Nuclear Operating Company

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

June 29, 2015
NOC-AE-15003266
10 CFR 50.90
File No. G25

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

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
South Texas Project (STP), Units 1 and 2 License Amendment Request for
Extending the 10 year ILRT to 15 years PRA Supplement

References: 1. Letter from G.T. Powell, STPNOC, to NRC Document Control Desk, "Units 1 and 2 License Amendment Request for Extending the 10 year ILRT to 15 years," dated April 29, 2015. (NOC-AE-15003227)

2. Email from Lisa Regner, NRC to Lance Sterling, STPNOC, "Updated Final Safety Analysis Report Revision 16," dated June 1, 2015. (ML15156A383)

In accordance with the provisions of 10 CFR 50.90, STP Nuclear Operating Company (STPNOC) requested a license amendment to South Texas Project Operating Licenses NPF-76 and NPF-80 in Reference 1. Subsequently, in Reference 2, the NRC provided feedback to STPNOC related to the need of enhancing the original submittal with additional Probabilistic Risk Assessment (PRA) information. The intent of the letter is to provide a Supplement to the original License Amendment Request (Reference 1) to address the PRA clarifications.

This License Amendment Request (LAR) and respective Technical Specification change reflects a change to extend the Integrated Leak Rate Test (ILRT) performance interval from 10 years to every 15 years in accordance with NEI 94-01, Revision 2A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J".

This letter contains one enclosure that is considered non-proprietary. The enclosure provides additional clarifications regarding the probabilistic risk assessment portion of the requested permanent extension to the ILRT interval.

There are no commitments in this letter.

A017
NRR

STI: 34147505

If there are any questions regarding the proposed amendment, please contact Rafael Gonzales at (361) 972-4779 or me at 361-972-7566.

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

Executed on June 29, 2015
Date

G.T. Powell
G.T. Powell
Site Vice President

rjg

Enclosure:

Supplement Response Related to Technical Specification 6.8.3.j for a Permanent Change in 10CFR50 Appendix J Integrated Leakage Rate Test Interval

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Enclosure

Supplement Response Related to Technical Specification 6.8.3.j for a Permanent Change in 10CFR50 Appendix J Integrated Leakage Rate Test Interval

NRC Issue

1. EPRI TR-1009325, Revision 2-A states that "[w]here possible, the analysis should include a quantitative assessment of the contribution of external events (e.g., fire and seismic) in the risk impact assessment for extended ILRT intervals. For example, where a licensee possesses a quantitative fire analysis and that analysis is of sufficient quality and detail to assess the impact, the methods used to obtain the impact from internal events should be applied for the external event. If the external event analysis is not of sufficient quality or detail to directly apply the methodology provided in this document, the quality or detail will be increased or a suitable estimate of the risk impact from the external events should be performed. This assessment can be taken from existing, previously submitted and approved analyses or other alternate method of assessing an order of magnitude estimate for contribution of the external event to the impact of the changed interval." The licensee stated in the submittal that the PRA used to support this application includes a seismic PRA and a fire PRA. As the licensee showed in other applications that other external events such as tornados and external flooding have relatively large contributions to the overall plant risk, describe how the impact of all external events is considered in the risk assessment for extended ILRT intervals, per the guidance in EPRI TR-1009325, Revision 2-A.

STPNOC Response

The scope of the STPNOC PRA is Level I and Level II, including external and internal hazards such as internal floods, seismic events, internal fires, high winds, and external flooding. The PRA risk results include the impact of all of the above. Therefore, the STPNOC PRA overall scope is sufficient to address the risk impact associated with the ILRT extension.

NRC Issue

2. In the safety evaluation report (SER) for the EPRI TR-1009325, Revision 2, dated June 25, 2008 [ADAMS Accession No. ML081140105], the NRC staff required that the licensee submit documentation indicating that the technical adequacy of their Probabilistic Risk Assessment (PRA) is consistent with the requirements of Regulatory Guide (RG) 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," relevant to the ILRT extension application.

