

FEB 22 1994

MEMORANDUM FOR: Hugh L. Thompson, Jr.
Deputy Executive Director for
Nuclear Materials Safety, Safeguards,
and Operations Support
Office of the Executive Director for Operations

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

SUBJECT: FOREIGN TRIP REPORT

Margaret Federline of the Division of High-Level Waste Management and I participated as members of the U.S. Delegation in the 26th meeting of the OECD Nuclear Energy Agency (NEA) Radioactive Waste Management Committee (RWMC) held on January 20-21, 1994, at the NEA in Paris. Attached is a report which summarizes the key issues addressed by the Committee during the meeting. Serving as members of the delegation is of great benefit to the Nuclear Regulatory Commission as it provides us with a direct avenue of information exchange with other regulators who are facing similar policy and regulatory issues related to waste management and disposal. It also affords us an opportunity to contribute to RWMC initiatives and decisions which may directly influence the U.S. program. Among these are the development of a new collective opinion on the environmental and ethical aspects of waste disposal and prioritization of performance assessment initiatives which may directly contribute to the resolution of technical issues challenging our staff. The trip also allowed me to meet with Jean-Christophe Niel, Director, French Ministry in Charge of Industry, Nuclear Installations Safety Directorate, to discuss issues related to low-level waste performance assessment.

Also, attached is a foreign trip report abstract which has been forwarded to International Programs.

Original signed by
Robert M. Bernero

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

Enclosures:
As stated

cc: J. M. Taylor, EDO
G. Arlotto, NMSS
R. Brady, SEC/ADM
C. R. Stoiber, IP
J. Youngblood, HLWM
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FROM R.BERNERO, NMSS - FOREIGN TRIP REPORT - OECD NEA 1/17-22/94**

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DETAILED TRIP REPORT OF:

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

**Margaret V. Federline, Chief
Hydrology and Systems Performance Branch
Division of High-Level Waste Management
Office of Nuclear Material Safety
and Safeguards**

**SUBJECT: DETAILED TRIP REPORT ON THE NUCLEAR ENERGY AGENCY RADIOACTIVE WASTE
MANAGEMENT COMMITTEE MEETING, PARIS, FRANCE, JANUARY 20-21, 1994**

BACKGROUND AND PURPOSE:

Mr. Robert M. Bernero and Margaret Federline participated as members of the U.S. delegation in the 26th session of the OECD Nuclear Energy Agency (NEA) Radioactive Waste Management Committee (RWMC) held on January 20 and 21, 1994, at the NEA in Paris, France. The U.S. delegation was led by J. Saltzman, Acting Director of Strategic Planning and International Programs, Office of Civilian Radioactive Waste Management (OCRWM), Department of Energy (DOE). Other participants included W. Danker, International Program Coordinator, OCRWM/DOE; S. Schneider, WIPP Project Division Director, Office of Environmental Restoration and Waste Management, EM/DOE. Contractors supporting DOE/EM/WIPP at this meeting were D. Anderson, Sandia National Laboratory and D. Galson, Galson Sciences LTD. Mr. Bernero and Mrs. Federline prepared recommendations and coordinated with DOE prior to the meeting to agree on official U.S. positions on issues which required discussions and approval at the meeting.

ITEM 1. OPENING OF THE MEETING:

Dr. K. Uematsu, Director General of the OECD NEA, opened the meeting by welcoming Mr. Wallard, (ANDRA, France) the new RWMC Chairman, and other new delegates. He extended a special welcome to the Korean delegation who attended for the first time indicating that their participation in RWMC establishes proper communication channels for their strong nuclear program. The Director General also indicated that Mexico may be the next country to join the OECD. He encouraged the RWMC in their development of a new collective opinion on the ethical and environmental aspects of waste disposal.

