Attachment 3).

NRC presented and discussed their comments on the advance materials provided by the DOE. NRC's comments are summarized below under observations. Representatives from the States and Indian Tribes also participated in discussions on selected topics. Agreement was reached concerning revisions to the advance materials, as noted under the DOE/NRC agreements listed below and in Attachment 4.

Representatives from the States of Washington, Utah, Mississippi, Texas, Nevada, and Louisiana, and from the Yakima and Nez Perce Indian Tribes attended the meeting. They interacted extensively in the meeting and provided comments and questions which were considered in revising the advance materials. Agreements were achieved between the Department of Energy, and the States and Indian Tribes as noted in the DOE-States/Indian Tribes agreements listed below.

A rough draft of the revised advance materials was given to the States and Indian Tribes for their information and comment during the meeting with the understanding that word changes might still be needed. The States and Indian Tribes were given the opportunity to submit their own written observations, agreements, and open items to be included in the meeting summary. None was submitted.



Department of Energy
Washington, DC 20585

NOTE FOR THE READER

Enclosed for your information is a copy of The Summary of the NRC/DOE Meeting on the Level of Detail for Site Characterization Plans and Study Plans. This meeting was held May 7-8, 1986 at DOE Headquarters offices at the Forrestal Building. Please contact Carol Hanlon at FTS 252-1224 if you have questions regarding the meeting or the record summary.

A handwritten signature in dark ink, reading "Donald H. Alexander". The signature is written in a cursive style with a large, looping "D" and "A".

Donald H. Alexander, Chief
Technology Branch
Office of Geologic Repositories
Office of Civilian Radioactive
Waste Management

NRC OBSERVATIONS

The NRC had the following observations:

1. The revised and agreed-to approach to the level of detail in the SCP, the "Content Requirements" for both studies and investigations and the defined terms documented in Attachment 4 should provide sufficient guidance, along with DOE's "Annotated Outline for SCPs" for the DOE to prepare Section 8.3 of the SCPs and separate study plans.

The NRC staff considers that the revised and agreed to approach in Attachment 4 is consistent with previous NRC staff positions and agreements regarding the SCP in NUREG-960, Regulatory Guide 4.17, and DOE's Annotated Outline for SCPs, the October 29-30, 1985 meeting on site characterization plans in Section 8.3, and NRC's December 12, 1985 letter to the DOE on the subject. In these documents the NRC staff has stated that it is the DOE's decision to determine the location of study plans, i.e., within Section 8.3 of the SCP or as references to Section 8.3. In addition, while the SCP should be comprehensive to some level of detail, plans may be more defined and detailed for early phases and less defined and detailed for later phases.

2. NRC believes that the quality, completeness, and consistency of the SCPs will be significantly improved by using the guidance agreed to in this meeting. This was a result of effective and constructive discussion among the DOE, NRC, and participants from the States and Indian Tribes.

In order for NRC to complete its SCP review in the six month review period, numerous pre-SCP consultations are needed to allow NRC to provide early feedback to the DOE on development of investigations and study plans for resolution of issues and collection of data. In order to plan such consultations, the NRC repeats its earlier request for the DOE to identify milestones and schedules for pre-exploratory shaft activities to allow agreement on appropriate points for consultation with NRC.

3. NRC asked how off-site studies would be included in the SCP (e.g., studies conducted by SRPO at the Avery Island mine and the Asse mine). The DOE stated that off-site studies which provide information for licensing would be included; however, studies such as those which are used for improving instrumentation or testing methods would not be included. An agreement on this item was included in Attachment 4.
4. NRC observed that study plans concerning the exploratory shaft testing (that would be available at the same time

as the SCP) should include studies from the exploratory shaft, studies that might be affected by the exploratory shaft construction (e.g., large-scale pump tests at the Hanford Site) and studies that might affect shaft design and construction. The DOE expressed concern that this could be interpreted to include all studies in or from the underground facility. NRC indicated that information on studies in the underground facility that might significantly affect the exploratory shaft would be needed (e.g., the extent of drifts needed for testing affects the size of the shafts). NRC also asked that the DOE identify which studies would be available at the time of SCP issuance. An agreement on this topic is given in Agreement 2, Action Item 1, and in Attachment 4.