   Consistent with the information provided in Regulatory Issue Summary (RIS) 2007-06 (ADAMS Accession No. ML070650428), "Regulatory Guide 1.200 Implementation," the NRC staff will use Revision 2 of RG 1.200 (ADAMS Accession No. ML090410014) to assess technical adequacy of the PRA used to support risk-informed applications received after March 2010. In Section 3.2.4.1 of the SER for NEI 94-01, Revision 2 and EPRI TR-1009325, Revision 2, the NRC staff states that Capability Category I of the American Society of Mechanical Engineers (ASME) PRA standard shall be applied as the standard for assessing PRA quality for IRLT extension applications, since approximate values of CDF and large early release frequency (LERF) and their distribution among release categories are sufficient to support the evaluation of changes to ILRT frequencies.

   The LAR states that "STPNOC's PRA complies with Regulatory Guide (RG) 1.200, Rev.2 with two exceptions. It does not comply with RG. 1.200 Rev. 2 with respect to Fire PRA [...] and Seismic PRA requirements." Provide documentation, such as peer review findings and a description of their disposition or impact, gap assessments, etc., that demonstrates compliance of the SPTNOC's internal events PRA with Revision 2 of RG 1.200, at Capability Category I as required for the ILRT application.

   STPNOC Response

   STPNOC's PRA meets Capability Category II with respect to RG 1.200 Revision 1 for internal events. RG 1.200 Revision 2 provides new guidance for certain external events but contains the same basic guidance as RG 1.200 Revision 1 for internal events. The STP plant-specific PRA was successfully peer reviewed against the requirements of Revision 1 of RG 1.200. All findings and observations from the STP peer review against Revision 1 of RG 1.200 were addressed during the process of implementing (and receiving approval for) the STP Risk Managed Technical Specification program (References [1] and [2]). A gap assessment of the STP PRA against RG 1.200 Revision 2 was performed using utilizing NEI 05-04, Revision 3. That assessment determined that the only areas where the STP PRA was not compliant with RG 1.200 Revision 2 was the technical elements related to uncertainty analysis in internal flooding (see Attachment). Due to the high degree of compartmentalization and three safety train design all internal flood scenarios have been screened from further consideration and are not in the PRA model. Additionally, the STPNOC PRA assessment supporting the requested extension of the ILRT from 10 years to 15 years notes that it would require a significant change in Core Damage Frequency (CDF) to challenge the assessment conclusions.

   Based upon the above, it is concluded that the STPNOC PRA is fully capable of assessing the severe accident risk impact of the ILRT extension request.

References:

[1] STP Nuclear Operating Company, "South Texas Project, Units 1 and 2 – Issuance of Amendments RE: Broad-Scope Risk-Informed Technical Specifications Amendments (TAC Nos. MD 2341 & MD 2342), July 13, 2007. (ML071780168)

[2] STP Nuclear Operating Company, "STP Project Units 1 and 2, Dockets Nos. STN 50-498, STN 50-499, Response to NRC Requests for Additional Information on STP Proposed Risk Managed Technical Specifications (TAC Nos. MD 2341 & MD 2342), NOC-AE-07002112, February 28, 2007. (ML070670369)

Attachment:

PRA Analysis/Assessment PRA 15-007, Rev. 1 (Excerpt), Gap Analysis Against Regulatory Guide 1.200 Revision 2

Attachment

PRA Analysis/Assessment PRA 15-007, Rev. 1 (Excerpt)
Gap Analysis Against Regulatory Guide 1.200 Revision 2

Purpose and Scope

The purpose of this analysis is to perform a gap assessment of the STP PRA model (STP_RV72) against the requirements of Regulatory Guide 1.200 Revision 2 for internal events.

Background

The STP PRA internal events model satisfies Capability Category II of Regulatory Guide (RG) 1.200 Revision 1 [Ref. 6] as indicated in Reference 5.

