see pocket 2 for enclosure

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MEMORANDUM FOR: John T. Greeves, Acting Chief
Engineering Branch
Division of Waste Managmenet

FROM: Kien C. Chang
Engineering Branch
Division of Waste Management

Thomas L. Jungling
Engineering Branch
Division of Waste Management

SUBJECT: TRIP REPORT BY K. C. CHANG AND T. L. JUNGLING ON THEIR ATTENDANCE AT THE 1983 ANNUAL MEETING OF THE MATERIALS RESEARCH SOCIETY, NOVEMBER 14-17, 1983, BOSTON, MASSACHUSETTS

The workshop attended was Symposium D "Seventh International Symposium on the Scientific Basis for Nuclear Waste Management".

1. There were a total of 11 sessions:

    1. Repository Relevant Research: Salt (Europe, WIPP)
    2. Repository Relevant Research: Basalt
    3. Repository Relevant Research: Granite
    4. Repository Relevant Research: Tuff
    5. Repository Relevant Research: Salt (Texas, Utah, Mississippi)
    6. Summary of National Academy of Sciences: Report on Radwaste Disposal
    7. Poster Session on: Waste Form Development and Characterization, Leaching and Waste Package Investigation, Repository of Far-Field Related Investigations
    8. Modeling
    9. Leaching Source Term Investigations
    10. Far Field, Sorption and Migration
    11. Waste Form and Related Materials Evaluation and Characterization

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Enclosure 1 is a copy of the final program. Enclosures 2 and 3 are some notes on those presentations which we considered to be of interest to present and future work done under the Materials Section of WMEG.

2. Attendance by representatives from projects sponsored by Materials Section of WMEG included D. Schweitzer, Peter Soo and C. Sastre of BNL, Clyde Claiborne of ORNL and Ron Johnson of Aerospace Corp.

   C. Sastre made a presentation on "Probabilistic Reliability Analysis of High-Level Waste Packages" (D8.7). The talk was very general with no viewgraphs used. The content was summarized in the Book of Final Program and Abstracts.

3. Some Observation and High-Lights of the Symposium.

   a. The overall quality of the presentation is varied with some speakers finding inadequate time to present all the results within the 15 to 30 minutes allocated to their presentations while others simply repeated the content of the abstracts written for their works. None of the speakers addressed the quality of their data they used in their studies. A few speakers mentioned the importance of the subject of uncertainty of the results/data of their studies. But, none attempted to analyze the implication of the variance on their results/conclusions. A few speakers indicated that they were planning to include uncertainty analysis in the future. Item 4 of this report tabulates some of the papers which may be of use to NRC's work under WMEG's Materials Section.

   b. A three member review panel (G. A. Cowan of Los Alamos Lab., C. A. Heath of NUS Corp. and D. D. Runnells of U. of Colorado) discussed and commented on the research and waste program as presented in this symposium (See notes on D6.2)

      They were optimistic on the general progress made in repository relevant research. They felt that a waste package could be designed to meet NRC and EPA requirements and that the problems we had identified were soluble with our present and projected knowledge.

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The panel identified a few problems and weaknesses in the program. A lot of the work above were unfocused with inadequate quality control and little was done to address uncertainties and error analysis of their studies.

c. Presentations of studies conducted in countries other than the U.S. included those done in Canada, FRG, Finland, France, Greece, Italy, Japan, the Netherlands, Sweden, and U.K.. In general, these presentations indicated that these countries had been taking an approach much more focused than that taken by the U.S.. They were considering the use of a fewer number of waste forms and waste package designs in a few repository sites. None of these presentations discussed technical criteria (the counter parts of 10 CFR 60 and 40 CFR 191) they planned to meet.

4. Enclosures 2 and 3 are some notes on the presentations which may be reviewed with the forthcoming symposim proceedings for input to Materials Section's projects on the waste package. The following is a cross reference of some of these presentations:

a. Parametric Values of Chemical processes:

Salt:	D1.7, D1.8, D1.9, D5.1 to D5.9
BWIP:	D2.2
Granite:	D3.5, D3.6
Tuff:	D4.5

b. Backfill Properties and Performance:

D1.9, D1.10, D2.4, D2.5

c. Instrumentation and in situ tests:

D1.10, D2.10, D9.3

d. Modeling:

Corrosion of iron base materials D2.5, D2.6, D4.6, D5.10

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Spent Fuel Leaching D5.11, D3.3, D4.7, D9.1, D9.5, D9.6

Waste Package D5.12, D4.9

Radionuclide travel time D2.11, D3.4

Radionuclide release rate D6.3, D3.1, D9.7

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Enclosures:
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