ITEM 2. ADOPTION OF THE AGENDA AND SUMMARY OF THE PREVIOUS MEETING:

Mr. Olivier of the NEA Secretariat staff reviewed the agenda including a request by Canada for a discussion of an NEA peer review of the high-level waste (HLW) disposal concept in Canada. In addition, two requests were made by the U.S. delegation to discuss a Ukraine request to observe the Performance Assessment Advisory Group (PAAG) meeting and Coordination Group on Site Evaluation and Design of Experiments for Radioactive Waste Disposal (SEDE) meetings and a

request for an NEA peer review of the WIPP compliance application. The RWMC approved the agenda with the proposed additions.

ITEM 3. APPROVAL OF THE SUMMARY RECORD OF THE 25TH SESSION OF THE RWMC:

The summary record of the 25th meeting of the RWMC as documented in NEA/SEN/RWM (93)1 was approved.

ITEM 4. REPORT ON ACTIVITIES OF THE OECD AND NEA:

Mr. K. Stadie, Deputy Director of Safety and Regulation, NEA, reported on activities of the Steering Committee for Nuclear Energy and other NEA Committees of interest to the RWMC. He summarized and discussed activities which are documented in NEA/RWM/DOC(93)2. He noted that activities have been constrained by the "zero-growth budget" since 1977. A nominal increase of 1% in the 1994 budget was noted consistent with the additional contribution resulting from Korean participation. Related to efforts to establish a priority system within the OECD program, he noted that efforts to integrate the priorities of the NEA sub-programmes beyond the present Division level would not be continued. The Committee on Nuclear Regulatory Activities (CNRA) decided to hold a special meeting in summer 1994 devoted to the closure of severe accident issues for evolutionary reactor designs. The NEA has initiated a joint CSNI/CNRA/CRPPH/RWMC group to consider the issue of potential exposure. The NRC is preparing a background paper for consideration by this group. CRPPH organized a successful international nuclear emergency exercise in the spring of 1993 with the participation of 17 countries. The results of this exercise were viewed as extremely beneficial as a source of recommendations for the improvement of emergency planning and preparedness in member countries.

Mr. G. Stevens, Head of the Nuclear Development Division, NEA, discussed activities of the Nuclear Development Committee. He reported on a joint NEA/IEA/IAEA/CEC report which shows that the real cost of the nuclear fuel cycle has come down by about 40% since 1985. He also discussed a planned NEA general information exchange which will include the presentation of approaches to systems studies of incorporating partitioning and transmutation into the fuel cycle. A concern was expressed about potential duplication with IAEA work, but the French delegate indicated that the IAEA work will focus on safety and environmental factors rather than systems studies.

Mr. Stadie then described activities leading to the NEA's "disassociation" from the planned March 1994 Ukrainian seminar on Chernobyl. Mr. J. Saltzman, DOE, then discussed a Ukrainian request to the DOE to lead a multi-national effort in performance assessment. DOE indicated that such multi-national work was conducted through NEA's PAAG and SEDE and requested guidance from the RWMC guidance on the possibility of Ukrainian observer status in these two activities. RWMC indicated that observer status may be possible, but requested clarification on what role the Ukraines

expected to play.

ITEM 5. PERFORMANCE ASSESSMENT:

Discussions of performance assessment activities were initiated by Dr. C. Pescatore of the Secretariat staff who presented an overview of the 9th meeting of the RWMC PAAG held in Paris in September 1993. The summary record of the 9th meeting was approved by RWMC. PAAG's intention to develop a position document on validation was well received by the RWMC. Dr. Pescatore discussed PAAG's plans to concentrate on the subject of model validation for several years. PAAG's efforts will be focused on the development of a document to explain what validation means in the context of confidence building for models in proving a safety case over the long periods involved in high-level waste disposal. The efforts between the NRC and the SKI to develop a regulatory strategy for confidence building were acknowledged as an important component of this activity. Several RWMC members encouraged PAAG to define differences with the IAEA definition of validation since a general consensus exists that scientific validation in the normal sense of the work cannot be achieved for long periods. PAAG was urged to explore a definition which is not as strict as that of IAEA yet is still workable in terms of enhancing confidence. Mr. Bernero urged PAAG to continue the debate on how far we can go toward building confidence, noting that the work is very important. The Canadian representative emphasized the importance of using an ensemble of modelling tools iteratively to prove a safety case and indicated that a process for confidence building would be more suitable than a rigid approach to validation.