RG 1.200 Rev. 1 endorses the ASME RA-Sb-2005 PRA standard for nuclear power plant applications [Ref. 8]. RG 1.200 Revision 2 endorses ASME/ANS RA-Sa-2009 [Ref. 9].

Discussion

In the ASME RA-Sb-2005 standard [Ref. 8] internal fires were considered to be external events. The ASME/ANS RA-Sa-2009 standard [Ref. 9] moved internal fires from external events to internal events. This assessment will not address internal fires or external events.

It should also be noted that in Individual Plant Examination (IPE) [Ref. 11] internal floods analysis was performed as part of the Spatial Interactions Analysis. All internal floods were screened out and concluded "there is no significant internal flooding initiating event considered for quantification in the STP plant model."

Method of Analysis

NEI 05-04 [Ref. 10] outlines an approach in performing a gap assessment against RG 1.200 Rev. 2. Section 3.3 of NEI 05-04 identifies that most of the changes in the transition from the ASME RA-Sb-2005 standard to the ASME/ANS RA-Sa-2009 standard were minor. Some changes to Supporting Requirements (SR) were identified in needing a gap assessment to re-evaluate the PRA against the ASME/ANS PRA Standard requirements. Those SRs are listed in Table 1 below which represents Table 3-2 of NEI 05-04.

Table 1: SRs Requiring Gap Assessment Evaluation

SR	Comments
HR-D6	RG 1.200, Revision, 2 provides clarification that should be evaluated.
HR-G3	RG 1.200, Revision 2, provided clarification to items (d) and (g) of the SR. Some of the RG 1.200, Revision 1 wording remains, while some additional clarification is provided.
New DA SR	RG 1.200, Revision 1, included a new SR -- DA-D8. The recommended new SR is included in RG 1.200, Revision 2, as DA-D9 (with the renumbering).
QU-A2	Need to ensure QU-A2 evaluates LERF results.
QU-A3	Need to ensure QU-A3 evaluates LERF results.
QU-B5	RG 1.200, Revision 2, provides clarification that should be evaluated. Need to verify breaking logic loops does not result in undue conservatism.
QU-B6	Need to ensure QU-B6 evaluates LERF results.
QU-E3	Need to ensure QU-E3 evaluates LERF results.
QU-E4	Revision 1, Addendum A of the ASME/ANS Standard rewords this SR. Additionally, RG 1.200, Revision 2, provides clarification to remove Note 1.
Flooding SRs: IFPP-B1, B2, B3, IFSO-B1, B2, B3, IFSN-B1, B2, B3, IFEV-B1, B2, B3, and IFQU-B1, B2, B3.	These are new requirements for flooding that expand on the original SRs in the ASME/ANS PRA Standard.
IFSN-A6	RG 1.200, Revision 2, provides clarification that should be evaluated.

Additional SRs are identified in NEI 05-04 in Section 3.3.2 to be addressed if the PRA was not evaluated against ASME RA-Sb-2005 and the RG 1.200 Rev. 1 recommended changes (i.e. NRC comments/resolutions). Given that the STP PRA satisfies RG 1.200 Rev. 1 as stated above in Reference 5, this assessment will not perform a gap analysis of the elements identified in Section 3.3.2 of NEI 05-04.

Table 2 defines the SRs per the Capability Category II of the ASME/ANS RA-Sa-2009 standard with the RG 1.200 Rev. 2 recommended changes (i.e. NRC comments/resolutions) that will be evaluated in the gap assessment.