5. NRC asked if the DOE was preparing an exploratory shaft design report that would be a reference to Section 8.4 of the SCP. The DOE stated that such a report is being prepared and that it might be available at the time of SCP issuance. As NRC has stated before, all SCP references must be available at the time of SCP issuance.
6. NRC observed that a commitment from the DOE was needed for making available study plans after those provided at the time of SCP issuance. NRC proposed that study plans be available for review six months before studies are initiated using the mechanism of the semi-annual progress reports. The DOE asked NRC to notify them of major concerns during the first three months of review. This was agreed to and incorporated into Attachment 4.
7. NRC observed that DOE's proposal of releasing nonstandard procedures 30 days before the test is initiated is not enough time for review. Sixty days is more appropriate to allow for review by NRC staff and contractors. The DOE asked that NRC notify DOE of major concerns during the first 30 days. NRC also noted that for selected, non-standard procedures specific early review and consultation with the DOE and other parties will be needed. This was agreed to and incorporated into Attachment 4.
8. NRC repeated the suggestion made in NRC's December 12, 1985, letter to the DOE to include in the content requirements for studies (Attachment B) rationales for the selected number, location, duration, and timing of tests. The DOE expressed concern that NRC wanted advantages and limitations written up for all alternative numbers, locations, durations and timings considered. NRC responded by stating that the DOE should identify reasonable alternatives and summarize reasons for not selecting them. An agreement on this topic was incorporated into Attachment 4.
9. NRC expressed the need for having information on interrelationships and interferences among tests and among tests and exploratory shaft facility design and construction

both in the SCP at the investigation level and in the study plans. Such attention is needed to show how tests fit into the overall testing program and how tests have been chosen, designed or sequenced such that adverse interferences with other tests have been minimized or avoided. An agreement on this topic was incorporated into Attachment 4.

10. The DOE indicated that it will use various Quality Assurance (QA) levels for conducting tests and analyses described in Section 8.3 (see pages 10-11 of advance materials). The DOE QA level I includes 10 CFR Part 60 Subpart G requirements which are applicable to items important to safety, barriers important to waste isolation and related activities (such as site characterization). The NRC staff believes most activities conducted during site characterization should be subject to QA level I, especially at this stage of the program when the importance of individual items and activities (including research and preliminary testing) to demonstration of compliance with licensing requirements is uncertain (reference June 25, 1985, letter from Miller to Vieth and February 12, 1986, letter from Linehan to Purcell). Assuming most tests and analyses in SCP Chapter 8.3 relate to demonstrating a site's ability to protect public radiological health and safety and the environment and therefore will potentially be utilized in the license application, the staff believes they should meet QA level I requirements.

In addition, the NRC staff believes that new data collection, interpretation, and analyses to be conducted prior to and during site characterization should be covered by an appropriate level of quality assurance. All on-going activities should be evaluated as soon as practicable (prior to the SCP) to determine the level of QA which is appropriate, implement the measures associated with the appropriate level, and determine what is needed to qualify, if possible, the information obtained prior to implementation of the appropriate QA measures. The NRC staff believes that the DOE should not rely on qualifying licensing-related information collected by the DOE and DOE contractors/subcontractors for any work conducted under a non-Subpart G QA program for new work initiated prior to issuance of the SCP. An agreement on this topic is given in Action Item 3 and incorporated into Attachment 4.

DOE OBSERVATIONS

The DOE had the following observations:

1. The DOE has agreed to provide extensive details of plans for site characterization activities through the SCP, study plans, and procedures. The DOE will provide this information to

the NRC in a way that allows the NRC to review and comment on the plans sufficiently in advance of starting the activities. Although the DOE believes that this level of detail is not required at this stage of pre-licensing consultation, the DOE has agreed to provide this information to the extent practicable in the agreed-to timeframes, consistent with the requirements of the Nuclear Waste Policy Act.

