

South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

June 9, 2016
NOC-AE-16003369
10 CFR 50.12
10 CFR 50.90

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Applicability of Application Supplement 1 Correspondence to
Supplement 2 to STP Risk-Informed GSI-191 Licensing Application
(TAC NOs MF2400 and MF2401)

References:

1. Letter, G. T. Powell, STPNOC, to NRC Document Control Desk, "Supplement 1 to Revised STP Pilot Submittal and Requests for Exemptions and License Amendment for Risk-Informed Approach to Resolving Generic Safety Issue (GSI)-191," November 13, 2013, NOC-AE-13003043, ML13323A183
2. Letter, G. T. Powell, STPNOC, to NRC Document Control Desk, "Supplement 2 to STP Pilot Submittal and Requests for Exemptions and License Amendment for a Risk-Informed Approach to Address Generic Safety Issue (GSI)-191 and Respond to Generic Letter (GL) 2004-02," August 20, 2015, NOC-AE-15003241, ML15246A126
3. Letter, G. T. Powell, STPNOC, to NRC Document Control Desk, "Response to Request for Additional Information re Use of RELAP5 for Analyses for Risk-Informed GSI-191 Licensing Application," January 9, 2014, NOC-AE-13003057, ML14029A533 (Response to ML14009A307)
4. Letter, G. T. Powell, STPNOC, to NRC Document Control Desk, "First Set of Responses to April 14, 2014, Requests for Additional Information Regarding STP Risk-Informed GSI-191 Licensing Application – Revised," May 22, 2014, NOC-AE-14003103, ML14149A434 (Response to ML14087A075)
5. Letter, G. T. Powell, STPNOC, to NRC Document Control Desk, "Second Set of Responses to April 14, 2014, Requests for Additional Information Regarding STP Risk-Informed GSI-191 Licensing Application," June 25, 2014, NOC-AE-14003101, ML14178A481 (Response to ML14087A075)
6. Letter, G. T. Powell, STPNOC, to NRC Document Control Desk, "Third Set of Responses to April 14, 2014, Requests for Additional Information Regarding STP Risk-Informed GSI-191 Licensing Application," July 15, 2014, NOC-AE-14003105, ML14202A045 (Response to ML14087A075)
7. Letter, G. T. Powell, STPNOC, to NRC Document Control Desk, "Description of Revised Risk-Informed Methodology and Responses to Round 2 Requests for Additional Information Regarding STP Risk-Informed GSI-191 Licensing Application," March 25, 2015, NOC-AE-15003220, ML15091A440 (Response to ML14357A171)

Reference 2 revised the methodologies used and described in Reference 1. References 3 – 7 responded to NRC RAIs on Reference 1 and portions of those responses are no longer relevant to the STPNOC application as described in Reference 2. The attachments identify the information that is no longer relevant and the basis for the determination.

ADD 1
NRR

STI 34306886

STPNOC's process for evaluating the applicability of the RAls focused primarily on whether the response to the RAI was relevant to the revised methodology; i.e., whether a reviewer could cite it in a safety evaluation. If the RAI for a "not applicable" response appeared still be relevant to the revised methodology and there is a docketed submittal describing how the revised methodology applies, STPNOC called the response "not applicable" and identified that reference. However, STPNOC did not revise responses for apparently relevant questions if the response was "not applicable" and there is no docketed reference. A determination that a response is "not applicable" does not mean that the response is not correct. It only means that it does not apply for the current methodology.

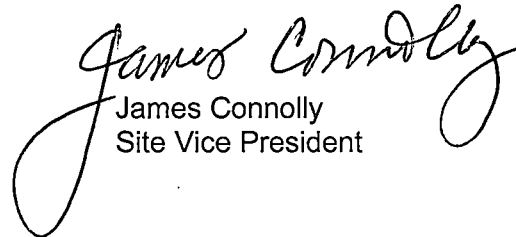
STPNOC also reviewed Supplement 1 to the risk-informed GSI-191 application (Ref. 1) for applicability. The results of the review are tabulated at relatively high level for each enclosure to Ref. 1.

There are no commitments in this submittal.

If there are any questions, please contact Mr. Wayne Harrison at 361-972-8774.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: June 9, 2016


James Connolly
Site Vice President

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Attachments:

1. Applicability of Supplement 1
2. Applicability of RAI Responses regarding Supplement 1
3. Definitions and Acronyms

cc:

(paper copy)

Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
1600 East Lamar Boulevard
Arlington, TX 76011-4511

Lisa M. Regner
Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North (O8H04)
11555 Rockville Pike
Rockville, MD 20852

NRC Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 289, Mail Code: MN116
Wadsworth, TX 77483

(electronic copy)

Morgan, Lewis & Bockius LLP
Steven P. Frantz, Esquire

U. S. Nuclear Regulatory Commission
Lisa M. Regner

NRG South Texas LP
Chris O'Hara
Jim von Suskil
Skip Zahn

CPS Energy
Kevin Pollo
Cris Eugster
L. D. Blaylock

Crain Caton & James, P.C.
Peter Nemeth

City of Austin
Elaina Ball
John Wester

Texas Dept of State Health Services
Helen Watkins
Robert Free

Attachment 1
Applicability of Supplement 1

The table below addresses the applicability of Supplement 1 to STPNOC's Risk-Informed GSI-191 pilot licensing application (Reference 1 in the cover letter).

The methodology change described in Supplement 2 (Reference 2 in the cover letter) revises the method of risk quantification from a detailed analysis in which conditional failure probabilities were calculated using correlations and applied in the STP PRA, to a simplified approach with a deterministic element based on plant specific testing and a risk-informed element for conditions not bounded by the testing. As a result of the methodology change, the risk quantifications in Supplement 1 are superseded by those in presented in Supplement 2. Methods using correlations and associated RAIs no longer apply. STPNOC has also revised aspects of the requests for exemption such that the descriptions in Supplement 2 and later correspondence are the appropriate references.

Enclosure	Title	Applicability	Basis
1	STP Piloted Risk-Informed Approach to GSI-191	Not applicable	Enclosure is based on detailed analysis approach which has been superseded by the RoverD method described in Supplement 2.
2-1	Request for Exemption from 10CFR50.46(b)(5)	Not applicable	Exemption has been revised to be from 10CFR50.46(a)(1)
2-2	Request for Exemption from GDC 35	Not applicable	The specific applicability and scope of the exemptions have changed due to the RoverD methodology. The burden impact described in Supplement 1 is still accurate, and is presented with less detail in Supplement 2.
2-3	Request for Exemption from GDC 38	Not applicable	
2-4	Request for Exemption from GDC 41	Not applicable	
3	License Amendment Request for STP Piloted Risk-Informed Approach to GSI-191	Not applicable.	Superseded by LAR in Supplement 2. Methodology change substantially changes the licensing basis and its description in the UFSAR. Addition of change to the TS also supersedes the TS Bases changes in Supplement 1.
4-1	Volume 1: Project Summary	Not applicable	The RoverD description in the August 20, 2015 supplement as updated by subsequent RAI responses provides the necessary elements of the project description.