Table 2: SR Definitions and Resolutions

SR	Category II (ASME/ANS RA-Sa-2009)	RG 1.200 Rev. 2
HR-D6	PROVIDE an assessment of the uncertainty in the HEPs in a manner consistent with the quantification approach. USE mean values when providing point estimates of HEPs.	Issue: This SR should be written similarly to HR-G9. Position: Clarification: Resolution: ~~PROVIDE an assessment of the uncertainty in the .... point estimates of HEPs.~~ **CHARACTERIZE the uncertainty in the estimates of the HEPs consistent with the quantification approach, and PROVIDE mean values for use in the quantification of the PRA results.**
HR-G3	When estimating HEPs EVALUATE the impact of the following plant-specific and scenario-specific performance shaping factors: (a) quality [type (classroom or simulator) and frequency] of the operator training or experience (b) quality of the written procedures and administrative controls (c) availability of instrumentation needed to take corrective actions (d) degree of clarity of the cues/indications (e) human-machine interface (f) time available and time required to complete the response (g) complexity of the required response (h) environment (e.g., lighting, heat, radiation) under which the operator is working (i) accessibility of the equipment requiring manipulation (j) necessity, adequacy, and availability of special tools, parts, clothing, etc.	Issue: In item (d) of CC II, III, clarify that "clarity" refers the meaning of the cues, etc. In item (a) of CC I and item (g) of CC II, III, clarify that complexity refers to both determining the need for and executing the required response. Position: Clarification Response: Cat II, and III: (d) degree of clarity of the cues/indications **in supporting the detection, diagnosis, and decision-making give the plant specific and scenario-specific context of the event.** (g) complexity of **detection, diagnosis and decision-making, and executing** the required response."

SR	Category II (ASME/ANS RA-Sa-2009)	RG 1.200 Rev. 2
DA-D9		Issue: New requirement needed, DA-C15 was incomplete, only provided for data collection, not quantification of repair. (See SY-A24.) Position: Qualification Response: Cat I, II, and III: **For each SSC for which repair is to be modeled, ESTIMATE, based on the data collected in DA-C15, the probability of failure to repair the SSC in time to prevent core damage as a function of the accident sequence in which the SSC failure appears.**
QU-A2	PROVIDE estimates of the individual sequences in a manner consistent with the estimation of total CDF to identify significant accident sequences/cutsets and confirm the logic is appropriately reflected. The estimates may be accomplished by using either fault tree linking or event trees with conditional split fractions.	Issue: Need to acknowledge LERF quantification Position: Clarification: Resolution: …consistent with the estimation of total CDF **(and LERF)** to identify significant accident…
QU-A3	ESTIMATE the mean CDF accounting for the state-of- knowledge correlation between event probabilities when significant [Note (1)].	Issue: The state-of-knowledge correlation should be accounted for all event probabilities. Left to the analyst to determine the extent of the events to be correlated. Need to also acknowledge LERF quantification Position: Clarification Resolution: Cat II: ESTIMATE the mean CDF **(and LERF)**, accounting for the "state-of-knowledge" correlation between event probabilities ~~when significant~~ (see NOTE 1).

SR	Category II (ASME/ANS RA-Sa-2009)	RG 1.200 Rev. 2
QU-B5	Fault tree linking and some other modeling approaches may result in circular logic that must be broken before the model is solved. BREAK the circular logic appropriately. Guidance for breaking logic loops is provided in NUREG/CR-2728 [2-13]. When resolving circular logic, DO NOT introduce unnecessary conservatisms or non-conservatisms.	None/No Objection
QU-B6	ACCOUNT for system successes in addition to system failures in the evaluation of accident sequences to the extent needed for realistic estimation of CDF. This accounting may be accomplished by using numerical quantification of success probability, complementary logic, or a delete term approximation and includes the treatment of transfers among event trees where the "successes" may not be transferred between event trees.	Issue: Need to acknowledge LERF quantification Position: Clarification Resolution: ACCOUNT for … realistic estimation of CDF **or LERF**. This accounting …
QU-E3	ESTIMATE the uncertainty interval of the CDF results. ESTIMATE the uncertainty intervals associated with parameter uncertainties (DA-D3, HR-D6, HR-G8, IE-C15), taking into account the "state-of-knowledge" correlation.	Issue: Need to acknowledge LERF quantification Position: Clarification Resolution: Cat I and II: ESTIMATE the uncertainty interval of the CDF **(and LERF)** results.
QU-E4	For each source of model uncertainty and related assumption identified in QU-E1 and QU-E2, respectively, IDENTIFY how the PRA model is affected (e.g., introduction of a new basic event, changes to basic event probabilities, change in success criterion, introduction of a new initiating event) [Note (1)]. NOTE: (1) For specific applications, key assumptions and parameters should be examined both individually and in logical combinations.	Issue: The note has no relevance to the base model and could cause confusion; it should be deleted. Position: Clarification Resolution: For each source of model uncertainty …introduction of a new initiating event) ~~[Note (1)].~~ ~~NOTE: For specific applications, …~~ ~~And in logical combinations.~~

