



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

October 14, 2014

LICENSEE: STP Nuclear Operating Company

FACILITY: South Texas Project, Units 1 and 2

SUBJECT: SUMMARY OF AUGUST 20, 2014, PUBLIC MEETING WITH STP NUCLEAR OPERATING COMPANY TO DISCUSS THE LICENSE AMENDMENT AND EXEMPTION REQUESTS TO USE A RISK-INFORMED APPROACH TO THE RESOLUTION OF GSI-191, "ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE" (TAC NOS. MF2400, MF2401, MF2402, MF2403, MF2404, MF2405, MF2406, MF2407, MF2408, AND MF2409)

On August 20, 2014, a public meeting was held 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 August 5, 2014, are located in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML14217A016. The licensee's handouts from the meeting are available in ADAMS at Accession Nos. ML14234A282 and ML14234A284. A list of meeting attendees is provided in the Enclosure to this meeting summary.

The main purpose of the meeting was to discuss STPNOC's responses to the NRC staff's request for additional information (RAI) dated April 15, 2014 (ADAMS Accession No. ML14087A075), in support of its license amendment request (LAR) and exemption requests for use of a risk-informed approach to the resolution of Generic Safety Issue (GSI)-191, "Assessment of Debris Accumulation on PWR [Pressurized-Water Reactor] Sump Performance," at South Texas Project, Units 1 and 2 (STP). In addition, the other associated topics of forthcoming Advisory Committee on Reactor Safety (ACRS) subcommittee meeting and technical audit were also discussed.

The LAR was submitted on June 19, 2013 (ADAMS Accession No. ML131750250). STPNOC provided a supplement to the LAR by letter dated November 13, 2013 (ADAMS Accession No. ML13323A128), superseding June 19, 2013, submittal in its entirety. The NRC staff issued RAI's by letter dated April 15, 2014.

STPNOC's discussion was followed by the NRC staff's presentation to describe alternate methods used by Southwest Research Institute, which is supporting the NRC staff with review of the application.

### **Meeting Summary**

The following key topics were discussed by STPNOC during the meeting:

- Role of Containment Accident Stochastic Analysis (CASA) Grande

- Probabilistic Risk Assessment (PRA) input application versus Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50.46 application.
- Alion Science and Technology's plan to revise the CASA Grande documentation.
- Discussion from NRC branches on open issues based on the review of RAI responses.
- Discussion of upcoming ACRS subcommittee meeting scheduled for September 3, 2014.
- Discussion of NRC plans for audit of technical documents prepared in support of STP submittal.

### Results of Discussions

1. The NRC staff identified the following cross-cutting issues related to a number of RAI responses:

- Unanalyzed plant conditions.
- Distribution type and correlation between PRA and CASA Grande Loss-of-Coolant Accident (LOCA) frequencies.
- Model uncertainty and key assumptions.
- Relative likelihood of complete versus partial pipe ruptures.
- Appearance that some CASA runs show head loss trending up at 36 hours, but the runs were terminated considering the results to be successes.

The licensee acknowledged these issues and agreed to provide more details during the upcoming audit. The licensee requested the NRC staff to clarify if NUREG-1829, "Estimating Loss-of-Coolant Accident (LOCA) Frequencies through the Elicitation Process," April 2008 (ADAMS Accession No. ML081060300), requires consideration of only the double-ended-guillotine breaks and partial breaks may not be considered. The NRC staff stated that STPNOC's interpretation of NUREG-1829 is incorrect and clarified that NUREG-1829 merely states that a complete rupture of a smaller pipe or non-piping component is more likely than an equivalent size opening in a larger pipe.

2. There was significant discussion on the topics of use of head loss correlations and the treatment of in-vessel effects. The NRC staff stated the following:

- The treatment of in-vessel effects is dependent on the estimation of the amount of fiber that bypasses the strainers.
- With respect to STPNOC's use of a correlation to predict the head loss across the strainers, the NRC staff was concerned about the lack of validation of the correlation

under plant-specific conditions and the use of physical material properties as inputs to the correlation. The NRC staff also indicated its concern about STPNOC's development of a new correlation to validate the original correlation and stated that the new correlation also does not consider a plant-specific validation.

- During discussions about STPNOC's treatment of the effects of debris entering the reactor vessel and their potential to inhibit core cooling, the NRC staff stated that the amount of debris predicted to bypass the strainer by CASA Grande seemed to be heavily dependent on debris arrival timing and on the time step used by the mathematical model. The NRC staff further clarified that its concerns about the in-vessel debris limit applied to a cold-leg break and its basis.
  - STP analysis does not credit the lower plenum volume for mixing to delay the onset of boric acid precipitation. The NRC staff stated that if lower plenum mixing was not required to support the licensee's boric acid precipitation calculations, the NRC staff would not be concerned about a cold-leg break debris limit with respect to this issue.
3. The NRC staff provided feedback to the licensee on its response to the RAIs regarding coatings. The staff stated that the responses related to the zone of influence for inorganic zinc, the treatment of unqualified coatings in upper containment, and the debris size distribution for unqualified epoxy coatings were not consistent with the current staff technical positions on these subjects.
  4. The NRC staff and the licensee discussed the licensee's evaluation of chemical effects. The NRC staff requested the licensee to clarify the purpose of the alternate chemical effects evaluation method provided in Enclosure 1 to Attachment 5 of the licensee's RAI response letter dated July 15, 2014 (ADAMS Accession No. ML14202A045). The licensee stated that the chemical effects evaluation methodology would continue to be the "bump-up" factor as discussed in the LAR. The enclosure material was intended to provide the NRC staff with greater confidence in the bump-up factor approach.

