

NMSS TICKET 9000355

AUG 10 1990

Mr. Thomas H. Isaacs, Director
Office of Strategic Planning and
International Programs
Office of Civilian Radioactive
Waste Management
U.S. Department of Energy
Washington, D.C. 20585

Dear Mr. Isaacs:

SUBJECT: UNITED STATES POSITIONS ON UPCOMING MEETING OF THE RADIOACTIVE WASTE
MANAGEMENT COMMITTEE IN SEPTEMBER 1990

This is in response to the U.S. Department of Energy's (DOE's) letter dated July 18, 1990. In that letter, DOE requested the U.S. Nuclear Regulatory Commission (NRC) staff to provide any necessary revisions to the position statements on the agenda items for the September 1990, meeting of the Radioactive Waste Management Committee (RWMC). The NRC staff has reviewed previous position statements provided by DOE and has proposed revisions to some of the statements. Those changes that were minor in nature are provided in the Enclosure 1, and are marked with a bar in the right-hand margin.

Enclosure 2 contains revised position statements for the agenda items on the performance assessment collective opinion, the sorption data base project (SDBP), and the need for future workshops. The information in Enclosure 2 represents more substantial changes that the staff recommends be adopted.

For the position statement on the performance assessment collective opinion, the NRC staff has prepared a totally new position. In this revised position statement, the NRC staff has proposed that the U.S. agree with the Collective Opinion, but should express its reservations about the draft text of the document at the RWMC meeting. Overall, the NRC staff believes that the RWMC statement that it can confirm that safety assessment methods are available today to evaluate long-term radiological impacts is overly optimistic. Therefore, it is the NRC staff's position that the U.S. express its reservations about the optimism of the Opinion.

With respect to the SDBP, the NRC staff recommends that the U.S. adopt the position that it supports the development of a workshop on sorption data and modeling. In its comments on DOE's Site Characterization Plan, the staff identified a concern in the area of transport modeling, including short-term and long-term considerations. Also, the Nuclear Waste Technical Review Board (TRB) has raised similar concerns and identified the need for a workshop. An international workshop would help build consensus with respect to transport modeling and provide information that could address the NRC and TRB concern.

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Finally, the staff has recommended that the U.S. support a workshop on gas generation and release. This was suggested at the January 1990 meeting. The basis for this recommendation is provided with the position in Enclosure 2.

Besides those specific revisions, the NRC staff has identified one generic comment. There are some statements that do not need to be revised other than to include recent developments that pertain to these topics. For example, the position on agenda item 11(a), "Program of Work in the Short-Term on the Basis of Earlier Discussions During the Meeting," states that the In-Situ Advisory Group (ISAG) should be disbanded. However, the ISAG has been disbanded since preparation of the position.

If you have any questions, please feel free to contact the responsible NRC staff member for this activity, Mr. Joe Holonich. Mr. Holonich can be reached at FTS 492-3403 or (301) 492-3403.

Sincerely,

(Signed) Robert M. Bernero

Robert M. Bernero, Director
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

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Ticket

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DIVISION DATE: 08/02/90 DOC DT: 07/18/90
FROM: TIME: COMP DT: 08/10/90

Isaacs
DOE

TO:

Bernero

FOR SIGNATURE OF:

** BLUE **

SECY NO:

Bernero

ASSIGNED TO:

CONTACT:

HLWM

DESC:

ROUTING:

REQUEST FOR POSITION STATEMENTS ON AGENDA ITEMS
WITHIN NMSS AREA OF RESPONSIBILITY AND SUBMIT THE
STATEMENTS ALONG WITH ANY PROPOSED INTERNATIONAL
THAT SHOULD BE DISCUSSED DURING THE RWMC MEETING

Bernero
Arlotto
Funches
Jenkins

SPECIAL INSTRUCTIONS OR REMARKS:

Please prepare response for Bernero's signature
by 8/2/90. DOE would like our input by 8/3/90.