Mr. Soren Norrby, SKI and Vice-Chairman of the RWMC, introduced a proposed follow-on activity to INTRAVAL. INTRAVAL which was initiated in 1987 and was concluded in 1993 focussed on enhancing the understanding and modelling of geosphere transport utilizing information from field experiments and natural analogue. The proposed follow-on activity would provide a forum for participating organizations to share data and modelling approaches in addressing geosphere heterogeneity. The NRC has been actively involved in meetings and discussions to ensure that this new activity will assist us in the resolution of difficult technical issues which are critical to the development of compliance determination methods and iterative performance assessment. NEA staff described the early thinking in the formulation of this project. RWMC members commented and NEA staff noted that this initiative would not be focused around a single test case, but each participant would discuss solutions to issues relevant to each national repository program making the results of the work more directly applicable. Several RWMC members provided comments on the scope and endpoint of the activity which will be useful to PAAG in finalizing plans for the project.

Dr. Pescatore also indicated that PAAG has established a working group to propose a program of work for integrated performance

assessments. Several total system performance assessments have been completed and PAAG believes that it is important to understand the strategies that underlie these analyses. It is also important to understand commonalities and differences and the motivation for these. A pre-working group has been established to determine how these can best be examined.

PAAG's recommendation to phase out the Probabilistic Systems Assessment Working Group (PSAG) was discussed by Dr. Pescatore and approved by the RWMC. PSAG has made a number of notable accomplishments including the PSACOIN code intercomparison exercises. However, PAAG felt that PSAG may not be well suited for the current status of methodology development in various countries and that countries must devote scarce resources to the development of their own national methodologies. In the future, focused working groups may be formed to address well-defined issues in this area.

Dr. Reugger of the NEA staff reported on the situation in the field of geochemistry focusing on surface complexation modelling, the sorption database, and the thermodynamic database. He discussed an informal expert meeting on the use of surface complexation models (SCM) for representing sorption phenomena in natural systems held at Stanford University in April 1993 in which models were said to be promising. It was noted that data relating models to the natural system are lacking and data are planned to be collected in a demonstration project. Effort will be directed at a limited number of materials to demonstrate the utility of SCM for predicting behavior of natural systems. The NEA staff also discussed the sorption database and the thermodynamic database. The RWMC noted their interest in following this progress.

Dr. D. R. Anderson, Sandia National Laboratories and Working Group Chairman, presented a report on the assessment of future human actions at radioactive waste disposal sites. The work of the group was outlined, main areas of consensus were presented, and areas which require further work were discussed. The report was well-received by RWMC, but a major point of discussion among RWMC members was whether human intrusion should be addressed separately in calculating overall risk from the repository. The workgroup recommended and RWMC endorsed the formation of a new workgroup with a large participation of regulators to focus on regulatory issues associated with assessing the risks associated with human intrusion. Comments on the report were requested from RWMC by the end of February to finalize the report and it was agreed that a new work group with regulatory participation would be formed.

S. Schneider, DOE Project Manager for the Waste Isolation Pilot Project (WIPP) requested NEA to undertake a peer review of the WIPP draft compliance application which includes the performance assessment for WIPP in 1995. RWMC agreed in concept to the request, noting that peer review is a specific function of NEA. The RWMC assigned this task to PAAG and noted that timing and level of effort

will have to be agreed upon.

SCHEDULING OF NEXT RWMC MEETING:

Mr. J. P. Olivier, Head of the Division of Radiation Protection and Waste Management, proposed that because of recurring scheduling conflicts, RWMC meetings be moved to the second week in March each year. Next year's meeting will be scheduled during the week of March 6, 1995. RWMC agreed to this proposal.

