Draft

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U. S. EPR Standard Design Certification
AREVA NP Inc.
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SRP Section: 16 - Technical Specifications
Application Section: FSAR Ch. 16

QUESTIONS for Technical Specification Branch (CTSB)

16-243

Provide additional explanation for each deviation from the reference STS definition for terms defined differently, for terms deleted, and for terms added into the proposed US EPR STS.

Provide justification regarding the changed content for the following terms:

AXIAL OFFSET (AO)
AZIMUTHAL POWER
CALIBRATION (vs STS defined CHANNEL CALIBRATION),
DIVISION OPERATIONAL TEST (vs STS defined CHANNEL OPERATIONAL TEST),
SENSOR OPERATIONAL TEST (vs STS defined CHANNEL OPERATIONAL TEST),
STAGGERED TEST BASIS (vs STS defined STAGGERED TEST BASIS),
ACTUATING DEVICE OPERATIONAL TEST (vs STS defined "TRIP ACTUATING DEVICE OPERATIONAL TEST" or new term without justification),
EXTENDED SELF TESTS (new term without justification),
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME, and
REACTOR TRIP SYSTEM (RTS) RESPONSE TIME (STS terms deleted without justification)

The definition and use of these terms in the proposed Technical Specifications did not always appear consistent with terms defined and used in FSAR Chapter 7, as well as definitions used in IEEE Std 603-1998 and IEEE Std 338-1987 / RG 1.118, which were identified in FSAR 7.1, as part of the proposed licensing and design basis. Identify and justify any difference(s) between the definitions as used in the proposed Technical Specifications and the definitions established by IEEE Std 603-1998 and IEEE Std 338-1987 / RG 1.118.

See examples below:

Example #1 - It was not clear whether CALIBRATION would include the analog/digital (A/D) converter as well as the process analog sensor; both could be considered elements of an analog channel, but the TS typically refers to sensor output rather than channel. By contrast, FSAR 7.2.2.3.5, Compliance to Requirements on System Testing and Inoperable Surveillance Requirements (Clause 5.7 of IEEE 603-1998), describes testing of input channels.

Example #2 - It was not clear why the term "division" was almost always used in place of "channel." It appears to the staff that the proposed protection system architecture could be described as a sense-command-execute structure, whereby the channels could be defined in accordance with IEEE Std 603. The term "channel" would typically apply to the sense portion, and would be associated with a specific protective action. The term "division" would typically be used to establish boundaries for achieving physical, electrical, or functional independence from other divisions. Unless clearly described, the scope of a division can be substantially different than the scope of a single channel.

Example #3 - The scope and application of response time testing was not clear in the definitions. The proposed SENSOR OPERATIONAL TEST (SOT) definition includes, in part, the verification of the accuracy and time constants of the analog input modules. It was not clear if the SOT would include the sensor as well as the A/D converter. The methods to verify the response times associated with data processing and actuation devices was also not clear .
Example #4 - Provide a technical justification for the new EPR definition of AXIAL OFFSET (AO). This definition appears to be similar or equivalent to a previous AXIAL FLUX DIFFERENCE definition.

Example #5 - Provide a technical justification for the new EPR definition of AZIMUTHAL POWER. (Also, it appears this definition is really AZIMUTHAL POWER IMBALANCE (API)). This definition appears to be similar or equivalent to a previous QUADRANT POWER TILT RATIO definition.

This additional information is needed to ensure accuracy of terms used in GTS, STS, and PTS.

16-244

Incorporate the following editorials to the EPR GTS, Section 1.0

Justify not following the Standard Technical Specifications (STS) format style shown in NUREG-1431, Westinghouse STS for the EPR GTS, Section 1.0, as found in the TSTF-GG-05-01, Writer’s Guide for Plant-Specific Improved Technical Specifications. Numnerous inconsistencies are found throughout the EPR GTS in separating/dividing lines between sections and in the presentation of headers.

Revise the EPR GTS, Section 1.0 regarding the definition of CHANNEL CHECK, to remove the fifth line of that definition that begins with "status to other indication or." This sentence appears to be redundant or superfluous text.

These editorials are needed to ensure consistency amongst GTS, STS, and PTS.

16-245

Provide a technical justification for changing terms in EPR GTS.