HLWM - You have only copy of entire package.

Ticket Closed via Letter To Thomas Isaacs 8/10/90

A JOE

*extended
8/9/90*

Enclosure 1
Minor Revisions to U.S. Positions

FULL TEXT ASCII SCAN

Oral Report

AGENDA ITEM: 5 (b) Detailed Progress Report on Alligator
Rivers Analogue Project

REQUESTED ACTION:

Members are invited to take note of progress in this field and to comment, as appropriate, on the actions proposed.

U.S. RECOMMENDATION/POSITION:

The U. S. will continue to support the Alligator Rivers Analogue Project (ARAP). The U.S. NRC is presently supporting and participating in the ARAP. The U.S. DOE is evaluating its current position for potential participation in the ARAP (and other natural analogue projects).

TALKING POINTS:

1. The U.S. NRC supports the ARAP for the following reasons: 1) it is a key component of INTRAVAL; 2) it has successfully developed a detailed data base for transport model validation studies; 3) it is cost-effective; 4) it provides a forum for developing an international consensus on natural analogues and performance assessment model validation; and 5) it provides insight into site characterization methods and scenario development.
2. The study of natural analogues provides a way to increase confidence in prediction of long-term performance of radioactive waste disposal sites. The U.S. DOE/OCRWM will maintain cognizance of other natural analog activities. The U.S. DOE will evaluate the potential for participation in the ARAP and other natural analog study projects, given that the resulting information from these studies may compliment other data and be used to extrapolate short term test results to longer range times, frames, and/or small scale testing to repository dimensions.

U.S. NRC Participant in ARAP: G. Birchard, RES, Linda Kovah^c, RES

BACKGROUND:

The Koongara uranium ore body in Australia is being studied as a geochemical analog of a HLW repository in a joint international project under the auspices of the OECD/NEA. The general objective of the project is to develop and validate models of radionuclide migration in the geosphere based on geochemical and hydrological measurements at the site. ARAP includes field, laboratory, and modeling activities.

The ARAP began in September 1987 as a three-year study. It has been extended for an additional year to allow completion of planned activities. Funding for the project is approximately US\$800K per year, which is comprised of unequal contributions from participants (some of which contribute funds, others contribute other "in kind" resources).

AGENDA ITEM: 5 (b) Detailed Progress Report on the
INTRAVAL ProjectREQUESTED ACTION:

Members are invited to take note of progress in this field and to comment, as appropriate, on the actions proposed.

U.S. RECOMMENDATION/POSITION:

The U.S. DOE and NRC continue to support INTRAVAL and related activities. The U.S. EPA intends to participate in INTRAVAL.

TALKING POINTS:

1. INTRAVAL needs to focus on the real problems of model validation (i.e., methodology, procedures, etc.). Validation activities should reflect reasonable expectations of what can be accomplished.
2. There needs to be clear phases and intermediate progress checks for the INTRAVAL projects and the study cases with a definite end-point.
3. A future NEA document on validation should be prepared which would be a consensus on how we express the expectations of validation and the methods available for accomplishing validation. *As part of this effort, NEA should consider a*
4. Specific information on U.S. participation is provided below:
 - U.S. DOE participant to the Validation Organizing and Integration (VOI) group meeting in March 1989 was C. Voss, PNL/HQ; the INTRAVAL meeting in Helsinki in June 89 were: C. Voss, PNL/HQ, C. Cole, PNL, D. Hoxie, USGS.
 - The WIPP Project (E. Gorham and R. Andersen) is interested in participating in the INTRAVAL Project.
 - In May 1989, EPA was invited to participate formally in INTRAVAL and is expected to be accepted at the February 1990 meeting. The EPA INTRAVAL participants nominated are Mr. J. William Gunter, Director, Criteria and Standards Division, Office of Radiation Programs, as the EPA Coordinating Group Member, and Dr. Cheng-Yeng Hung, Hydrologist, Criteria and Standards Division, Office of Radiation Programs, as the EPA Project Team Leader.