#### Action Items

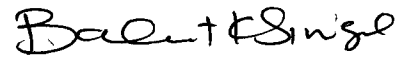
No action items were identified.

No Public Meeting Feedback Forms were received for this meeting.

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

Sincerely,



Balwant K. Singal, Senior Project Manager  
Plant Licensing Branch IV-1  
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

AUGUST 20, 2014, MEETING WITH STP NUCLEAR OPERATING COMPANY

REGARDING RISK-INFORMED APPROACH TO RESOLUTION OF GSI-191

SOUTH TEXAS PROJECT, UNITS 1 AND 2

DOCKET NOS. 50-498 AND 50-499

<b>NAME</b>	<b>TITLE</b>	<b>ORGANIZATION</b>
Eric Oesterle	Acting Chief LPL4-1	NRC/NRR/DORL
Eliza Mitchell	NRR/DORL/PM	NRC
John Tsao	NRR/DE/EPNB	NRC
John Stang	NRR/DSS/SSIB	NRC
David Boirel	NRR/DSS/SSIB	NRC
Ahsan Sallman	NRR/DSS/SCVB	NRC
Paul Klein	NRR/DE	NRC
Diane Render	NRR/DORL/PM	NRC
Steve Smith	Reactor Systems Engineer	NRC/NRR/DSS
Victor Cusumano	Branch Chief	NRC/NRR/DSS
C.J. Fong	Reliability and Risk Analyst	NRC/NRR/DRA
Matt Yoder	Sr. Chemical Engineer	NRC/NRR/DE/ESGB
Ashley Guzzetta	Engineer	NRC
*Steve Laur	Reliability and Risk Analyst	NRC
Ron Holloway	GSI-191 Project Manager	Wolf Creek Nuclear Operating Company (WCNOC)
Maurics Direlor	GSI-191 Engineer	WCNOC
Mark Banks	ACRS Staff Engineer	NRC
Steve Blossom	STP Project Manager	STPNOC
Michael Murray	STPNOC Reg. Affairs	STPNOC
Bruce Letellier	STP Support	Alion Science and Technology (Alion)
Dominic Manor	STP Support	Alion
Yassin Hassan	Professor	Texas A&M University
Zahra Mohaghegh	Professor	University of Illinois
Drew Richards	Licensing Engineer	STPNOC
Ernie Kee	STP Projects	STPNOC
Janet Leavitt	Director Lab Ops	Alion
Wayne Harrison	STP Licensing Lead GS-191	STPNOC
David Johnson	-	ABS Consulting, Inc.

\*Members attended via phone

Enclosure

<b>NAME</b>	<b>TITLE</b>	<b>ORGANIZATION</b>
Gilbert Zigh	Senior Engineer	ENERCON/Next Era
Edward Blandford	Assistant Professor	University of New Mexico (UNM)
John Hasenbein	Associate Professor	University of Texas (UT)-Austin
David Mouton	Professor	UT-Austin
Tim Littleton	Engineer	Southern Nuclear Operating Company (SNC) - Vogtle
Stenven Vwikewicz	Senior Principal Engineer	Alion
Rob Engen	Engineer Projects Manager	STPNOC
Amir Afzali	Risk-Informed Engineer Dir.	SNC
Craig Sellers	Technical Specialist	ENERCON
*Rodolfo Vaghetto	-	Texas A&M University
*Seyed Reihani	-	University of Illinois
*Jeremy Tejada	-	Alion/UT
*Kerry Howe	-	UNM

\*Members attended via phone

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

Sincerely,

*/RA/*

Balwant K. Singal, Senior Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure:  
List of Attendees

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SLaur, NRR/DRA/APLA  
EOesterle, NRR/DORL  
JTsoo, NRR/DE/EPNB  
EMitchell, NRR/DORL  
DRender, NRR/DORL

**ADAMS Accession No.: ML14269A002**

OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DSS/SSIB/BC
NAME	EMitchell	BSingal	EOesterle	JBurkhardt	VCusumano
DATE	9/26/14	10/8/14	10/9/14	9/26/14	10/09/14
OFFICE	NRR/DE/ESGB/BC	NRR/DRA/APLA/BC	N/A	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM
NAME	GKulesa	HHamzehee		MMarkley (BSingal for)	BSingal
DATE	10/09/14	10/09/14		10/14/14	10/14/14

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