In the EPR GTS, Sections 1.3 and 1.4, the applicant proposed a new term, "Division," to replace "Train" and "Channel," the terms currently used in Westinghouse STS. The staff determined that these changes do not add any value. The new term did not enhance the understanding of the examples used to illustrate completion times in the GTS action statements or frequencies in the GTS SRs. Moreover, the terms "Train" and "Channel" are still being used throughout the EPR GTS. Provide a technical justification for these changes or revise the EPR GTS to adopt the original text of the STS.

This technical justification or change is needed to ensure the consistency of terms amongst GTS, STS, and PTS.

16-246

Provide a technical justification for changing terms in EPR GTS. Section 1.0.

In Example 1.4-1, the description of the Surveillance has been changed from "Perform CHANNEL CHECK." to "Perform CALIBRATION." The first sentence of the accompanying text has not been changed from the supposed daily frequently reoccurring SR. The rest of the text was changed. The example serves only as a standardized illustrative definition for Frequency and extension times. The example is not to justify any plant unique design difference. Justify or restore to the STS terminology of "CHANNEL CHECK." in this example.

This technical justification or change is needed to ensure the consistency of terms amongst GTS, STS, and PTS.

16-247

Provide a correction to the text for the EPR GTS, Section 3.0.

The last sentence of LCO 3.0.7 is a continuation of the explanation from above and needs to be part of the original single paragraph to complete the explanation rather than "dangling" as a new paragraph topic. In LCO 3.0.7 of NUREG-1431, Westinghouse STS, this is a one-paragraph description. In the EPR STS, the last sentence of this paragraph has been separated as a second paragraph. This correction maintains the original intent of LCO 3.0.7 and avoids any potential misunderstanding in the importance of this LCO Applicability requirement.

In the EPR Bases, SR 3.0.1, the last sentence of the fourth paragraph is not consistent with the information in the Westinghouse STS. It is missing the following sentence: "This allowance includes those SRs where performance is normally precluded in a given MODE or other specified condition." This missing sentence from the Westinghouse STS should be retained to maintain the original basis for SR 3.0.1 intact.

These editorials are needed to ensure consistency amongst GTS, STS, and PTS.

16-248

Provide the additional information needed to clarify the EPR Bases, Section B 3.6 for consistency with the EPR FSAR.

Revise Bases 3.6.1 and Bases 3.6.6 to expand and integrate the relevant explanation of the EPR dual containment feature from FSAR Section 6.2.3, Secondary Containment Functional Design. The revision information should include a description of the secondary containment protective function of the Shield Building (inclusive of its doors, openings, and penetrations in its boundary) which complements the function of the primary (inner) Containment Building. Provide a description of the collective tests, methods, inspections, and verifications that together ensure the integrity of the Shield Building (secondary containment) can be maintained.

The inner Containment Building and its penetrations establish the leak limiting boundary of the primary containment.

This information is needed to ensure the accuracy and completeness of the EPR Bases.

16-249

Include the following editorials in the EPR GTS:

In the EPR GTS, LCO 3.6.4, add a (+) sign in front of 1.2 psig for consistency with the Westinghouse STS specific limits where the operational range crosses zero.

This editorial is needed to ensure the accuracy and consistency of the EPR GTS.

16-250

The following editorials need to be considered for inclusion into the EPR GTS Section 3.7 and Bases:

1. In EPR Bases, Section B 3.7.7, Actions C.1 and C.2, the last sentence has been incorrectly separated by misplaced carriage returns.

2. In EPR Bases, Section B 3.7.8, Actions, first sentence should read "The ACTIONS have two Notes added."

3. In EPR GTS 3.7.10, Condition E statement, there is a space needed between "inoperable" and "in."

4. In EPR GTS, SR 3.7.10.2, the word "filter" is missing between "train" and "testing."

5. In the EPR Bases, Section B 3.6.6, LCO Section (pg B 3.6.6-1) second paragraph: Replace "the control room envelop (CRE) boundary" with "the secondary containment boundary".

This additional information is needed to ensure the accuracy and completeness of the EPR GTS and Bases.

16-251

Provide additional information to justify differences between the EPR GTS, Sections 5.2.2.d and 5.2.2.f and the applicable STS.

Confirm that the responsibilities and organizational title change to "Senior Operator and the Operator" in the EPR GTS, Sections 5.1, 5.2, and 5.3 have not changed the structure of command from the previous NRC designations of Senior Reactor Operator and Reactor Operator.