SR	Category II (ASME/ANS RA-Sa-2009)	RG 1.200 Rev. 2
IFPP-B1	DOCUMENT the internal flood plant partitioning in a manner that facilitates PRA applications, upgrades, and peer review.	None/No Objection
IFPP-B2	DOCUMENT the process used to identify flood areas. For example, this documentation typically includes (a) flood areas used in the analysis and the reason for eliminating areas from further analysis (b) any walkdowns performed in support of the plant partitioning	None/No Objection
IFPP-B3	DOCUMENT sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood plant partitioning.	None/No Objection
IFSO-B1	DOCUMENT the internal flood sources in a manner that facilitates PRA applications, upgrades, and peer review.	None/No Objection
IFSO-B2	DOCUMENT the process used to identify applicable flood sources. For example, this documentation typically includes (a) flood sources identified in the analysis, rules used to screen out these sources, and the resulting list of sources to be further examined (b) screening criteria used in the analysis (c) calculations or other analyses used to support or refine the flooding evaluation (d) any walkdowns performed in support of the identification or screening of flood sources	None/No Objection
IFSO-B3	DOCUMENT sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood sources.	None/No Objection
IFSN-B1	DOCUMENT the internal flood scenarios in a manner that facilitates PRA applications, upgrades, and peer review.	None/No Objection

SR	Category II (ASME/ANS RA-Sa-2009)	RG 1.200 Rev. 2
IFSN-B2	DOCUMENT the process used to identify applicable flood scenarios. For example, this documentation typically includes (a) propagation pathways between flood areas and assumptions, calculations, or other bases for eliminating or justifying propagation pathways (b) accident mitigating features and barriers credited in the analysis, the extent to which they were credited, and associated justification (c) assumptions or calculations used in the determination of the impacts of submergence, spray, temperature, or other flood-induced effects on equipment operability (d) screening criteria used in the analysis (e) flooding scenarios considered, screened, and retained (f) description of how the internal event analysis models were modified to model these remaining internal flood scenarios (g) calculations or other analyses used to support or refine the flooding evaluation (h) any walkdowns performed in support of the identification or screening of flood scenarios	None/No Objection
IFSN-B3	DOCUMENT sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood scenarios.	None/No Objection
IFEV-B1	DOCUMENT the internal flood-induced initiating events in a manner that facilitates PRA applications, upgrades, and peer review.	None/No Objection

SR	Category II (ASME/ANS RA-Sa-2009)	RG 1.200 Rev. 2
IFEV-B2	DOCUMENT the process used to identify applicable flood-induced initiating events. For example, this documentation typically includes (a) flood frequencies, component unreliabilities/unavailabilities, and HEPs used in the analysis (i.e., the data values unique to the flooding analysis) (b) calculations or other analyses used to support or refine the flooding evaluation (c) screening criteria used in the analysis	None/No Objection
IFEV-B3	Document sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood-induced initiating events.	None/No Objection
IFQU-B1	DOCUMENT the internal flood accident sequences and quantification in a manner that facilitates PRA applications, upgrades, and peer review.	None/No Objection
IFQU-B2	DOCUMENT the process used to define the applicable internal flood accident sequences and their associated quantification. For example, this documentation typically includes (a) calculations or other analyses used to support or refine the flooding evaluation (b) screening criteria used in the analysis (c) flooding scenarios considered, screened, and retained (d) results of the internal flood analysis, consistent with the quantification requirements provided in HLR-QU-D (e) any walkdowns performed in support of internal flood accident sequence quantification	None/No Objection
IFQU-B3	DOCUMENT sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood accident sequences and quantification.	None/No Objection