U.S. DOE Participants: C. Voss PNL/HQ, C. Cole, PNL
 U.S. NRC Participants: T. Nicholson, R. Codell, NRC
 U.S. EPA Participants: J. Gunter, C. Hung, EPA

AGENDA ITEM: 5 (b) Detailed Progress Report on the
GEOVAL Symposium

REQUESTED ACTION:

Members are invited to take note of progress in this field and to comment, as appropriate, on the actions proposed.

U.S. RECOMMENDATION/POSITION:

The U.S. will participate in the 2nd GEOVAL Symposium.

TALKING POINTS:

1. D. Alexander (DOE/HQ) and C. Voss (PNL) each have offered a paper for the symposium. These individuals may be requested by the organizing committee to present one poster session together.
2. Dr. Cheng-Yeng Hung (EPA) has submitted an abstract for presentation at the GEOVAL-90 Symposium. The paper has been accepted for Session 2.6 and is entitled "Uncertainties in Ground-water Transport Modelling - A Component of Uncertainty in the Performance Assessment of Low-Level Radioactive Waste Disposal Sites."
3. T. Nicholson (CNRC), N. Eisenberg (NRC), and P. Davis (SNL) submitted papers to GEOVAL 90.

BACKGROUND

The first GEOVAL Symposium was held in 1987 on the verification and validation of geosphere performance assessment models. Since then much progress has been made in the research area of geosphere flow and transport. In addition, progress has been made in several experimental programs and natural analog studies, and new modeling approaches are being developed.

The NEA is co-sponsoring the second GEOVAL Symposium on the validation of geosphere flow and transport models (GEOVAL-90), which is being organized by the Swedish Nuclear Power Inspectorate (SKI) to be held in Stockholm on May 14-17, 1990.

The objectives of GEOVAL-90 are to:

1. Review the progress made since 1987 in validation of geosphere flow and transport models
2. Review planned activities for validation
3. Discuss the conceptual framework for validation strategies in the context radioactive waste disposal programs

ITEM 5(D) GEOCHEMICAL
MODELING AND
DATA - TDB
PROJECT

SEN/RWM(89)7 and SEN/GEO(89)2
are attached.

AGENDA ITEM: 5 (d) Progress of Work in the Area of
Geochemical Modeling and Data

REQUESTED ACTION:

The Committee is invited to take note of the progress in this area.

U.S. RECOMMENDATIONS/POSITION:

^{U.S.}
The DOE/OCRWM continues to support the NEA efforts associated with the TDB Project. DOE/OCRWM is committed to continue support for U.S. scientists on the specialist review teams. DOE/OCRWM supports efforts to obtain funding for reviewers through their member nations.
The U.S.

TALKING POINTS:

1. Recent NRC evaluation of the OCRWM geochemical program supports the need to maintain the momentum established by DOE/HQ in the area of thermochemical data evaluation. The DOE/HQ funded effort was initiated in FY89, and its integration with the NEA TDB Project will adequately respond to the NRC concern about perceived deficiency in the OCRWM geochemical program.
2. The DOE/OCRWM continues to support the efforts and direction of the TDB Project.
3. The DOE/OCRWM continues to be primarily interested in the compilation and review of the first set of elements (U, Tc, Pu, Np, and Am). The continuation of the project should be reassessed subsequent to completion of this first set of elements.
4. The DOE/OCRWM is interested in pursuing increased reviewer support to ensure completion of the development and review process for those five elements as scheduled. This action will permit utilization of existing organizational and funding structures for the TDB Project.
5. The current funding level within OCRWM for NEA support will include a small number of new reviewers without an increase in funding level to LLNL. The U.S. members of the TDB specialist teams are:

Neptunium -- Dr. Heino Nitsche (LBL)