Enclosure	Title	Applicability	Basis
4-2	Volume 2: Probabilistic Risk Analysis	Information regarding the history and configuration control of the STP PRA is applicable. Information regarding the basis for the current STP PRA model of record is applicable. Information regarding incorporation of conditional failure probabilities for the risk-informed GSI-191 application is Not Applicable.	The RoverD approach described in the August 20, 2015 supplement does not incorporate debris-related conditional failure probabilities or revise the STP base model PRA.
4-3	Volume 3: Engineering (CASA Grande) Analysis	Not applicable Information regarding the following aspects is no longer applicable: <ul style="list-style-type: none">• Time dependence of debris generation and transport• Use of correlations for NPSH• Use of correlations for chemical effects• Calculation of conditional failure probabilities, including distributions Although information regarding other applications of CASA Grande may still apply, the relevant parts have been incorporated in the current RoverD methodology.	The RoverD approach described in the August 20, 2015 supplement does not use any of these aspects of the detailed analysis described in the November 13, 2013 supplement. The relevant descriptions from this volume have been incorporated as needed into the current application.

Enclosure	Title	Applicability	Basis
5	Response to NRC Supplemental Information Items:	Information regarding the following aspects is no longer applicable: <ul style="list-style-type: none">• Time dependence of debris generation and transport• Use of correlations for NPSH• Use of correlations for chemical effects• Calculation of conditional failure probabilities, including distributions• Regulatory descriptions regarding exemptions, UFSAR changes and TS changes.	<p>The RoverD approach described in the August 20, 2015 supplement does not use any of these aspects of the detailed analysis described in the November 13, 2013 supplement.</p> <p>The regulatory basis for the exemptions has been revised. The UFSAR changes are superseded by the current descriptions that reflect the RoverD methodology. The current application includes a change to the ECCS and CSS Technical Specifications.</p>
6	Changes to June 19, 2013 Submittal	Not applicable	Per STPNOC letter dated 11/21/2013 (ML13338A165), Supplement 1 superseded the June 19, 2013 letter, so the June 19 letter is not relevant for the submittal.

Attachment 2

Applicability of RAI Responses Regarding Supplement 1

Table 1 describes the applicability of the responses to Round 1 RAIs. Table 2 describes applicability of the responses to Round 2 RAIs. Most of the Table 2 responses are applicable because they were submitted at the time of the change to the RoverD methodology.

Table 1
Applicability of Responses to Round 1 RAIs (ML14087A075)

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
APLAB RAIs			
Not applicable ML14202A045 (Cover Letter Ref.6)	APLAB, CASA Grande - General: Question 1a, 1b, 1c	The uncertainty quantification process requires characterization of parameter distributions used in sampling strategies for estimating and propagating physical model responses. RoverD instead uses a test designed to bound the uncertainty associated with Emergency Core Cooling System (ECCS) strainer head losses.	

<p>Not applicable</p> <p>ML14202A045 (Cover Letter Ref.6)</p>	<p>APLAB, CASA Grande - Plant Configuration: Questions 1a, 1b, 2a, 2b</p>	<p>In order to comprehensively estimate the Reactor Containment Building (RCB) and Reactor Coolant System (RCS) responses to different break scenarios and plant states (pumping combinations), several thermal-hydraulic simulations are required to estimate the temperature and pressure histories in the RCB and RCS using coupled models of the RCB and RCS. The current RoverD methodology relies on the existing The STP Nuclear Operating Company (STPNOC) license-basis RCB analysis for strainer performance parameters; bounding test data and bounding thermal-hydraulic analysis to ensure adequate core cooling. The pump states are bounded for fiber penetration and collection (single train and two or more trains considered).</p>	
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Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
<p>Not applicable</p> <p>ML14202A045 (Cover Letter Ref.6)</p>	<p>APLAB, CASA Grande - Plant Configuration: Question 3a, b, c</p>	<p>In order to support the many possible ECCS and Containment Spray System (CSS) configurations, the PRA needed to have several top events added. The necessary fidelity and concomitant model support detail needed to accurately represent all possible configurations is relatively complex. The current application applies the RoverD methodology, which avoids extensive reliance on the PRA and uses what could effectively be thought of as a "LOCA Debris" initiating event frequency as a bounding CDF rather than detailed modeling in the PRA. Similarly, the PRA model of record is used to evaluate the LERF using the ratio of LERF conditional on ECCS sump screen failure for Large Break Loss of Coolant Accident (LLOCA) and CDF conditional on sump screen failure in LLOCA.</p>	
<p>Not applicable</p> <p>ML14149A434 (Cover Letter Ref.4)</p>	<p>APLAB, CASA Grande, LOCA Frequencies: Question 1a, 1b</p>	<p>The most accurate modeling of failure likelihood (Loss of Coolant Accident (LOCA)) at any given location in the RCS pressure boundary would take into consideration failure mechanisms based on causal modeling of the underlying phenomena thereby producing probabilities for each location. Theoretically, such values could be used in sums to estimate the (preferentially) frequency (or likelihood) of a LOCA of any particular size in a plant. The STP 2013 LAR used a weighting scheme that attempted to preserve the NUREG 1829 frequencies but additionally taking into account in- service data</p>	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
		<p>where cracks were observed and some consideration of the type of service. In RoverD, a bounding method, called top-down, was adopted that avoids the need to account for weighting by relying on the fact that locations where debris amounts exceed tested levels have been mitigated. That is, the problematic or "risk" locations have been mitigated and only the non "risk" locations have not been. The RoverD methodology ignores the mitigation improvements and equally weights the NUREG 1829 exceedance frequencies for all locations thereby bounding local effects.</p>	
Applicable ML14178A481 Cover Letter Ref. 5	APLAB, CASA Grande - LOCA Frequencies: Question 2	<p>The STP 2013 LAR estimated breaks of any size that could be supported by a given pipe diameter. This requires assuming a continuum of break sizes up to the pipe diameter and gives the most complete picture of possible breaks that could be used in a risk-based application. The NUREG 1829 elicitation report can be interpreted to indicate only Double Ended Guillotine Breaks (DEGBs) can occur. Both attribution and frequency must be considered in any interpretation. In the RoverD methodology, the continuum break model is compared to the DEGB-only model of interpretation and it automatically includes a (conservative) interpretation of attribution (spherical Zone Of Influence (ZOI) for all locations).</p>	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
<p>Not applicable</p> <p>ML14149A434 (Cover Letter Ref.4)</p>	<p>APLAB, CASA Grande, LOCA Frequencies: Questions 3 & 4</p>	<p>All the elicited exceedance frequency quantiles and means aggregated in NUREG 1829 decrease rapidly with size of break. As a consequence, sampling must be done very carefully to ensure the “long tails” of the distributions are captured. This was done in CASA Grande as described in the STP 2013 LAR using stratified sampling techniques and ensuring that the DEGB break size was sampled in each quantification. The RoverD methodology avoids the need to perform sampling, in the way required for Monte Carlo quantification, by assuming all break sizes larger than the smallest break size producing more debris than was tested at the location are assumed to be failure. This is a conservative estimate that also avoids the possibility of inadequate sampling of long tails.</p>	<p>Also, the current STPNOC application does not use Ref. 7 (KNF)</p>
<p>Not applicable</p> <p>ML14149A434 (Cover Letter Ref.4)</p>	<p>APLAB, CASA Grande, to PRA Interface - General: Questions 1a & 1b</p>	<p>The STP 2013 LAR estimates fiber mass distribution in the RCB pool, the reactor core, and the ECCS strainers. The method used in the STP 2013 LAR performs estimates for the pump configurations assumed and calculates head loss based on collection of particulates (fiber, paint, chemical precipitates). The RoverD methodology performs a similar calculation however, instead of looking at all possible pumping configurations, RoverD looks at ‘expected’ and ‘extreme’ cases to ensure the in-vessel effects are not limiting. Head loss computation is not done in RoverD. Instead, re-</p>	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
		sults of testing on an STP ECCS strainer module are used. Any fine fiber loading that exceeds the tested amount is assumed to lead to core damage.	
Not applicable ML14202A045 (Cover Letter Ref.4)	APLAB, CASA Grande to PRA Interface-General: Question 2a	All the elicited exceedance frequency quantiles and means aggregated in NUREG 1829 decrease rapidly with size of break. As a consequence, sampling must be done very carefully to ensure the "long tails" of the distributions are captured. This was done in CASA Grande as described in the STP 2013 LAR using stratified sampling techniques and ensuring that the DEGB break size was sampled in each quantification. The RoverD methodology avoids the need to perform sampling, in the way required for Monte Carlo quantification, by assuming all break sizes larger than the smallest break size producing more debris than was tested at the location are assumed to be failure. This is a conservative estimate that also avoids the possibility of inadequate sampling of long tails.	
Not applicable ML14202A045 (Cover Letter Ref.4)	APLAB, CASA Grande to PRA Interface-General: Question 2b	The STP 2013 LAR included timing considerations and many different break sizes and orientations. RoverD only requires that the amounts of failed coatings assumed in the test are appropriately conservative (accepted to exceed amounts expected) or are otherwise bounded. As a consequence, no modeling of	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
		failure size or timing is required in the RoverD methodology.	
Not applicable ML14149A434 (Cover Letter Ref.4)	APLAB, CASA Grande, to PRA Interface - General: Question 3	RAI pertains to how pump states relate to conditional failure probability which is not a feature of RoverD. RoverD discussion of ECCS single-train adequately addresses bounding pump state.	
Not applicable ML14149A434 (Cover Letter Ref.4)	APLAB, CASA Grande, to PRA Interface - General: Questions 4a, 4b, 4c	In order to support the many possible ECCS and Containment Spray System (CSS) configurations, the PRA needed to have several top events added. The necessary fidelity and concomitant model support detail needed to accurately represent all possible configurations is relatively complex. The RoverD methodology avoids extensive reliance on the PRA and uses what could effectively be thought of as a "LOCA Debris" initiating event frequency as a bounding CDF rather than detailed modeling in the PRA. Similarly, the PRA model of record is used to evaluate the LERF using the ratio of LERF conditional on ECCS sump screen failure for Large Break Loss of Coolant Accident (LLOCA) and CDF conditional on sump screen failure in LLOCA.	
Not applicable ML14149A434	APLAB, CASA Grande, to PRA Interface - General: Question 5	RoverD evaluation has shown that all relevant breaks are LLOCA	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
(Cover Letter Ref.4)			
Not applicable ML14149A434 (Cover Letter Ref.4)	APLAB, CASA Grande, to PRA Interface - General: Question 6a, 6b, 6c	All the elicited exceedance frequency quantiles and means aggregated in NUREG 1829 decrease rapidly with size of break. As a consequence, sampling must be done very carefully to ensure the "long tails" of the distributions are captured. This was done in CASA Grande as described in the STP 2013 LAR using stratified sampling techniques and ensuring that the DEGB break size was sampled in each quantification. The RoverD methodology avoids the need to perform sampling, in the way required for Monte Carlo quantification, by assuming all break sizes larger than the smallest break size producing more debris than was tested at the location are assumed to be failure. This is a conservative estimate that also avoids the possibility of inadequate sampling of long tails.	
Applicable Response 1, 3: ML14202A045 (Cover Letter Ref. 6) Response 2: ML14178A481 (Cover Letter Ref. 5)	APLAB, STP PRA Model-General: Questions 1, 2, 3	These RAIs and their responses generally address the adequacy of the peer review performed for the STP PRA and the conclusions made from those reviews. Although the PRA plays a less complex part in the RoverD methodology, the assessment of its capability is still relevant.	Although the STP at- power PRA is suitable for the RoverD application as stated in ML14202A045, Attachment 1, Page 47 of 67 does not apply as the PRA used in RoverD is not modified as described. RoverD simply relies on reports from the at-power PRA to obtain: the