SR	Category II (ASME/ANS RA-Sa-2009)	RG 1.200 Rev. 2
IFSN-A6	For the SSCs identified in IFSN-A5, IDENTIFY the susceptibility of each SSC in a flood area to flood-induced failure mechanisms. INCLUDE failure by submergence and spray in the identification process. EITHER: (a) ASSESS qualitatively the impact of flood-induced mechanisms that are not formally addressed (e.g., using the mechanisms listed under Capability Category III of this requirement), by using conservative assumptions; OR (b) NOTE that these mechanisms are not included in the scope of the evaluation.	Issue: For Cat II, it is not acceptable to just note that a flood-induced failure mechanism is not included in the scope of the internal flooding analysis. Some level of assessment is required. Position: Qualification Resolution: Cat II: **For the SSCs identified in IFSN-A5, IDENTIFY the susceptibility of each SSC in a flood area to flood-induced failure mechanisms. INCLUDE failure by submergence and spray in the identification process.** **ASSESS qualitatively the impact of flood-induced mechanisms that are not formally addressed (e.g., using the mechanisms listed under Capability Category III of this requirement), by using conservative assumptions.**

Computer Input/Output

There are no computer inputs or outputs.

Assumptions

The use of NEI 05-04 is appropriate for this assessment.

Results

Each Supporting Requirement identified in Table 1 was evaluated for compliance. Table 3 shows the results of those comparisons.

Table 3: ASME/ANS RA-Sa-2009 Standard Comparison Results

SR	Standard Compliant	Comparison Comments
HR-D6	Yes	For all non-screening HEPs, uncertainty distributions are developed.

SR	Standard Compliant	Comparison Comments
HR-G3	Yes	The only difference between the two standards is element d in which the degree of clarity of the cues/indications are clarified on in the NRC resolution. The software that the STP PRA uses identifies the cues and considers the degree of clarity.
DA-D9	N/A	Not applicable. The STP PRA does not credit equipment repair.
QU-A2	Yes	STP quantifications include LERF which uses the same process as the CDF quantifications.
QU-A3	Yes	STP quantifications include LERF which uses the same process as the CDF quantifications.
QU-B5	Yes	Circular logic is prevented by the use of macros in the linked event tree methodology employed at STP.
QU-B6	Yes	This is true for the STP CDF quantification process which is also used for LERF.
QU-E3	Yes	This is true for the STP CDF quantification process which is also used for LERF.
QU-E4	Yes	The uncertainties are identified and documented in the STP PRA Uncertainty notebook along with any bounding sensitivity studies. Additional sensitivity studies are performed after each model update for component ranking in accordance with the UFSAR.
IFPP-B1	Yes	In the original IPE [Ref. 11], the Spatial Interactions Database was developed and plant partitioning was used to estimate risk from internal floods. This has been reviewed for the Risk-Managed Technical Specifications (RMTS) application which indicated compliance.
IFPP-B2	Yes	The spatial interaction database in the IPE documents the flooding areas used in the analysis. The IPE also includes the reasons for eliminating areas from further analysis.
IFPP-B3	N/A	In the flood analysis, the identification of flood areas (plant partitioning) was deterministic. It is qualitative in nature and as such there is no explicit uncertainty analysis required.
IFSO-B1	Yes	Internal flood sources are documented in the IPE [Ref. 11]. This has been reviewed for the RMTS application which indicated compliance.
IFSO-B2	Yes	In the IPE flood sources were identified in the Spatial Interaction Database which is part of the hazards analysis. Basis for screening out flooding sources is also documented.
IFSO-B3	NO	There is no explicit uncertainty analysis associated with internal flood sources. Hazards from flooding or spray were evaluated for all pipes in a given area.
IFSN-B1	Yes	Internal flood scenarios are documented in the IPE [Ref. 11]. This has been reviewed for the RMTS application which indicated compliance.

