

September 30, 2009

MEMORANDUM TO: Michael J. Case, Director  
Division of Engineering  
Office of Nuclear Regulatory Research

THRU: Aladar A. Csontos, Chief */RA/*  
Component Integrity Branch  
Division of Engineering  
Office of Nuclear Regulatory Research

FROM: Mark T. EricksonKirk, Senior Materials Engineer */RA/*  
Component Integrity Branch  
Division of Engineering  
Office of Nuclear Regulatory Research

SUBJECT: TRIP REPORT: INTERNATIONAL ATOMIC ENERGY AGENCY  
COURSE ON PRESSURIZED THERMAL SHOCK GIVEN IN  
SHANGHAI, CHINA

The attached trip report satisfies the requirements for both a 7-day quick look and a 30-day report for the subject trip.

Enclosure:  
As stated

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OFFICE	RES/DE/CIB	RES/DE/CIB
NAME	M. Kirk	A. Csontos
DATE	09/30/09	09/30/09

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## International Trip Report – Trip DE-undesigned

### Subject:

Provide a training course on probabilistic and deterministic assessment schemes for pressurized thermal shock (PTS) that was coordinated by the International Atomic Energy Agency (IAEA)

### Dates of Travel, Countries and Organizations Visited:

September 19-24, 2009

Peoples' Republic of China

Shanghai Nuclear Engineering Research and Design Institute (SNERDI)

### Authors, Title and Agency Affiliation:

Mark T. EricksonKirk, Senior Materials Engineer

Component Integrity Branch, Division of Engineering, Office of Nuclear Regulatory Research

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Sensitivity: N/A

### Background and Purpose of Trip:

IAEA provided a training course on probabilistic and deterministic assessment schemes for PTS. The course was given to the Chinese nuclear power plant (NPP) design company SNERDI. IAEA paid the traveler's expenses through the U.S. Nuclear Regulatory Commission (NRC) per M.D. 14.1. The traveler presented information that is already in the public domain arising from the NRC's efforts to develop a risk-informed revision to the PTS rule. By increasing knowledge of advanced risk-informed and probabilistic modeling practices it was anticipated that this effort would serve to increase the safety of facilities that produce power using nuclear energy in China. The NRC traveler presented roughly half of the seminar material. The other half was presented by Dr. Vladislav Pistora of the Nuclear Research Institute in the Czech Republic concerning the VERLIFE assessment procedure.

### Summary of Pertinent Points/Issues, Summary of Discussion

China is in the midst of a broad expansion of its electric generating capacity. Accordingly, China has plans to expand its fleet of approximately ten operating nuclear power reactors to approximately 60 units. China has already purchased or is in the process of purchasing reactors of both western (i.e., the Westinghouse AP-1000 and the AREVA E-PWR) and ex-Soviet (i.e., VVER-1000) design. At this stage the Chinese regulatory authority has not developed its own rules and standards for PTS, but rather adopts the rules and standards used by the country of origin for a particular reactor type. However, as business becomes more international it is less clear to the Chinese which regulations it should adopt (e.g., should AREVA E-PWRs be regulated according to French, German, or US practices). This ambiguity, coupled with a desire by the Chinese to develop its own national experts, led their company SNERDI to request IAEA to provide this course.

Discussions were limited mostly to points of clarification on the technical presentation that the traveler made regarding the technical basis for 10 CFR 50.61a. One question that arose repeatedly was the applicability, or not, of 10 CFR 50.61a to the Westinghouse AP-1000. The traveler informed the SNERDI questioner that, as detailed in 10 CFR 50.61a, the voluntary alternative PTS rule does not apply to new reactor designs because the applicability to these designs has not been checked.

Actions: None

Attachments: None