2. An unapproved, working draft of the DOE/NRC SCP level of detail meeting was distributed among the meeting participants to facilitate discussion. This draft was revised by DOE and NRC, and additional materials were added to reflect additional agreements and concerns of the meeting participants.
3. The DOE intends to provide the NRC with an issues hierarchy document for NRC review. The DOE requested that NRC schedule a meeting in mid-June to discuss the issues hierarchy.

OPEN ITEMS

There were no open items remaining at the close of the meeting.

DOE-NRC AGREEMENTS AND ACTION ITEMS

The DOE and NRC made the following agreements:

1. During the course of the meeting NRC presented numerous comments on the DOE's approach to the level of detail in the SCP and the "Content Requirements" for both the study plans and investigations described in the advance materials (Attachment 2). These comments are summarized in the preceeding NRC observations. The comments were discussed and changes agreed to were incorporated into the advance materials. Attachment 4 includes all of the changes and represents an agreed upon approach for presentation of site characterization plans and study plans.
2. During the course of the meeting NRC staff and various representatives of the States and Indian Tribes discussed at length the need for the availability of information from on-going studies, new studies started before SCP issuance and studies that might be started immediately after SCP issuance.

In accordance with pre-consultation agreements in the NRC-DOE Procedural Agreement, NRC expressed concern that plans for the above studies be made available for review and consultation in a timely manner.

For studies conducted prior to SCP issuance at the salt

site(s), NRC requested study plans before studies are initiated. For studies to be initiated within six months after issuance of the SCP, study plans should be given to NRC before the SCP issuance in time for NRC review. These study plans should follow the "Content Requirements for Studies" in Attachment 4-B agreed to in this meeting. Consultations with the DOE during the development of these studies need to be planned to discuss NRC concerns with such items as complete study rationales, adequacy of test/analysis methods, interference among tests, and adequacy of study-specific QA programs.

A list of on-going studies at the Federal sites will be given to NRC to assist them in requesting specific procedures for review. Study plans for those on-going studies which will continue past SCP issuance should accompany the SCP. The DOE will provide specific procedures, plans, test and QA information from the list upon NRC request, if available. Study plans for new studies initiated before SCP issuance should be provided before studies are initiated and consultations scheduled during development of these plans as described above for the salt site(s). The study plans should follow the "Content Requirements for Studies" in Attachment 4-B agreed to in this meeting.

While the NRC did not request a letter report summarizing all on-going and new pre-SCP studies such as the one agreed--to by DOE, States and Indian Tribes, the NRC staff will make use of this report when it becomes available.

In addition, if the DOE determines that data from studies conducted before the SCP issuance precludes the need for further studies in a particular area, the basis for this conclusion in the SCP should include specific reference to the study or test plans for collection of the data.

The DOE agreed to provide the NRC the requested information identified above.

The DOE and the NRC agreed to the following DOE action items:

1. In the December 12, 1985 the NRC letter to DOE which provided comments on the level of detail in Section 8.3 of the SCP, NRC expressed an interest in receiving an hierarchal listing of the names of programs, investigations, studies, tests and analyses which will be conducted for each project during site characterization. This information would be useful early in NRC SCP review preparations to understand the integrated framework of each overall program. During the meeting, the NRC asked for this information and the DOE agreed to provide it when it is developed.

Furthermore, in response to another NRC request, the DOE

agreed to use the above hierarchy to identify to the NRC those study plans that would be available at the time of SCP issuance and study plans for studies that would be initiated between the Presidential approval of site recommendation and SCP issuance.

2. The DOE agreed with NRCs request to revise the comparison of content requirements in Attachment D of the advance material to make it consistent with the agreed to revisions of the content requirements for studies and investigations as specified in Attachment 4.
3. Based on concerns in NRC Observation 10, the DOE and NRC staff agreed that a meeting is necessary to discuss the methodology, implementation, and schedule for implementation of the DOE's quality assurance level assignments. The DOE will schedule this meeting in the next three months and provide NRC with the information necessary to support discussions (e.g., the current OGR and Projects procedures for quality level assignments).
4. The DOE agreed to provide a description of the QA program for development of the SCP. This description should include the rationale for assigning the SCP and related preparation activities to QA level II. The description will include the approach for assuring that internal reviews consider the rationale and integration of the SCP, and the control of changes associated with site characterization plans, studies, and individual investigations.
5. In the minutes from the December, 1985, meeting with the DOE on QA, the NRC staff expressed concern "that the traceability of QA requirements from the administrative procedures to the detailed technical procedures could be hindered by an insufficient level of detail in the QA administrative procedures referenced in the SCP." The NRC requested examples be provided prior to submittal of the SCP showing the hierarchy of documents which define and implement QA measures. The DOE agreed to provide this information by September 30, 1986.