ITEM 6. IN SITU RESEARCH AND SITE CHARACTERIZATION MATTERS:

Dr. Patera of the NEA staff summarized the 4th meeting of the SEDE which was held in Sellafield, England in November 1993. The meeting which was hosted by Nirex was followed by a tour of the site characterization activities at the Sellafield site. SEDE initiated an ongoing discussion of the role of the geosphere barrier in safety assessments with a presentation from the Finnish representative. The significance of this topic to PAAG was recognized and noted as a potential subject for interface. Nirex discussed plans for the underground test program at Sellafield and NAGRA discussed research being carried on at the Grimsel Test Site. A topical seminar was also conducted on the approaches and interpretations of seismic studies. Mr. Patera discussed areas of general agreement regarding SEDE's proposed program of work. Information exchange was cited as the major objective and the need for interface with PAAG on a number of issues was recognized. Focus items including underground testing, role of geosphere barrier in safety assessment, and use of hypothesis testing to question scientific work were reported. Workshops including geosphere model validation, field tracer transport experiments, and characterization of long-term geological changes were proposed. Several RWMC representatives expressed concern about overlap between GEOVAL and the SEDE workshop on geosphere validation and SEDE was urged to coordinate with PAAG. Dr. Patera also reported progress of the SEDE working group on measurement and understanding of groundwater flow through argillaceous media. In summary, RWMC noted the good progress of SEDE and recognized the opportunity for SEDE and PAAG to cooperate in these new initiatives.

OECD ON-LINE INFORMATION SERVICE:

Following the RWMC meeting, on the evening of January 20, Margaret Federline attended a special briefing by staff of the NEA Directorate for Computers and Communication regarding the OECD On-Line Information Service (OLIS). This information service would provide NRC authorized users with online access to official NEA documents, statistics, and electronic mail avoiding the routine delay encountered in receiving important documents for comment due to the mail. Minimum requirements appeared compatible with agency standards for hardware. If this service is not already available to the NRC staff, it is recommended that communications options be

evaluated and that access to OLIS be pursued.

ITEM 7. OTHER ACTIVITIES:

The RWMC meeting continued on the morning of January 21 with a discussion of the preparation of an RWMC collective opinion on the environmental and ethical aspects of geologic disposal. The concept of this new collective opinion was proposed at the 25th RWMC meeting by ANDRA and generally accepted by the group. Cooperation with the OECD Environmental Directorate was to be sought in the development of the collective opinion. In preparation for this discussion by the full Committee, Mr. Bernero and Mrs. Federline participated in a meeting of the RWMC Bureau on January 19 to discuss the focus and structure of a proposed workshop. The workshop is intended to review available information and exchange views on the environmental and ethical aspects of geologic disposal as a basis for the development of the collective opinion. Since the Environmental Directorate will not be able to join in the drafting of a collective opinion due to resource constraints, the workshop would serve as an important means to hear and discuss concerns from outside the radioactive waste management community. Proceedings of the workshop would be published as a reference for the collective opinion.

Based on the extensive discussions in the Bureau meeting of the ethical issues for waste disposal, it was decided that a change in the approach and timeframe for this effort would be appropriate. General views were expressed that the objective of the workshop should be to evaluate whether geologic disposal is ethically and environmentally sound considering the need to maintain an option for retrievability so as not to foreclose options for future generations. It was decided that a background paper would be needed to set the context of discussions in the workshop and to focus presenters and discussants. Issues on which the workshop may focus include dispersion versus containment of wastes, consideration of alternative radioactive waste management options, institutional control measures, retrievability and the potential to foreclose options, and liabilities to future generations. Comments were sought from RWMC members on these and other issues. The background paper will be developed by the Secretariat staff with input from the RWMC Bureau and Committee members to establish the objective of the workshop and to establish questions to be answered. During the full RWMC meeting many representatives urged that the objective of the collective opinion should be to evaluate whether environmental and ethical issues have been thoroughly addressed in achieving a consensus that gradual progress to geologic disposal is the best option. Also, a discussion of the audience for the collective opinion seemed to conclude that its focus should be on decision makers and that an effort should be made to identify and address the full range of environmental views. A general schedule was proposed and adopted by RWMC including preparing the workshop program and background by spring 1994, conducting the workshop by November 1994, and developing a draft of the collective opinion by early in 1995

with discussion of the draft at the RWMC meeting in March 1995.