Plutonium -- Dr. Heino Nitsche (LBL)
Dr. James C. Sullivan (ANL)

Enclosure 2
Revised U.S. Positions

AGENDA ITEM: 5(b) ii) RWMC Collective Opinion on Performance Assessment

REQUESTED ACTION:

The Committee is invited:

- to note that the new draft of the RWMC Collective Opinion incorporates the comments made in writing by the end of May 1990 by RWMC members, as well as by IAEA and CEC experts and that this draft was cleared by the RWMC Bureau at its its meeting of 11th June 1990;
- to discuss this new draft and to agree on a final text for submission to the Steering Committee, which will be asked to clear it for publication at its meeting of 3rd-4th October 1990;
- to note that the CEC and IAEA expert committees are likely to endorse the RWMC Collective Opinion, and that this endorsement will be mentioned in the publication.

U.S. RECOMMENDATIONS/POSITION:

The U.S. agrees with the Collective Opinion, but should express its reservations about the draft text of the document at the RWMC meeting.

BACKGROUND:

The draft text of the Collective Opinion includes the following:

. . . the NEA Radioactive Waste Management Committee confirms that safety assessment methods are available today to evaluate adequately the potential long-term radiological impacts of a carefully designed radioactive waste disposal system on man and his environment.

Moreover, recognizing that safety assessment methods are being further developed and that proposed disposal sites are or will be the subject of scientific investigations, notably to reduce uncertainties where needed, the Committee

considers the appropriate use of safety assessment methods, coupled with sufficient information from proposed disposal sites, can provide the technical basis to decide whether specific disposal systems would offer to society a satisfactory level of safety for both current and future generations.

The U.S. considers these statements to be overly optimistic because several aspects of safety assessment methods require additional development before they can be used to evaluate the acceptability of a proposed repository. These include 1) scenario development and screening, particularly for potential human intrusion scenarios, 2) modeling of radionuclide transport, especially in unsaturated media, and 3) development of methods for estimating the probabilities or frequencies of potentially disruptive processes and events.

The U.S. recognizes the presence of text in the draft opinion indicating that additional development of safety assessment methods is being pursued. However, the structure of the draft opinion invites citation of the phrase quoted above without including the accompanying qualifying statement. Such citation would be misleading and therefore the U.S. should express its reservations about the structure of the draft opinion.

ITEM 5 (B) PLANS FOR FUTURE
WORKSHOPS

AGENDA ITEM: 5 (b) Detailed Progress Report on Plans
for Future Workshops

REQUESTED ACTION:

At the January 1990 meeting, it was suggested that a workshop on gas generation and release modeling be undertaken.

U.S. RECOMMENDATION/POSITION:

The U.S. supports the development of an NEA workshop on gas generation and release modeling.

TALKING POINTS:

1. NRC staff work in the area of performance assessment indicated the need for an understanding of gas generation and release.
2. The U.S. should explore additional efforts to establish discussion areas for this type of workshop.

The relevant portion of
SEN/RWH(89)7 is attached.

Oral Report

AGENDA ITEM: 5 (d) Progress of Work in the Area of
Sorpton Data Base (SDB Project)

REQUESTED ACTION:

Members invited to consider this proposal, and to agree, as appropriate, on its implementation.

U.S. RECOMMENDATION/POSITION:

The U.S. DOE ^{supports} ~~does not participate in this project (the use of sorption coefficients is site-specific limited).~~ with respect to the development of an NEA workshop on sorption data and modeling.

TALKING POINTS:

None

BACKGROUND

The SDB, which contains about 11,000 distribution coefficients (K_d s) and corresponding experimental condition parameters describing the sorption behavior of a large suite of key radionuclides and solid and liquid phases, has been carefully reviewed and data entries have been proofed against original sources and examined for consistency in units. The SDB consists of nine high-density IBM-compatible diskettes plus a user's guide, and is being distributed free-of-charge. The data base operates with the dBase III Plus computer program.