

**Response to Constituent Questions from Senator James E. Risch
Letter of November 3, 2011**

1. The agency intends to compare the data from two of the NRU tests to TRACE predictions of those experiments as part of its overall assessment of the code. So, I would like to have Senator Risch to find out (for me):

- 1. The data and details of those two of the NRU tests.**
- 2. The results of the TRACE predictions of those experiments.**
- 3. The value of those predictions in "... its overall assessment of the code."**

The NRC had originally planned to assess NRC's TRAC/RELAP Advanced Computational Engine (TRACE) thermal-hydraulic code against several National Research Universal (NRU) tests. However, as we further investigated, we found some problems with NRU data and that the NRU data were not well suited for reflood assessment of TRACE. We ultimately used thermal hydraulic reflood data from other facilities to assess TRACE for these phenomena. The NRC's conclusions regarding the adequacy of TRACE assessment are included in the TRACE 5.0 Development Assessment Manual, referenced in the response to inquiry #2 below.

With regard to Mr. Leyse's request for data and details on NRU tests, the NRC previously provided a list of references documenting the NRU test facility and data to Senator Larry Craig in a letter dated April 11, 2007. Senator Craig's letter appears to have been attached to Mr. Leyse's correspondence with your office.

2. I would also like to have the Senator find out (for me) about the matters that are discussed in the last sentence of the third paragraph. NRC must describe " ... the other suitable experiments," and the pertinence of those other suitable experiments to "... its code development program"

The TRACE 5.0 Development Assessment Manual describes the assessment of the TRACE code against experimental data. It documents the assessment of TRACE using data from several facilities that the NRC have found sufficient to assess this code for reflood thermal-hydraulics. This manual is available in the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession Number ML071200505 (<http://adamswebsearch2.nrc.gov/IDMWS/ViewDocByAccession.asp?AccessionNumber=ML071200505>).

3. What does TRACE tell us about Fukushima? What was the temperature in the core of each Fukushima boiling water reactor when hydrogen production began?

The NRC has not quantitatively analyzed the Fukushima accident sequence. However, the NRC has received a petition for rulemaking (PRM)-50-103, dated October 14, 2011 (available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML11301A094) that requests the NRC to revise its combustible gas control regulations in response to the Fukushima Dai-ichi accident. The NRC will consider the issues raised by the PRM through the process the Commission has established for addressing the recommendations

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from the Fukushima Task Force Report, although the NRC must defer this review until additional information on combustible gases becomes available through further study of the Fukushima accident.

In addition, the U.S. Department of Energy is conducting forensic analysis of the Fukushima event and has invited the NRC to participate in this effort. If, as part of this effort or in addition to it, the NRC decides to perform accident sequence analysis of the Fukushima event in the future, the agency will decide at that time what computational tools to use for the analysis.