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
			LERF and DeltaLERF results; and the single train frequencies.
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, STP PRA Model-Success Criteria: Question 1	The 2013 LAR showed no in-core blockage that resulted in loss adequate core cooling. While these conclusions have not changed, the STPNOC T-H analyses have been simplified in the RoverD approach. The changes are described in the responses to the SNPB Round 3 RAIs.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, STP PRA Model-Success Criteria: Question 2a	RoverD incorporates a bounding T-H analysis	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, STP PRA Model-Success Criteria: Question 2b	RoverD incorporates a bounding T-H analysis	
Applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, STP PRA Model-Success Criteria: Question 2c	The response provides information relevant to the application of LOCADM to STP. However, RoverD relies on the existing The STPNOC license-basis RCB analysis for strainer performance parameters; bounding test data and bounding thermal-hydraulic analysis to ensure adequate core cooling. The pump states are bounded for fiber penetration and collection	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
		(single train and two or more trains considered)	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, STP PRA Model-Success Criteria: Questions 3a, 3b	RoverD does not apply time dependence. The RoverD methodology avoids extensive reliance on the PRA and uses what could effectively be thought of as a "LOCA Debris" initiating event frequency as a bounding CDF rather than detailed modeling in the PRA. Similarly, the PRA model of record is used to evaluate the LERF using the ratio of LERF conditional on ECCS sump screen failure for Large Break Loss of Coolant Accident (LLOCA) and CDF conditional on sump screen failure in LLOCA.	
Applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, STP PRA Model-Success Criteria: Question 3c	PRA safe, stable state does not change with application of RoverD methodology.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, STP PRA Model-Success Criteria: Question 3d	Question refers to the CASA-PRA interface. The RoverD methodology does not rely on mission times for the calculation of Delta CDF, CDF or Delta LERF, LERF. Also, RoverD methodology does not calculate conditional failure probabilities.	
Not applicable Response to RAI 1, 2, 4a, 4b, 6:	APLAB, STP PRA Model - Human Reliability Analysis: Question 1	Human reliability analysis is required for the various actions assumed in the detailed plant model (pump operation, for example). The human reliability analysis included in the PRA	This basis applies to all the HRA RAIs.

