



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

June 5, 1979

MEMORANDUM FOR: Ronald M. Scroggins, Director  
Administrative and Resource Control Staff  
Office of Nuclear Regulatory Research

FROM: Peter E. McGrath, Acting Director  
Probabilistic Analysis Staff  
Office of Nuclear Regulatory Research

SUBJECT: REQUEST FOR INFORMATION FROM PRESIDENTIAL COMMISSION

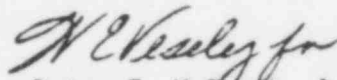
Following is information you requested regarding assistance provided the Probabilistic Analysis Staff/RES by individuals/organizations outside NRC to assist in the TMI-2 emergency. These actions were initiated soon after the incident and were continued through April 1979.

1. Battelle Columbus (Dr. Richard Denning)
  - a. Performed MARCH/CORRAL analysis of hypothetical meltdown scenarios for contingency planning to predict melt process timing and radionuclide releases for various assumptions.
  - b. Pebble bed calculations for natural circulation through the damaged core in order to predict core thermal behavior when secondary side cooled down and pump tripped.
  - c. Hydrogen explosion analysis--potential effect of hydrogen explosion in upper head. Included detonation limits, stress in vessel in event of an explosion, using HELP code.
  - d. External cooling of lower head of the reactor vessel to determine whether and under what circumstances the vessel could be cooled in event of core melt.
  - e. Advice and comment on proposed containment vents and filter systems.
2. Sandia Laboratory (Mr. David McCloskey)
  - a. Performed ORGEN calculations of core radioactive inventory specific to TMI-2.
  - b. Evaluated vulnerability of components to radiation and submergence.

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- c. Analyzed hydrogen burning/explosion potential, to include impulse requirements and structural consequences.
  - d. Performed studies on hydrogen solubility and water chemistry.
  - e. Performed analysis on coolability of damaged reactor core.
  - f. Developed conceptual design of a contingency filtered venting system for containment.
3. ORNL (Dr. Fred Mynatt)
- a. On-site activities included radiation monitoring, chemical analysis of liquid/gaseous effluents, monitoring and clean-up of auxiliary building, and instrumentation and diagnostics.
  - b. Direct/dedicated efforts at the lab included:
    - 1. Analysis of cooling of disrupted core,
    - 2. Analysis of fuel and cladding effects,
    - 3. Analysis of primary coolant water samples,
    - 4. Radiation effects and core nuclear analysis,
    - 5. Radiation shielding analysis,
    - 6. Hydrogen chemistry, and
    - 7. Support for instrumentation and diagnostics.



Peter E. McGrath, Acting Director  
Probabilistic Analysis Staff  
Office of Nuclear Regulatory Research

cc: Lawrence Vandenberg, OMPA

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