

CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES

TRIP REPORT

SUBJECT: International Conference on Deep Geological Disposal of Radioactive Waste
20-5708-561

DATE/PLACE: September 16-19, 1996
Winnipeg, Manitoba, Canada

AUTHOR(S): Peter C. Lichtner

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PERSONS PRESENT: P.C. Lichtner (CNWRA). Total attendance was approximately 250 representing 19 countries.

BACKGROUND AND PURPOSE OF TRIP:

The September 1996 International Conference on Deep Geological Disposal of Radioactive Waste was held in Winnipeg, Canada. Speakers from 19 countries, with the notable exception of Russia, attended the conference. Special sessions were focused on International Trends in Geological Disposal and Views on Confidence Building in Radioactive Waste Management, Excavation Disturbed Zone (EDZ) Workshop, Educator's Program and Workshop, and a Roundtable Discussion on Social Issues in Siting.

The purpose of the trip was to attend the International Conference on Deep Geological Disposal of Radioactive Waste and present a paper co-authored with M. Seth entitled *Multiphase-multicomponent nonisothermal reactive transport in partially saturated porous media*. In addition to attending the conference, I attended a tour of the Underground Research Laboratory (URL) and Whiteshell Laboratories of Atomic Energy of Canada Limited (AECL).

BRIEF DESCRIPTION OF THE MEETING AND SITE VISIT TO URL AECL:

The conference was divided into three plenary sessions. The first two were on the subject of International Trends in Geologic Disposal, and the third was on Views of Confidence Building in Radioactive Waste Management. In addition to the plenary sessions, there were nine parallel sessions, three each day, on technical, regulatory, and social issues.

Yucca Mountain (YM) did not play a predominant role at the meeting possibly because of recent budget constraints but perhaps also because of the unique location of the YM proposed repository in a partially saturated environment. This setting is very different from all other countries which plan to emplace their waste deep in the saturated zone.

Below are specific comments on several of the presentations (conference proceedings are available from the author):

- Lee et al. (INTERA, Inc.) presented results of a sensitivity study of engineered barrier system (EBS) release rate due to dripping using two different conceptual models. The

first scenario assumed dripping water directly contacted the waste form, and the second assumed water is diverted around the waste package and does not directly contact the waste form. The calculations were based on J-13 groundwater and did not take into account a possible increase in salinity and pH due to near-field evaporative processes.

- T.W. Bjerstedt [U.S. Department of Energy (DOE)] gave an overview of the DOE high-level waste (HLW) program at YM to a sparsely attended audience on Thursday afternoon in the parallel technical session of siting and site characterization. He noted that DOE had not yet decided if engineered barriers would be employed at the site. No mention was made of the recent discovery of ^{36}Cl at YM.
- G.E. Dials of the DOE discussed the current state of the WIPP site, the proposed U.S. repository for disposal of some 139,000 m³ of transuranic radioactive waste (TRUW).

Canada appeared to be leading the way internationally in their rational approach towards proposing a suitable repository site deep in the Canadian Shield. Site-specific work will not begin until the program has been thoroughly reviewed by an expert panel. The review process is currently in progress.

Switzerland, as well as several other countries, expressed hope for an international solution for the disposal of HLW at some time in the distant future.

Japan is currently conducting basic research to develop a safe strategy for geological disposal. Earthquakes are not expected to present a problem for sufficiently deep repositories where earth movement is expected to be much less compared to the surface. Japan has three sources of HLW: (i) present operational wastes generated from the Tokai reprocessing plant, (ii) HLW returned from overseas, and (iii) future operation of the reprocessing plant under construction at Rokkasho. The present time schedule is to start repository operation by the year 2030-40. By this time, it is estimated that there will be 40,000 to 50,000 canisters of vitrified waste.

Most countries emphasized the importance of early involvement of the public during the site characterization and selection process.

The site visit to the URL and the Whiteshell Laboratory, located northeast of Winnipeg in the Lac du Bonnet batholith in the Canadian Shield, was perhaps the most interesting part of the trip. A number of completed and ongoing underground experiments were observed at the URL. These included the buffer/container experiment, mine-by experiment, and excavation stability.

IMPRESSIONS/CONCLUSIONS:

The meeting was well attended. It provided interaction on an international level between participants to discuss and compare experiences with HLW disposal.

PROBLEMS ENCOUNTERED:

None.

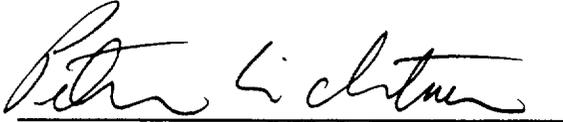
PENDING ACTIONS:

None.

RECOMMENDATIONS:

This meeting and similar meetings provide useful information of current advances in the safe disposal of radioactive waste world-wide, and participation should remain an active part of the CNWRA staff activities.

SIGNATURES:

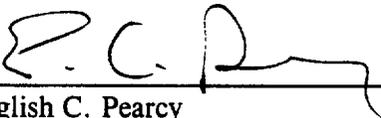


Peter C. Lichtner
Principal Scientist

12/19/96

Date

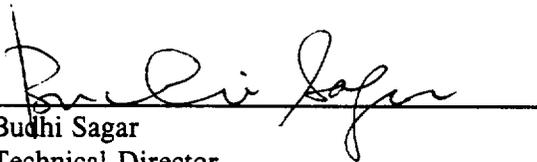
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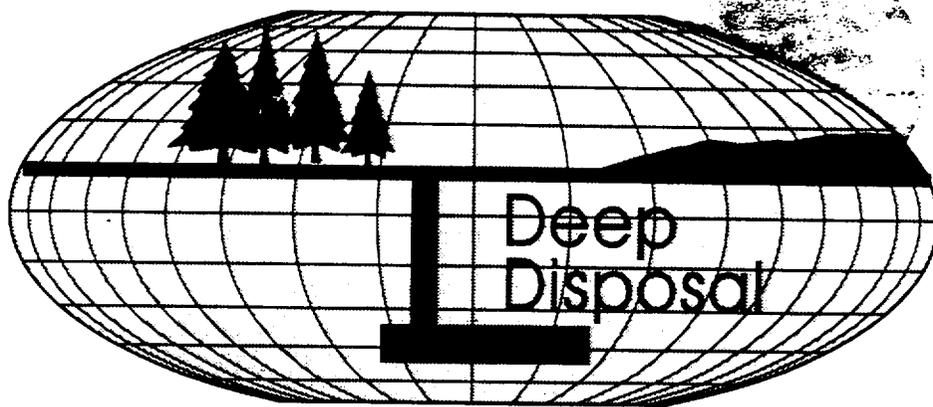
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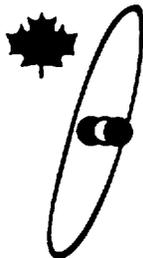
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Canada

International Conference on Deep Geological Disposal of Radioactive Waste

1996



Conference Proceedings



Canadian Nuclear Society
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1996

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