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
<p>ML14149A434 (Cover Letter Ref.4)</p> <p>Response to RAI 3a, 3b, 3c: ML14202A045 (Cover Letter Ref. 6)</p> <p>Response to RAI 5: ML14178A481 (Cover Letter Ref. 5)</p>		<p>model of record already includes human reliability analysis required for initiating events other than the debris event (which, when strainer success criteria are exceeded assumes core damage).</p> <p>In the STP 2013 LAR, the PRA required some modifications to accommodate the several new ECCS strainer and in-vessel failure modes. RoverD creates, in effect, a new initiating event for debris failure and the initiating event frequency is directly used as the increase in CDF (the CDF). In this way, the STP PRA does not require modification since any information needed can be obtained directly from the STP PRA.</p>	
<p>Applicable</p> <p>ML14149A434 (Cover Letter Ref.4)</p>	<p>APLAB, STP PRA Model - PRA Scope: Question 1</p>	<p>Seismic LOCA frequencies still need to be incorporated, if necessary. The response to this RAI is still applicable.</p>	
<p>Applicable</p> <p>ML14202A045 (Cover Letter Ref. 6)</p>	<p>APLAB, STP PRA Model- PRA Scope: Question 2</p>	<p>Seismic LOCA frequencies still need to be incorporated, if necessary. The response to this RAI is still applicable.</p>	
<p>Not applicable</p> <p>ML14149A434 (Cover Letter Ref.4)</p>	<p>APLAB, Results Interpretation - Quantification: Questions 1a & 1b, 2</p>	<p>The RoverD methodology avoids extensive reliance on the PRA and uses what could effectively be thought of as a "LOCA Debris" initiating event frequency as a bounding CDF rather than detailed modeling in the PRA.</p>	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
		Similarly, the PRA model of record is used to evaluate the LERF using the ratio of LERF conditional on ECCS sump screen failure for Large Break Loss of Coolant Accident (LLOCA) and CDF conditional on sump screen failure in LLOCA.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, Results Interpretation-Uncertainty Analysis: Question 1a	The STP 2013 LAR included timing considerations and many different break sizes and orientations. RoverD only requires that the amounts of failed coatings assumed in the test are appropriately conservative (accepted to exceed amounts expected) or are otherwise bounded. No modeling of failure size or timing is required in the RoverD methodology. Consequently, key sources of uncertainty, particularly for correlations, identified in this response do not apply for RoverD.	Uncertainties are addressed in the relevant sections of Ref. 2 to the cover letter.
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, Results Interpretation-Uncertainty Analysis: Question 1b	The list of assumptions applies to the CASA Grande analysis. The RoverD methodology has different assumptions due to the deterministic element.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, Results Interpretation-Uncertainty Analysis: Question 1c	The RoverD methodology avoids extensive reliance on the PRA and uses what could effectively be thought of as a "LOCA Debris" initiating event frequency as a bounding CDF rather than detailed modeling in the PRA. Similarly, the PRA model of record is used to evaluate the LERF using the ratio of LERF conditional on ECCS sump screen failure for	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
		Large Break Loss of Coolant Accident (LLOCA) and CDF conditional on sump screen failure in LLOCA.	
Applicable ML14149A434 (Cover Letter Ref.4)	APLAB, Results Interpretation - Uncertainty Analysis: Question 2	STPNOC's evaluation regarding applicability of the geometric mean still represents the STPNOC position that it is the appropriate metric.	Because the PRA community most generally adopts the geometric mean aggregation and it represents a more realistic estimate, the STPNOC adopted the geometric mean aggregation. The RoverD methodology provides estimates of both aggregations.
Applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, Results Interpretation-Uncertainty Analysis: Question 3	STPNOC's evaluation of the effect of operating life on the risk evaluation still represents the current STPNOC position regarding the use of NUREG 1829 25 service year values. However, the table of CDF and LERF is not applicable because it was based on CASA Grande frequencies.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, Results Interpretation-Uncertainty Analysis: Questions 4a, 4b, 4c, 4d	<p>The LOCA frequency distributions described in the 2013 LAR and associated RAIs are not used in the RoverD methodology.</p> <p>In RoverD, a bounding method, called top-down, was adopted that avoids the need to account for weighting by relying on the fact that locations where debris amounts exceed tested levels have been mitigated. That is, the problematic or "risk" locations have been mitigated and only the non "risk" locations have not been. The RoverD methodology ignores the</p>	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
		<p>mitigation improvements and equally weights the NUREG 1829 exceedance frequencies for all locations thereby bounding local effects.</p> <p>In the RoverD methodology, the continuum break model is compared to the DEGB-only model of interpretation and it automatically includes a (conservative) interpretation of attribution (spherical ZOI for all locations).</p> <p>The RoverD methodology avoids the need to perform sampling, in the way required for Monte Carlo quantification, by assuming all break sizes larger than the smallest break size producing more debris than was tested at the location are assumed to be failure. This is a conservative estimate that also avoids the possibility of inadequate sampling of long tails.</p>	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, Results Interpretation-Uncertainty Analysis: Question 5	Section 1.2, Item 4	
Not applicable ML14202A045 (Cover Letter Ref. 6)	APLAB, Results Interpretation-Uncertainty Analysis: Question 6	Section 1.2, Item 4	
ARCB RAIs			