DOE-STATES/INDIAN TRIBES AGREEMENTS

1. For Federal site(s) the DOE will prepare:
 - a. A 15-20 page letter report to describe the following items, for on-going activities and planned site characterization activities to be initiated between Presidential approval of site recommendation and SCP issuance:
 1. List of on-going tests;
 2. List of planned tests;

3. Rationale for activities; and

4. Tie-in to SCP's.

b. Meetings will be arranged between the DOE Project Office(s) and States and Indian Tribes to discuss the letter report and identify workshops to cover tests in more detail.

2. For non-Federal site(s) the DOE will provide:

Copies of plans for studies to be conducted at a candidate site(s) prior to issuance of the SCP for review prior to implementation. These study plans will follow the content requirement per this meeting agreement, and include:

1. Rationale for each study and

2. Relationship of the study to the SCP.

The review period for these plans will be negotiated between the affected States, Indian Tribes, and the DOE Salt Repository Project Office.

John J. Linehan 5/14/86

John J. Linehan
Division of Waste Management
Office of Nuclear Material
Safety and Safeguards
U. S. Nuclear Regulatory
Commission

Ralph Stein 5/14/86

Ralph Stein, Director
Division of Engineering and
Geotechnology
Office of Geologic Repositories
U. S. Department of Energy

Robert L. Johnson 5/14/86

Robert L. Johnson
Division of Waste Management
Office of Nuclear Material
Safety and Safeguards
U. S. Nuclear Regulatory
Commission

Donald H. Alexander 5/14/86

Donald H. Alexander, Chief
Technology Branch
Office of Geologic Repositories
U. S. Department of Energy

CONVERSATION RECORD

TIME

2315

DATE

02 SEPT 1986

TYPE

☐ VISIT

☐ CONFERENCE

☒ TELEPHONE

☐ INCOMING
☒ OUTGOING

ROUTING

NAME/SYMBOL INT

WM 101.4

(See Attached Distribution List)

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT

CURTIS CANARD

ORGANIZATION (Office, dept., bureau, etc.)

CERT (Consultant to NEZ PERIE AND UMATILLA)

TELEPHONE NO.

509 943-5301

SUBJECT

Scheduled Meeting for September 9, 1986 at Mr. Canard's Richmond, WA offices.

SUMMARY

Mr. Canard (a petroleum geologist employed by CERT, consultant to the Nez Perie and Umatilla Indian Tribes) is receptive to a meeting with the NRC staff at his Richmond offices the morning of September 9, 1986. Items of discussion, as suggested by Mr. Canard, will include:

- (1) Hydrocarbon potential of the Palco Basin
- (2) On-going petroleum industry exploration east of Richmond
- (3) CERT's impressions of the areal faulting model.

Distribution:

(Return to WM, 623-SS)

ACTION REQUIRED

Notification of appropriate NRC staff of above-planned meeting.

NAME OF PERSON DOCUMENTING CONVERSATION

Harold E. Lefevre

SIGNATURE

Harold E. Lefevre

DATE

03 SEPT 1986

ACTION TAKEN

Distribution Made

SIGNATURE

Harold E. Lefevre

TITLE

geologist, WMBT

DATE

13 SEPT 1986

50271-101

☆ GPO : 1981 O - 361-526 (7227)

CONVERSATION RECORD

OPTIONAL FORM 271 (12-76)
DEPARTMENT OF DEFENSE

2040

WM Project 10
Jacket No.

WM Record File
101.4

PDR
LPDR