On a related matter, the RWMC considered a proposal from the delegate from the Netherlands for an informal exchange of views on radioactive waste management which involved mobilizing the world's top scientists to take an unconventional, fresh look at the technical issues involved in waste disposal. This review would be directed at determining if different or revolutionary new approaches exist. After discussion, the RWMC decided that a more appropriate time to consider this proposal would be after the development of the new collective opinion. Others believed that mobilizing the top scientists exaggerates the technical difficulty of waste disposal tasks.

Following a report on the Co-operative Program for the Exchange of Technical Information concerning Decommissioning Projects, including a report of the increasing number of projects that want to participate, the RWMC emphasized the importance of this program to information exchange. The Swedish representative also urged coordination with CSNI on decommissioning activities.

The RWMC reviewed the work of the Coordinated Research and Environmental Surveillance Programme on Sea Dumping (CRESP) noting that since the London Convention does not allow sea dumping there is little motivation to continue the CRESP Program and RWMC participation will be completed next year. Belgium noted some confusion in that the London Convention only covers dumping of solid waste, not liquid discharges and urged the NEA to monitor the resolution of this confusion.

Written and oral presentations were made by member countries and international organizations focusing on recent highlights and developments in their programs. Written summaries are available from Mrs. Federline. Mr. J. Saltzman (DOE) and Mr. R. Bernero (NRC) presented highlights of the U.S. Program.

The RWMC reviewed the status and endorsed continued publication of the NEA Nuclear Waste Bulletin.

The Chairman thanked attendees and noted that the next meeting is scheduled for March 8-10, 1995.

TRIP REPORT ABSTRACT
DATE OF REPORT
2/18/94

OFFICIAL TRAVELER:
Robert M. Bernero
Margaret V. Federline

TRAVEL TO: OECD Nuclear Energy Agency
Paris, France

BEGINNING ON: 1/17/94

ENDING: 1/22/94

OFFICE: Office of Nuclear Material Safety and Safeguard
Division of High-Level Waste Management
Hydrology and Systems Performance Branch

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MEETING TITLE AND/OR AFFILIATION:
Nuclear Energy Agency - Radioactive Waste Management Committee Meeting

ORGANIZED BY: Nuclear Energy Agency Secretariat

SUMMARY OF MEETING RESULTS:

Mr. Robert M. Bernero, Director, Office of Nuclear Material Safety and Safeguards and Margaret Federline, Chief, Hydrology and Systems Performance Branch, Division of High-Level Waste Management, participated as members of the U.S. delegation in the 26th meeting of the OECD Nuclear Energy Agency (NEA) Radioactive Waste Management Committee (RWMC) held on January 20-21 at the NEA in Paris. The U.S. delegation was led by J. Saltzman, Acting Director of Strategic Planning and International Programs, Office of Civilian Radioactive Waste Management (OCRWM), Department of Energy (DOE). Prior to the meeting on January 19, Mr. Bernero and Mrs. Federline also participated in a meeting of the RWMC Bureau to discuss approaches for developing a new collective opinion on the environmental and ethical aspects of radioactive waste disposal.

Dr. K. Uematsu, Director General of the OECD NEA, opened the RWMC meeting by welcoming Mr. Wallard (ANDRA, France), the new RWMC Chairman and other new delegates. He extended a special welcome to the new Korean delegation indicating that participation in RWMC establishes appropriate communication channels for their nuclear program. He indicated that Mexico may be the next country to join the OECD. He emphasized the importance of the development of the new collective opinion on environmental and ethical aspects of waste disposal in moving toward more coherent long term environmental protection policies.

Other activities of the OECD and NEA of particular interest to the RWMC were discussed including the "disassociation" of the NEA from the planned March 1994 Ukrainian seminar on Chernobyl. The "zero-growth" budget status since 1977 was noted with the observation that the 1994 budget would be increased by a nominal 1% with the additional contribution from Korean participation.