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Not applicable ML14086A385 ML14086A386	ARCB: Questions 1, 3 (ML14015A045)	The response that STPNOC made no changes to the UFSAR design basis is correct. However, the study calculation referenced for this RAI and RAI 3 (ML14086A386) is not applicable to the RoverD methodology. Per the draft 10CFR50.46c rule change, dose need not consider debris effects if risk evaluation is acceptably small.	See comments on SCVB RAIs. Study calculation provides support for defense-in-depth/safety margin.
Applicable ML14086A385	ARCB: Question 2 (ML14015A045)	RAI addresses resolution completion status of a design issue. Response described the resolution and is still applicable.	
EMCB RAIs			
Applicable ML14015A311 ML14202A045 (Cover Letter Ref. 6)	EMCB, Questions 1, 2	Strainer mechanical unchanged by RoverD methodology.	
EPNB RAIs			
Not applicable ML14202A045 (Cover Letter Ref. 6)	EPNB, Questions 1, 2, 3, 4, 5	See basis for APLAB, Results Interpretation-Uncertainty Analysis: Questions 4a, 4b, 4c, 4d above. Break distribution and aggregation methods in the previous LAR application are not used in the RoverD methodology.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	EPNB, Question 6a	Although RoverD maintains the NUREG 1829 LOCA frequencies, the distribution methodology is different from that described in in the RAI response. The conclusion of the	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
		response still applies, but the premise has changed.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	EPNB, Question 6b	The statement regarding the basis statistical difference is correct for RoverD; however, the references in the RAI response are not consistent with RoverD. The conclusion of the response still applies, but the premise has changed.	
ESGB RAIs			
Not applicable Responses to RAIs 1, 2, 4, 5, 6, 8, 9, 10: ML14202A045 (Cover Letter Ref. 6) Responses to RAIs 3, 7, 11: ML14178A481 (Cover Letter Ref. 5)	ESGB, Chemical Effects: Question 1a, 1b, 1c, 1d, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11a	The STP 2013 LAR estimates fiber mass distribution in the RCB pool, the reactor core, and the ECCS strainers. The method used in the STP 2013 LAR performs estimates for the pump configurations assumed and calculates head loss based on collection of particulates (fiber, paint, chemical precipitates). The RoverD methodology performs a similar calculation however, instead of looking at all possible pumping and debris configurations, RoverD looks at 'expected' and 'extreme' cases to ensure the in-vessel effects are not limiting. Head loss computation is not done in RoverD. Instead, results of testing on an STP ECCS strainer module are used. Any fine fiber loading that exceeds the tested amount is assumed to lead to core damage.	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Not applicable ML14178A481 (Cover Letter Ref. 5)	ESGB, Chemical Effects: Question 11b	The RAI pertains to bump-up factors, which are not applicable to the RoverD methodology. Tin powder was used as a surrogate for zinc in plant-specific testing.	
Not applicable ML14149A434 (Cover Letter Ref.4)	ESGB, Chemical Effects: Question 12, 13a, 13b, 13c	These RAI and responses are applied in the context of supporting chemical effects on head loss. The 2013 LAR process requires characterization of parameter distributions used in sampling strategies for estimating and propagating physical model responses and for development of correlations. RoverD instead uses a test designed to bound the uncertainty associated with Emergency Core Cooling System (ECCS) strainer head losses.	Although the STP deterministic testing that supports RoverD was not addressed in the responses, The test results show nothing that affects the conclusions of the RoverD deterministic testing.
Not applicable ML14202A045 (Cover Letter Ref. 6)	ESGB, Chemical Effects: Question 14a, 14b, 14c	RAI was directed toward chemical effects testing associated with CASA Grande correlations. The RoverD methodology is based on accepted deterministic testing.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	ESGB, Chemical Effects: Question 15	See response above for ESGB Chemical Effects RAI 12, 13a, 13b, 13c	
Not applicable ML14202A045	ESGB, Chemical Effects: Question 16	See response above for ESGB Chemical Effects RAI 12, 13a, 13b, 13c.	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
(Cover Letter Ref. 6)		Response to RAI addresses variations in pH and amounts of LDFG from different break sizes. Those variations are not required for the RoverD deterministic testing.	
Not applicable ML14178A481 (Cover Letter Ref. 5)	ESGB, Chemical Effects: Question 17	The RAI and response relate to correlations and chemical effects “bump up” factors which are not used in the RoverD methodology.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	ESGB, Chemical Effects: Question 18a	Testing credited in RoverD methodology used WCAP-16530 process.	Response also indicates that the information cited in the RAI was not used in the 2013 LAR analyses.
Not applicable ML14202A045 (Cover Letter Ref. 6)	ESGB, Chemical Effects: Question 18b	The RAI and response supports evaluation of the CASA Grande modeling and and correlations which are not used in the RoverD methodology. RoverD looks at ‘expected’ and ‘extreme’ cases to ensure the in-vessel effects are not limiting. Head loss computation is not done in RoverD. Instead, results of testing on an STP ECCS strainer module are used. Any fine fiber loading that exceeds the tested amount is assumed to lead to core damage.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	ESGB, Chemical Effects: Question 18c	Although the response clarifies a typographical error, the information in the affected graphics related to the CASA Grande analyses that are not used in the RoverD methodology. See response to 18b above.	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Not applicable ML14149A434 (Cover Letter Ref.4)	ESGB, Chemical Effects: Question 19	See response to ESGB RAI 18b above.	
Not applicable ML14178A481 (Cover Letter Ref. 5)	ESGB, Chemical Effects: Question 20	The RAI and response relate to correlations and chemical effects "bump up" factors which are not used in the RoverD methodology.	
Applicable ML14202A045 (Cover Letter Ref. 6)	ESGB, Chemical Effects: Question 21	See ESGB RAI-33 in Round 2 (Table 2 below)	
Not applicable ML14178A481 (Cover Letter Ref. 5)	ESGB, Chemical Effects: Question 22a, 22b	The CHLE test program is not applicable to the RoverD methodology or associated plant-specific test.	<p>This basis is generally applicable to RAIs and responses regarding the CHLE testing. As stated in the response to ESGB Chemical Effects RAI 22b, "The objective of the CHLE testing program was to generate experimental data to support an overall risk-informed approach to the resolution of GSI-191, while also conducting a manageable number of tests."</p> <p>Although the CHLE tests and results can provide insight with respect to margin in the deterministic testing that supports</p>

