



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 11, 2012

LICENSEE: STP Nuclear Operating Company

FACILITY: South Texas Project, Units 1 and 2

SUBJECT: SUMMARY OF JUNE 11, 2012, PRE-LICENSING PUBLIC MEETING WITH STP NUCLEAR OPERATING COMPANY HELD VIA CONFERENCE CALL TO DISCUSS THE PROPOSED RISK-INFORMED APPROACH TO THE RESOLUTION OF GSI-191, "ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE" (TAC NOS. ME7735 AND ME7736)

On June 11, 2012, a public meeting was held via conference call between the U.S. Nuclear Regulatory Commission (NRC), and representatives of STP Nuclear Operating Company (STPNOC, the licensee), at NRC Headquarters, Rockville, Maryland. The meeting notice and agenda, dated May 31, 2012, is located in the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML12146A020. The purpose of the meeting was to discuss the proposed risk-informed approach to the resolution of Generic Safety Issue (GSI)-191, "Assessment of Debris Accumulation on PWR [Pressurized-Water Reactor] Sump Performance." South Texas Project (STP) is the lead plant and STPNOC plans to submit a license amendment request before the end of the year. The licensee previously provided an overview of its proposed approach during the public meetings held on June 2, July 7, July 26, August 22, October 3, November 1, November 2, and December 1, 2011, and February 9, March 1, March 8, and March 29, 2012¹. The purpose of this conference call was to discuss uncertainty modeling of loss-of-coolant accident (LOCA) frequencies and break size distributions for STP GSI-191 resolution and calibration and benchmarking of single- and two-phase jet computational fluid dynamics models.

A list of meeting attendees is provided in the Enclosure to this meeting summary.

Meeting Summary

The discussion was based on the following previously provided meeting materials/handouts and no additional meeting materials were provided for the purposes of this meeting.

1. Uncertainty Modeling of LOCA Frequencies and Break Size Distributions for the STP GSI-191, May 2012 (ADAMS Accession No. ML12145A466)
2. Calibration and Benchmarking of Single and Two-Phase Jet CFD [Computational Fluid Dynamics] Models, dated May 18, 2012 (ADAMS Accession No. ML12145A438)

¹ Summaries of the meetings held on June 2, July 7, July 26, August 22, October 3, November 1, November 2, and December 1, 2011, and February 9, March 1, March 8, and March 29, 2012, are available in ADAMS Accession Nos. ML111640160, ML111950094, ML112130165, ML112411419, ML112840114, ML113120129, ML113180196, ML113430087, ML120620541, ML120830103, ML120830086, and ML121380522, respectively.

No separate meeting handout materials were provided by the licensee in addition to the above reports.

Results of Discussions

Uncertainty Modeling of LOCA Frequencies and Break Size Distributions

- The licensee discussed the process used to develop a generic, bottom-up approach to weighting the LOCA Frequencies from NUREG-1829, Vol. 1 "Estimating Loss-of-Coolant Accident (LOCA) Frequencies through the Elicitation Process," April 2008 (ADAMS Accession No. ML080630013), to distribute them over all contributing weld joints. The detailed approach is described in study entitled, "Uncertainty Modeling of LOCA Frequencies and Break Size Distributions for the STP GSI-191 Resolution by Elmira Popova and David Morton," May 2012 (ADAMS Accession No. ML12145A466). The purpose is to determine the relative likelihood of failure of each weld joint for each LOCA size using frequencies from an earlier generic study entitled, "Development of LOCA Initiating Event Frequencies for South Texas Project GSI-191 by Karl N. Fleming and Bengt O. Y. Lydell," October 2011 (ADAMS Accession No. ML113060615). This earlier study based the failure likelihood of a particular weld joint on the number of indications/failures associated with that weld joint for all specific degradation mechanisms. These weighted likelihoods are summed over all contributing welds and the final frequency is normalized to achieve the NUREG-1829 estimate of the mean. The NRC staff suggested that the uncertainty in both the weighting estimates and the generic LOCA estimates be considered appropriately to support the failure likelihoods in support of the final submittal. Additionally, the NRC staff suggested that the licensee ensure that the absolute frequencies associated with failures of small-bore piping (i.e., 2-inch nominal diameter and less) be consistent with operating experience, especially for socket welded joints that have experienced failures in service. The NRC staff also suggested that the plant-specific issues with the potential for resulting in LOCA frequency estimates higher than the generic estimates determined by either NUREG-1829 or the earlier Lydell and Fleming work, should also be addressed by the final submittal.
- The NRC staff requested the licensee to verify if STP, Units 1 and 2, have any Alloy/82/182 dissimilar metal welds (DMWs) and, if so, whether these welds have been mitigated for stress-corrosion cracking or if the NUREG-1829 results should be adjusted to account for primary water stress-corrosion cracking of DMWs. The licensee stated that both units have DMWs and took an action to address the NRC staff's concern.