SR	Standard Compliant	Comparison Comments
IFSN-B2	Yes	In the IPE flood scenarios were developed in the Spatial Interaction Database which is part of the hazards analysis. Basis for screening is also documented.
IFSN-B3	NO	No explicit uncertainty analysis was performed. Scenarios were developed based on conservative assumptions regarding propagation and evaluation of equipment heights in rooms.
IFEV-B1	Yes	Internal flood initiating events are documented in the IPE. This has been reviewed for the RMTS application which indicated compliance.
IFEV-B2	Yes	This process was documented in the IPE. This has been reviewed for the RMTS application which indicated compliance.
IFEV-B3	NO	No explicit uncertainty analysis was performed. Point estimates were used for flood-induced initiating events.
IFQU-B1	Yes	Internal flood accident sequences and quantification events are documented in the IPE. This has been reviewed for the RMTS application which indicated compliance. Note that all internal flood accident sequences were screened out. This can be attributed to the high degree of compartmentalization and three safety train design.
IFQU-B2	Yes	In the IPE accident sequence and flood quantification were developed in the Spatial Interaction Database which is part of the hazards analysis. Basis for screening is also documented.
IFQU-B3	NO	No explicit uncertainty analysis was performed. Scenarios based on plant partitioning and water sources were evaluated using point estimates.
IFSN-A6	N/A	Not applicable because all internal flood areas screened out as documented in the IPE [Ref. 11].

Conclusions

For Supporting Requirements IFSO-B3, IFSN-B3, IFEV-B3, and IFQU-B3 the STP PRA does not meet Regulatory Guide 1.200 Revision 2; however, the internal flood event scenarios performed under the Individual Plant Examination all screened out with no significant internal flooding initiating event considered for quantification in the STP plant model. The plant design features responsible for this are the high degree of compartmentalization and three safety train design. The internal flood analysis used conservative assumptions/best estimates and compartmentalization. This methodology was peer reviewed and the internal flood PRA technical elements were accepted to be Capability Category II for Regulatory Guide 1.200 Revision 1.

All other Supporting Requirements meet the requirements for Capability Category II Regulatory Guide 1.200 Revision 2.

References

1. 0PGP05-ZE-0001, “PRA Analysis/Assessments”
2. Condition Report 15-848
3. PRA Assessment 14-015, “STP Risk Assessment for Extending ILRT Interval to 15 Years”, STI: 34037063
4. NOC-AE-06001994, “South Texas Project Units 1 AND 2 Docket Nos. STN 50-498, STN 50-499 Response to NRC Requests for Additional Information on STPNOC Proposed Risk-Informed Technical Specifications,” dated April 26, 2006, STI: 31995767.
5. ST-AE-NOC-07001652, “South Texas Project, Units 1 & 2 – Issuance of Amendments RE: Broad Scope Risk Informed Technical Specification Amendments 179 for Unit 1 and 166 for Unit 2,” dated July 13, 2007, STI: 32183429.
6. Regulatory Guide 1.200 Revision 1, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities”
7. Regulatory Guide 1.200 Revision 2, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities”
8. ASME RA-Sb-2005, “Addenda to ASME RA-S-2002 Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications”
9. ASME/ANS RA-Sa-2009, “Addenda to ASME/ANS RA-S-2008 Standard for Level 1/ Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications”
10. NEI 05-04, Rev. 3, “Process for Performing Internal Events PRA Peer Reviews Using the ASME/ANS PRA Standard”
11. “Level 2 Probabilistic Safety Assessment and Individual Plant Examination”, STI: 1058778