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
			RoverD, the RoverD methodology and STPNOC LAR does not rely on them.
Applicable	ESGB, Coatings: Question 1	Original response and response to RAI SSIB-3-6 in ML16082A507 address epoxy coatings	
Not applicable ML14149A434 (Cover Letter Ref.4)	ESGB, Coatings: Question 2	IOZ quantified differently for the RoverD evaluation	
Applicable ML14149A434 (Cover Letter Ref.4)	ESGB, Coatings: Question 3	Unqualified coatings are assumed to fail at 100%	
Not applicable Responses to RAIs 4, 5: ML14149A434 (Cover Letter Ref.4) Response to RAI 6a, 6b, 6c: ML14202A045 (Cover Letter Ref. 6)	ESGB, Coatings: Questions 4, 5, 6a, 6b, 6c	The STP 2013 LAR included timing considerations and many different break sizes and orientations. RoverD only requires that the amounts of failed coatings assumed in the test are appropriately conservative (accepted to exceed amounts expected) or are otherwise bounded. As a consequence, no modeling of failure size or timing is required in the RoverD methodology.	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Applicable ML14149A434 (Cover Letter Ref.4)	ESGB, Coatings: Question 7	Coatings program description is still applicable for the RoverD methodology	
SCVB RAIs			
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 1a	Exemption to CSS still required for RoverD	<p>The SCVB RAIs are relevant to the STPNOC application. The pre-RoverD responses provided in ML14178A481 (A485 attachment) are updated by responses provided in ML15091A440 dated March 25, 2015 as revised in Attachment 1-6 to Supplement 2 of the STPNOC submittal (ML15246A128) to reflect the RoverD methodology changes.</p> <p>Also, in accordance with the proposed 10CFR50.46c rule change, "The NRC approval of an entity's risk-informed approach allows the entity to exclude the effects of debris in its analysis of long-term cooling...". In addition, the NRC applied the same rationale to the relationship of 10CFR50.46c to other regulations; i.e., GDC 35, 38 and 41. Since STPNOC met those</p>
Not applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 1b	See comment. STPNOC changed single failure response in ML15246A126	
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 2a	Exemption to CSS still required for RoverD	
Not applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 2b	See comment. STPNOC changed single failure response in ML15246A126	
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 3a	Generally applicable, but original reference document has been revised to references shown in comment.	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Not applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 3b	See comment. The description is superseded by RoverD.	requirements by showing that the effects of debris are small in accordance with RG 1.174 (considering CDF, LERF, safety margin and defense-in-depth), the CLB design basis for containment need not be revised.
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 3c	Generally applicable, but original reference document has been revised to references shown in comment.	
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 4a	Generally applicable, but original reference document has been revised to references shown in comment.	
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 4b	RoverD methodology has no impact on response.	
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 4c	Generally applicable, but original reference document has been revised to references shown in comment.	
Not applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 5	See comment. RoverD does not use time-dependent containment analyses, and does not change the CLB containment analysis	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 6	See comment. RoverD does not change the containment analysis (current LB calculation is used).	
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 7	The response still applies with respect to how RoverD is used to assess debris effects.	
Not applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 8	RELAP5 screening cases have changed and are being reviewed by SNPB.	
Applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 9a	RoverD methodology still requires exemption to GDC 35.	
Not applicable ML14178A481 (Cover Letter Ref. 5)	SCVB, Question: 9b	See comment. STPNOC changed single failure response in ML15246A126	
SNPB RAIs			
Applicable ML14178A481 (Cover Letter Ref. 5)	SNPB Questions: 1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h, 1i, 1j, 1k, 1l, 1m, 2a, 2b, 2c, 2d, 3, 5	Used by NRC for their thermal-hydraulic review	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Not applicable ML14202A045 (Cover Letter Ref. 6)	SNPB, Question 4	STP BAP LB calculation has been revised since this STPNOC responded to this RAI and was the subject of an NRC audit.	
Applicable ML14178A481 (Cover Letter Ref. 5)	SNPB, Question: 5	STP BA concentration is not calculated in the RoverD methodology	
SRXB RAIs			
Applicable ML14202A045 (Cover Letter Ref. 6)	SRXB, Question 1	NRC review of RELAP5 documentation	These also address the applicability of Reference 3 of the cover letter.
Not applicable ML14202A045 (Cover Letter Ref. 6)	SRXB, Question 2	Not using 3D capability of RELAP5 3D	
Applicable ML14202A045 (Cover Letter Ref. 6)	SRXB, Question 3	NRC review of RELAP5 documentation	
Applicable ML14202A045 (Cover Letter Ref. 6)	SRXB, Question 4	NRC review of RELAP5 documentation	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Not applicable ML14149A434 (Cover Letter Ref.4)	SRXB, Question 5a	Limiting values used in RoverD methodology	
Not applicable ML14149A434 (Cover Letter Ref.4)	SRXB, Question 5b	Table not used	Not using CASA Grande to calculate these values.
Not applicable ML14149A434 (Cover Letter Ref.4)	SRXB, Question 5c	RoverD uses different assumptions for the calculation.	
Not applicable	SRXB, Question 6	Part of input for conditional failure probabilities, which are not being used in RoverD	
Applicable ML14149A434 (Cover Letter Ref.4)	SRXB, Question 7a, 7b	HLSO procedure is not changed for RoverD methodology	
Not applicable ML14149A434 (Cover Letter Ref.4)	SRXB, Question 8	RoverD applies bounding sensitivities for ECCS flow	
Applicable ML14149A434	SRXB, Question 9	Flow combination definitions still apply	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
(Cover Letter Ref.4)			
SSIB RAIs			
Applicable ML14149A434 (Cover Letter Ref.4)	SSIB, ZOI: Question 1	Debris transport in CASA still required	
Applicable ML14149A434 (Cover Letter Ref.4)	SSIB, Debris Characteristics: Question 2	Debris transport in CASA still required	
Not applicable	SSIB, Debris Characteristics: Question 3	Not using head loss correlation	
Applicable	SSIB, Transport: Question 4	Debris transport in CASA still required	
Not applicable ML14149A434 (Cover Letter Ref.4)	SSIB, Transport: Question 5	Supplement 2 establishes transport fraction for pool fill at 5%.	
Applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Transport: Question 6a, 6b, 6c, 6d, 6e, 7a, 7b, 7c, 7d, 7e	Debris generation and transport models are not changed.	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Transport: Question 7f	RAI was an editorial correction	
Applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Transport: Question 8a, 8b, 8c, 8d, 8e	STPNOC assumes no credit for hold up of partially submerged debris on the concrete of the operating deck.	
Not applicable ML14149A434 (Cover Letter Ref.4)	SSIB, Transport: Question 9	The revised methodology holds up and erodes smalls instead of transporting them.	
Applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Transport: Question 10	Discussion of no transport after sprays are secured is still valid.	
Not applicable ML14149A434 (Cover Letter Ref.4)	SSIB, Transport: Question 11a	Correlations are not used in RoverD	
Not applicable ML14149A434 (Cover Letter Ref.4)	SSIB, Transport: Question 11b	Correlations are not used in RoverD	
Applicable	SSIB, Transport: Question 11c	Basis is not changed for RoverD	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
ML14149A434 (Cover Letter Ref.4)			
Not applicable ML14149A434 (Cover Letter Ref.4)	SSIB, Transport: Question 11d	Correlations are not used in RoverD	
Not applicable ML14149A434 (Cover Letter Ref.4)	SSIB, Transport: Question 11e	Correlations are not used in RoverD	
Applicable	SSIB, Transport: Question 12	Transport model not changed	
Applicable ML14149A434 (Cover Letter Ref.4)	SSIB, Transport: Question 13	Micro-Therm still transports as fines in current methodology.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Head Loss and Chemical Effects Bump Up: Question 14	Head loss correlations are not used in RoverD	
Not applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Head Loss and Chemical Effects Bump Up: Question 15a, 15b, 15c, 15d, 16a, 16b, 16c, 16d, 17a, 17b, 17c, 17d, 17e, 17f, 18a, 18b, 18c,	Head loss correlations are not used in RoverD	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
	18d, 18e, 19, 20, 21a, 21b, 21c, 21d, 22, 23, 24		
Not applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, Head Loss and Chemical Effects Bump-up: Questions 25a, 25b, 26a, 26b, 26d, 26e, 26f	Head loss correlations are not used in RoverD	
Applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, Head Loss and Chemical Effects Bump-up: Question 26c	Strainer loading related to actual performance compared to test	
Applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Head Loss and Chemical Effects Bump Up: Question 27	Strainer LB NPSH	
Not applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Head Loss and Chemical Effects Bump Up: Question 28	Head loss correlations are not used in RoverD	
Applicable ML14149A434 (Cover Letter Ref.4)	SSIB, NPSH and Degasification: Question 29	Strainer NPSH	Not a CASA Grande calculation for current application; however, STP Engineering calculation includes the same considerations

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Not applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, NPSH and Degasification: Question 30	NPSHR is now a different calculation that credits accident pressure. Response is superseded by response to SSIB Follow up RAIs 33 and 34.	
Applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, NPSH and Degasification: Question 31	Strainer LB NPSH	Portions of the response related to use of CASA Grande are not applicable
Applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, NPSH and Degasification: Question 32	Strainer LB NPSH	STP Engineering calculation instead of CASA Grande calculation.
Not applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, NPSH and Degasification: Question 33	Not done with CASA Grande methodology for current LAR supplement. This was done in the deterministic calculation by Enercon.	
Not applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, NPSH and Degasification: Question 34	Containment Spray flows are addressed in FIDOE discussion in Attachment 1-3 to cover letter Ref.2 (ML15246A126 cover /127 attachment)	
Not applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, NPSH and Degasification: Question 35	The CASA evaluation described in the RAI 35 response used the equivalent diameter to assign LOCA category. RoverD does not assign LOCA categories based on equivalent diameter.	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Not applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, NPSH and Degasification: Question 36	Superseded by information in Att. 1-2 p.56 cover letter Ref. 2, (ML15246A126 cover letter/A127 attachment)	
Not applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, In-Vessel and Boric Acid Precipitation: Question 37	See BAP discussion in Att. 1-3 to cover letter Ref. 2, (ML15246A126 cover letter/A127 attachment)	
Not applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, NPSH and Degasification: Question 38	See FIDOE discussion in Att. 1-3 of cover letter Ref. 2, (ML15246A126 cover letter/A127 attachment)	
Applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, Debris Bypass: Question 39a, 39b, 39c, 39d, 39e, 39f	Debris bypass is required for downstream analysis in RoverD.	
Not applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Defense In Depth and Mitigative Measures: Question 40	See DID and Safety Margin in Att. 1-4 to cover letter Ref. 2, (ML15246A126 cover/A127 attachment)	References to earlier CDF and LERF are not applicable, but qualitative discussion still applies.
Not applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, Defense in Depth and Mitigative Measures: Question 41a	Risk methodology has changed	Discussion with regard to EOPs is applicable. Description of application of risk methodology is not applicable.