Calibration and Benchmarking of Single- and Two-Phase Jet CFD Models

- The licensee indicated that the CFD modeling effort is still ongoing. The NRC staff requested that the licensee clarify the intended use of the models with respect to zone-of-influence (ZOI) determination. In particular, the NRC staff asked the licensee to clarify whether it planned to continue to use spherical and hemispherical-shaped ZOIs or if it intends to use more realistic jet-shaped ZOIs. The licensee stated that the current model would maintain the spherical and hemispherical shapes, but future model iterations could attempt to refine the shape, including reflections off structures and components within the containment. The licensee also stated that the degree of refinement will depend upon the success of the modeling effort. The NRC staff stated that it was not aware of any viable CFD models of sub-cooled two-phase jets. The licensee stated that it had some areas of the model that required additional work, but expressed confidence that model development process would ultimately be successful.

No Public Meeting Feedback Forms were received for this meeting.

Please direct any inquiries to me at (301) 415-3016, or balwant.singal@nrc.gov.

Sincerely,



Balwant K. Singal, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure:
List of Attendees

cc w/encl: Distribution via Listserv

LIST OF ATTENDEES

JUNE 11, 2012, MEETING WITH STP NUCLEAR OPERATING COMPANY

REGARDING RISK-INFORMED APPROACH TO RESOLUTION OF GSI-191 ISSUE

SOUTH TEXAS PROJECT, UNITS 1 AND 2

DOCKET NOS. 50-498 AND 50-499

NAME	TITLE	ORGANIZATION
Rick Grantum**	Manager Risk Project	STPNOC (STP Nuclear Operating Company)
Ernie Kee**	Risk Management, Technical	STPNOC
Jamie Paul**	Licensing Engineer	STPNOC
Rodolfo Vagetto**	Graduate Research Student	Texas A&M University
Zahra Mohaghegh**	Principal Research Scientist	Soteria Consultants
Elmira Popova**	Professor Mechanical Engineering	University of Texas
Tim Sande**	Principal Engineer	Alion Science and Technology
David Johnson**	Vice President, Quantitative Risk Analysis/PRA Lead	ABS Consulting
David Morton	Professor Mechanical Engineering	University of Texas
Bruce Letellier	PRA	Los Alamos National Laboratory
Mark A. Richter***	Senior Project Manager	Nuclear Energy Institute
Justin Hiller***	Consulting Engineer	Ameren (Callaway)
Delonta Wilson***	Engineer	Southern Nuclear Company
Owen Scott***	Risk Informed Engineering Supervisor	Southern Nuclear Company
Phillip Grissom***	Principal Engineer	Southern Nuclear Company
Michael Snodderly	Senior Reliability and Risk Engineer	U.S. Nuclear Regulatory Commission (NRC)
John Tsao	Materials Engineer	NRC
Rob Tregoning	--	NRC
Balwant K. Singal	Senior Project Manager	NRC
Paul Klein***	Senior Materials Engineer	NRC
Stewart Bailey	Branch Chief	NRC
Steve Smith	Reactor Systems Engineer	NRC
Ervin Geiger	Senior Engineer	NRC

* Represented STPNOC

** Participated via phone and represented STPNOC

*** Participated via phone

Enclosure

Calibration and Benchmarking of Single- and Two-Phase Jet CFD Models

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/RA/

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cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC	RidsNrrLAJBurkhardt Resource	SBailey, NRR/DSS/SSIB
LPLIV r/f	RidsNrrPMSouthTexas Resource	MSnodderly, NRR/DRA/APLA
RidsAcraAcnw_MailCTR Resource	RidsOgcRp Resource	SSmith, NRR/DSS/SSIB
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RidsNrrDorLpl4 Resource	TWertz, NRR	TSao, NRR/DE/EPNB
RidsNrrDprPgcb Resource	SKennedy, EDO RIV	RTregoning, RES
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ADAMS Accession No. ML12187A081

***Via e-mail**

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	NRR/DRA/APLA/BC
NAME	BSingal	JBurkhardt	MSnodderly(A)*
DATE	7/6/12	7/6/12	7/6/12
OFFICE	NRR/DSS/SSIB/BC	NRR/LPL4/BC	NRR/LPL4/PM
NAME	SSmith(A)*	MMarkley	BSingal
DATE	7/5/12	7/11/12	7/11/12