The good work of the Performance Assessment Advisory Group (PAAG) to the RWMC was noted as a result of the overview of the activities of this group. Discussions focused on the PAAG's efforts to define a process for confidence building for models in supporting a safety case over the long periods of interest in high-level waste disposal. Efforts of the NRC and the SKI to develop a regulatory strategy for confidence building were acknowledged as an important component of this activity. RWMC also supported the concept of a follow-on to INTRAVAL which would focus on enhancing the understanding and modelling of geosphere transport. The NRC has been actively involved in defining this new activity to ensure that it is focused on issues which will contribute to the development of compliance determination methods and iterative performance assessment. PAAG's recommendations to phase out the Probabilistic Systems Assessment Working Group which was supported by the NRC was approved by the RWMC. A report on the assessment of future human actions at radioactive waste disposal sites was well received and RWMC supported the formation of a new work group with strong participation of regulators to address regulatory issues related to the risks associated with human intrusion. NRC plans to participate in this work group.

RWMC noted the good progress of the Coordination Group on Site Evaluation and Design of Experiments for Radioactive Waste Disposal (SEDE) in which NRC participates and acknowledged initiatives for cooperation between SEDE and PAAG.

RWMC agreed in concept to a request from DOE to undertake a peer review of the WIPP draft compliance application including the performance assessment for WIPP in 1995. Such a request to review the Canadian safety case was also approved.

A major initiative of the RWMC is the development of a new collective opinion on the ethical and environmental aspects of waste disposal. Mr. Bernero and Mrs. Federline participated in an RWMC Bureau meeting on January 19 and discussion by the full Committee on January 21 of this important matter. Following extensive discussion, it was decided to hold a workshop by November 1994 with a background paper prepared by RWMC prior to the workshop to define the objective and to focus workshop participants on appropriate issues. Participation in the workshop will be limited to RWMC members and invited presenters, and proceedings will be published as a reference for the collective opinion. A draft of the collective opinion will be developed by RWMC members by early in 1995 with discussion of the draft at the next RWMC meeting in March 1995. International agreement on the ethical issues which underlie the motivation to dispose of waste rather than imposing the burden on future generations will be extremely important. It will serve as a basis for national decisions to continue to move forward with geologic disposal while recognizing the need to maintain an option for retrievability so as not to foreclose options for future generations.

Written and oral presentations were made by member countries and international organizations focusing on recent highlights and developments in their programs. Mr. J. Saltzman (DOE) and Mr. R. Bernero (NRC) presented highlights of the U.S. program. The RWMC endorsed a proposal that annual RWMC meetings be moved to March with the next meeting held on March 8-10.

Also, following the RWMC meeting on the evening of January 20, Mrs. Federline attended a special briefing by the staff of the NEA Directorate for Computers and Communication regarding the OECD On-Line Information Service. If this service is not already available to authorized NRC staff members, it is recommended that it be evaluated because it would provide online access to official documents, statistics, and electronic mail avoiding the routine delay that is encountered in receiving important documents for comment due to delays in the mail.

In summary, participation in the U.S. delegation to the RWMC is of great benefit to the NRC as it provides a direct avenue of information exchange with other regulators who are facing similar policy and regulatory issues related to waste management and disposal, providing a forum to discuss areas of agreement and disagreement relevant to our own national system. It also affords an opportunity to contribute to RWMC initiatives and decisions which may directly influence the U.S. program. Among these are the development of a new collective opinion on the environmental and ethical aspects of waste disposal and prioritization of performance assessment initiatives which may directly contribute to the resolution of technical issues challenging the NRC staff. In a time of resource constraints it allows us to take advantage of the progress of other experts on similar or related issues. In addition to the RWMC meeting, the trip also provided an opportunity to meet with Jean-Christophe Niel, Director, French Ministry in Charge of Industry, Nuclear Installations Safety Directorate, to discuss issues related to low-level waste performance assessment.