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, Defense in Depth and Mitigative Measures: Question 41b	DID and SM required by RG 1.174	
Applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, Defense in Depth and Mitigative Measures: Question 41c	DID and SM required by RG 1.174	
Applicable ML14178A481 (Cover Letter Ref. 5)	SSIB, Defense in Depth and Mitigative Measures: Question 41d	DID and SM required by RG 1.174	
Applicable ML14202A045 (Cover Letter Ref. 6)	SSIB, Defense In Depth and Mitigative Measures: Question 42	DID and SM required by RG 1.174	
STSB RAIs			
Not applicable ML14149A434 (Cover Letter Ref.4)	STSB: Question 1	Although response accurately describes application of RMTS, RMTS would not be required for proposed 90-day completion time	
Not applicable ML14149A434 (Cover Letter Ref.4)	STSB: Question 2	Although response accurately describes application of RMTS, RMTS would not be required for proposed 90-day completion time	

Applicability and Letter Reference for Response	RAI	Applicability Basis	Comments
Applicable ML14149A434 (Cover Letter Ref.4)	STSB: Question 3	Engineering change control still manages quantities of material going into RCB	

Table 2
Applicability of Responses to Round 2 RAIs (ML14357A171)

Applicability (All responses are in ML15091A440)	RAI	Applicability Basis	Comments
APLAB RAIs			
Applicable	Question 1: Project Quality Assurance	Appropriate quality controls required for license activities	
Not applicable	Question 2: Project Quality Assurance	CASA Grande 1.7.2 is controlled in accordance with the STPNOC SQA program	
Applicable	Question 3: Project Quality Assurance	Appropriate quality controls required for license activities	
Applicable	Question 4: Project Quality Assurance	Appropriate quality controls required for license activities	

Applicability (All responses are in ML15091A440)	RAI	Applicability Basis	Comments
Applicable	Question 1: Treatment of Unanalyzed Plant Conditions	Appropriately refers to RoverD	
Applicable	Question 7: Human Reliability Analysis	Appropriately refers to RoverD	
Applicable	Question 1: Key Assumptions/Key Sources of Uncertainty	Appropriately refers to RoverD	
Applicable	Question 1: Validity of Assumption on Pump Configurations	Appropriately refers to RoverD	
Applicable	Question 7: CASA Grande to PRA Interface	Appropriately refers to RoverD. The methodology now strictly looks for smallest break size below which tested fines amounts are not exceeded.	
Applicable	Question 1: Fidelity between RELAP Simulations and CASA Grande	Appropriately refers to RoverD	
Applicable	Question 1: State-of-Knowledge Correlation	Appropriately refers to RoverD. RoverD does not calculate failure probabilities. Instead, RoverD calculates core damage frequencies come from direct evaluation of the NUREG 1829 quantiles and means.	

Applicability (All responses are in ML15091A440)	RAI	Applicability Basis	Comments
Applicable	Question 1: Selection of Johnson Parameters	Appropriately refers to Rover D. RoverD evaluates calculates core damage frequencies from direct evaluation of the NUREG 1829 quantiles and means.	
Applicable	Question 2	Strainer mechanical must be met for RoverD.	Also addressed in Att. 1-2 to cover letter Ref. 2, p. 81-82 (ML15246A126 cover letter/A127 attachment)
ESGB RAIs			
Applicable	Question 23: Chemical Effects	Appropriately refers to RoverD	
Applicable	Question 24: Chemical Effects	Appropriately refers to RoverD	
Applicable	Question 25: Chemical Effects	Appropriately refers to RoverD	
Applicable	Question 26: Chemical Effects	Appropriately refers to RoverD	
Applicable	Question 27: Chemical Effects	Appropriately refers to RoverD	
Applicable	[ML15091A440]Question 28: Chemical Effects	Appropriately refers to RoverD.	
Applicable	Question 29: Chemical Effects	Appropriately refers to RoverD.	
Applicable	Question 30: Chemical Effects	Appropriately refers to RoverD.	
Applicable	Question 31: Chemical Effects	Appropriately refers to RoverD.	
Applicable	Question 32: Chemical Effects	Appropriately refers to RoverD.	

Applicability (All responses are in ML15091A440)	RAI	Applicability Basis	Comments
Applicable	Question 33: Chemical Effects	Response not affected by methodology change.	
Not applicable	Question 34: Chemical Effects	RoverD does not use correlations to evaluate strainer head loss.	Response is applicable in that it provides the clarification requested by the reviewer.
Applicable	Question 8: Coatings	All unqualified coatings were included in the STP 2008 strainer test used by RoverD. This is also addressed in Round 3 SSIB RAIs.	
Applicable	Question 9: Coatings	Response appropriately refers to RoverD	Topic to be further addressed in response to Round 3 RAIs sent in ML16082A507
Applicable	Question 10: Coatings	Response appropriately refers to RoverD methodology.	Topic to be further addressed in response to Round 3 RAIs sent in ML16082A507
SCVB RAIs			
Not applicable	Responses to SCVB RAIs 10 - 18 from NRC letter dated March 3, 2015 (ML14357A171), as provided in STPNOC letter dated March 25, 2015 (ML15091A440).	Revised responses to each of these RAIs were provided in Att. 1-6 to STPNOC's August 20, 2015, Supplement 2 to the application (ML15246A128)	Also see evaluation of responses to initial SCVB RAIs 1 - 9, above
SNPB RAIs			
Applicable	Question 6	BAP must be met in RoverD	BAP is also addressed in later RAIs
Applicable	Question 7	BAP must be met in RoverD	BAP is also addressed in later RAIs

Applicability (All responses are in ML15091A440)	RAI	Applicability Basis	Comments
Applicable	Question 8	BAP must be met in RoverD	BAP is also addressed in later RAIs
Applicable	Question 9	BAP must be met in RoverD	BAP is also addressed in later RAIs
Applicable	Question 10	RoverD does not rely on HLSO timing	Note that statement that "RoverD analysis relies on current UFSAR hot leg switchover time" only means that RoverD does not do a calculation that depends on HLSO time. The RoverD analysis shows there is no effect of debris on BAP.
Applicable	Question 43	RoverD uses debris generation and transport to find critical/ non-critical weld locations	
Applicable	Question 44	RoverD uses debris generation and transport to find critical/ non-critical weld locations	
Not applicable	Question 45	Fractions have changed from 11/2013 LAR	Revised fractions are provided in response to Round 3 SSIB RAI-3.
Applicable	Question 46	RoverD uses debris generation and transport to find critical/ non-critical weld locations	
Applicable	Question 47	RoverD is appropriately referenced.	
Applicable	Question 48	RoverD is appropriately referenced.	
Applicable	Question 49	RoverD requires strainer performance calculation	

