

July 15, 2005

MEMORANDUM TO: John N. Hannon, Chief
Plant Systems Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

FROM: Michele G. Evans, Chief **/William E. Kemper for/**
Engineering Research Applications Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

SUBJECT: TRANSMITTAL OF INFORMATION SUMMARIZING
INTEGRATED CHEMICAL EFFECTS TESTING RESULTS AND
IMPLICATIONS TO DATE

The Integrated Chemical Effects Testing (ICET) program is being conducted under a joint memorandum of understanding between the NRC Office of Nuclear Regulatory Research (RES) and the Electric Power Research Institute (EPRI) to address concerns about the possible deleterious impact from chemical reaction products on emergency core cooling system (ECCS) performance during recirculation following a hypothetical Loss-of-Coolant Accident (LOCA). The primary objectives for the ICET series are to (1) determine, characterize, and quantify chemical reaction products that may develop in the containment pool under a representative post-LOCA environment; and (2) determine and quantify any amorphous or gelatinous material that could be produced during the post-LOCA recirculation phase.

The integrated chemical effects test (ICET) series was developed as a limited-scope suite of five different tests. Each test represents a unique containment pool environment that is intended to represent conditions applicable to a portion of the commercial PWR plants. The background summary pertaining to the selection of test conditions and requirements for the ICET program is enclosed [Attachment 1]. Test condition and observation summaries are enclosed from the first three ICET runs [Attachments 2 - 4] to summarize the important test observations based on the analyses to date with respect to the ICET objectives above. These summaries are provided to support regulatory activities associated with GL2004-02. Additionally, a description of some possible implications to be considered when evaluating the GL2004-02 responses is enclosed [Attachment 5]. These implications were developed jointly with NRR staff in the Division of Engineering.

It is intended that all these attachments be placed on the GSI-191 website and used to inform the public about current findings related to the ongoing ICET program. Test condition and observation summary reports pertaining to each ICET runs #4 and #5 will be provided upon completion of the tests and the necessary analyses. The implication summary [Attachment 5] will also be updated as necessary to reflect information obtained during these subsequent ICET tests. As additional information is transmitted after ICET tests #4 and #5, it is requested that this information also be placed on the GSI-191 website.

Separate data reports pertaining to each unique ICET test will also be transmitted upon completion. These reports will provide more details concerning the test conditions and test observations, and will contain a more comprehensive study of any chemical by-products that form during these tests.

Attachments:

1. ICET Program Background
2. ICET Test #1 (NaOH and 100% Fibrous Insulation): Test Conditions and Observations
3. ICET Test #2 (TSP and 100% Fibrous Insulation): Test Conditions and Observations
4. ICET Test #3 (TSP and 80% Cal-Sil and 20% Fibrous Insulation): Test Conditions and Observations
5. Implications of ICET Program Results

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5. Implications of ICET Program Results

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