Applicability (All responses are in ML15091A440)	RAI	Applicability Basis	Comments
Applicable	Question 50	RoverD is appropriately referenced in the response and does not use correlations for head loss	
Applicable	Question 51	RoverD requires strainer performance calculation and response appropriately refers to 2008 evaluations.	
Applicable	Question 52	RoverD requires strainer performance calculation and response appropriately refers to 2008 evaluations.	
Not applicable	Question 53	RoverD does not use probability distributions for performance modeling	
Applicable	Question 54	RoverD requires strainer performance calculation	Round 3 RAIs also address flashing
Applicable	Question 55	Response provides clarification for implementation of backwash as defense-in-depth	
Applicable	Question 55a	RoverD does not use correlations for head loss	
Applicable	Question 56	RoverD requires strainer penetration calculation	
Applicable	Question 57(a)	RoverD requires strainer penetration calculation	
Applicable	Question 57(b)	RoverD requires strainer penetration calculation	
Applicable	Question 57(c)	RoverD requires strainer penetration calculation	
Applicable	Question 57(d)	RoverD requires strainer penetration calculation	

Applicability (All responses are in ML15091A440)	RAI	Applicability Basis	Comments
Applicable	Question 57(e)	RoverD requires strainer penetration calculation	
Applicable	Question 57(f)	RoverD requires strainer penetration calculation	
Not applicable	Question 58	Although there are some parallels, RoverD uses a different sampling process.	
Applicable	Question 59	RoverD requires the CAD model and CASA Grande for debris generation and transport	
Applicable	Question 60	Latent fiber and eroded fiber are required for RoverD	
Applicable	Question 61	RoverD requires the CAD model and CASA Grande for debris generation and transport	
Applicable	Question 62	RoverD does not use correlations for head loss	
Applicable	Question 63	RoverD does not use correlations for head loss	
Applicable	Question 64	RoverD does not use correlations for head loss	
Applicable	Question 65	RoverD does not use correlations for head loss	
Applicable	Question 66	RoverD addresses BAP as required by NRC guidance	Note that statement that "RoverD analysis relies on current UFSAR hot leg switchover time" only means that RoverD does not do a calculation that depends on HLSO time. The RoverD analysis shows there is no effect of debris on BAP.

Applicability (All responses are in ML15091A440)	RAI	Applicability Basis	Comments
STSB RAIs			
Applicable	Question 4	Application to clarify use of risk information	August 20, 2015, Supplement 2 proposed TS changes that are consistent with the description in this RAI. Further information will be provided in response to Round 3 RAI from STSB.

Attachment 3
Definitions and Acronyms

Definitions and Acronyms

ANS	American Nuclear Society	EOF	Emergency Operations Facility
ARL	Alden Research Laboratory	EOP	Emergency Operating Procedure(s)
ASME	American Society of Mechanical Engineers	EPRI	Electric Power Research Institute
BA	Boric Acid	EQ	Equipment Qualification
BAP	Boric Acid Precipitation	ESF	Engineered Safety Feature
BC	Branch Connection	FA	Fuel Assembly(s)
BEP	Best Efficiency Point	FHB	Fuel Handling Building
B-F	Bimetallic Welds	GDC	General Design Criterion(ia)
B-J	Single Metal Welds	GL	Generic Letter
BWR	Boiling Water Reactor	GSI	Generic Safety Issue
CAD	Computer Aided Design	HHSI	High Head Safety Injection (ECCS Subsystem)
CASA	Containment Accident Stochastic Analysis	HLB	Hot Leg Break
CCDF	Complementary Cumulative Distribution Function or Conditional Core Damage Frequency	HTVL	High Temperature Vertical Loop
CCW	Component Cooling Water	HLSO	Hot Leg Switchover
CDF	Core Damage Frequency	ID	Inside Diameter
CET	Core Exit Thermocouple(s)	IGSCC	Intergranular Stress Corrosion Cracking
CHLE	Corrosion/Head Loss Experiments	ISI	In-Service Inspection
CHRS	Containment Heat Removal System	LAR	License Amendment Request
CLB	Cold Leg Break or Current Licensing Basis	LBB	Leak Before Break
CRMP	Configuration Risk Management Program	LBLOCA	Large Break Loss of Coolant Accident
CS	Containment Spray	LCO	Limiting Condition for Operability
CSHL	Clean Strainer Head Loss	LDFG	Low Density Fiberglass
CSS	Containment Spray System (same as CS)	LERF	Large Early Release Frequency
CVCS	Chemical Volume Control System	LHS	Latin Hypercube Sampling
DBA	Design Basis Accident	LHSI	Low Head Safety Injection (ECCS Subsystem)
DBD	Design Basis Document	LOCA	Loss of Coolant Accident
D&C	Design and Construction Defects	LOOP/LOSP	Loss of Off Site Power
DEGB	Double Ended Guillotine Break	MAAP	Modular Accident Analysis Program
DID	Defense in Depth	MAB/MEAB	Mechanical Auxiliary Building or Mechanical Electrical Auxiliary Building
DM	Degradation Mechanism	MBLOCA	Medium Break Loss of Coolant Accident
ECC	Emergency Core Cooling (same as ECCS)	NIST	National Institute of Standards and Technology
ECCS	Emergency Core Cooling System	NLHS	Non-uniform Latin Hypercube Sampling
ECWS	Essential Cooling Water System (also ECW)		

Definitions and Acronyms

NPSH	Net Positive Suction Head, (NPSHA – available, NPSHR – required)	RWST	Refueling Water Storage Tank
NRC	Nuclear Regulatory Commission	SBLOCA	Small Break Loss of Coolant Accident
NSSS	Nuclear Steam Supply System	SC	Stress Corrosion
OBE	Operating Basis Earthquake	SI/SIS	Safety Injection, Safety Injection System (same as ECCS)
OD	Outer Diameter	SIR	Safety Injection and Recirculation
PCI	Performance Contracting, Inc.	SR	Surveillance Requirement
PCT	Peak Clad Temperature	SRM	Staff Requirements Memorandum
PDF	Probability Density Function	SSE	Safe Shutdown Earthquake
PRA	Probabilistic Risk Assessment	STP	South Texas Project
PWR	Pressurized Water Reactor	STPEGS	South Texas Project Electric Generating Station
PWROG	Pressurized Water Reactor Owner's Group	STPNOC	STP Nuclear Operating Company
PWSCC	Primary Water Stress Corrosion Cracking	TAMU	Texas A&M University
QDPS	Qualified Display Processing System	TF	Thermal Fatigue
RAI	Request for Additional Information	TGCC	Transgranular Stress Corrosion Cracking
RCB	Reactor Containment Building	TS	Technical Specification(s)
RCFC	Reactor Containment Fan Cooler	TSB	Technical Specification Bases
RCS	Reactor Coolant System	TSC	Technical Support Center
RG	Regulatory Guide	TSP	Trisodium Phosphate
RHR	Residual Heat Removal	UFSAR	Updated Final Safety Analysis Report
RI-ISI	Risk-Informed In-Service Inspection	UNM	University of New Mexico
RMI	Reflective Metal Insulation	USI	Unresolved Safety Issue
RMTS	Risk Managed Technical Specifications	UT	University of Texas (Austin)
RoverD	Risk over Deterministic Methodology	V&V	Verification and Validation
RVWL	Reactor Vessel Water Level	VF	Vibration Fatigue
		WCAP	Westinghouse Commercial Atomic Power
		ZOI	Zone of Influence