This additional information is needed to ensure the accuracy and completeness of the EPR GTS.

16-252

Provide additional information to justify differences between the EPR GTS, Sections 5.2.2.d and 5.2.2.f and the applicable STS.

Provide additional information to explain the change to EPR GTS, Section 5.2.2.d that uses the statement "Administrative controls shall be developed," rather than the wording used in the Westinghouse STS, Section 5.2.2.d , "Administrative procedures shall be developed." This change in wording does not appear to add any value and unless there is an explanation, the STS wording should be used.

Provide the technical justification for the added wording in the EPR GTS, Section 5.2.2.f, that states "when the reactor is operating in MODE 1, 2, 3, or 4, ".

This additional information is needed to ensure the accuracy and completeness of the EPR GTS.

16-253

The following are editorial and typographical errors discovered in the text of the EPR GTS, Section 5.0 should be corrected:

1. The EPR GTS, Section 5.5.3.c, the phrase " in accordance " should be inserted between "effluent" and "with".
2. The EPR GTS, Section 5.5.17.d, the third line begins with "MODE" when it should be lower case; as in "the pressurization mode of operation".
3. The EPR GTS, Section 5.6.1, the title of this section should be underlined.
4. The EPR GTS, Section 5.6.7 g, the word "insitu" should be spelled as two words; as "in situ."
5. The EPR GTS, Sections 5.7.1.b and 5.7.2.b, the word "Specification" is capitalized. The EPR GTS has adopted the practice of using this to indicate reference to a specific numbered Specification within the GTS. In this case, the word usage does not apply to another numbered GTS Section; therefore no capitalization is required.
6. The EPR GTS, Section 5.5.11, " Gaseous Waste Processing System Radioactivity Monitoring Program," last paragraph should refers to the "Gaseous Waste Processing

System Radioactivity Monitoring Program" rather than the "Explosive Gas and Storage Tank Radioactivity Monitoring Program."

These editorials are needed to ensure the accuracy and completeness of the EPR GTS.

16-254

Provide additional information for the following statement included in the EPR GTS, Section 5.5.10, Ventilation Filter Testing Program:

The design versus operational flowrate of AVS and SBVS appear inconsistent with the flowrate used in the EPR GTS. Also, the test tolerance appears to exceed the +10% tolerance. For each group of filter systems tested, identify the FSAR Table which lists the nominal flowrate upon which this test should be based. The tolerances listed for the heater capacities in the EPR GTS, Section 5.5.10.e appear to exceed the +/- 10%.
In the EPR GTS, Section 5.5.10.e lists two filter banks for CREF, outside air and emergency filter banks, but does not identify the two filter banks in EPR GTS, Section 5.5.10.a thru d. The names used in the EPR GTS, Section 5.5.10.e do not match the names provided in the EPR GTS, Section 3.7.10 which are identified as iodine filtration train and fresh air intake train. Provide a technical justification for these differences and incorporate changes to make them consistent.

This additional information is needed to ensure the accuracy and completeness of the EPR GTS.

16-255

Provide technical justification for differences between the EPR Administrative Programs and the applicable STS Administrative Programs.

The EPR GTS, Section 5.5.2, identifies Low Head Safety Injection, Medium Head Safety Injection, and Nuclear Sampling as the systems used for Primary Coolant Sources Outside of Containment. The Westinghouse STS identify other system including CVCS, Recirc Spray, Safety Injection, gas stripper and Hydrogen recombiner included in their program. The EPR GTS and Westinghouse STS both include safety injection systems, provide a technical justification for not including comparable systems such as CVCS or gaseous removing systems in the mix of EPR systems that serve this function.

This technical justification is need to ensure the effectiveness and completeness of Primary Coolant Sources Outside of Containment.

16-256

Provide a revision to the proposed GTS which correctly adopts the TSTF-490-A. Alternatively, if the FSAR Applicant wishes to remove this COL Applicant option, then also remove the following final words of the definition: " or similar source."

The proposed EPR GTS has apparently adopted the ITS change TSTF-490-A, Rev O which permits deletion of definition for E-Bar - AVERAGE DISINTREGATION ENERGY, modifies DOSE EQUIVALENT I-131, and adds a new definition, DOSE EQUIVALENT XE-133. This is an acceptable approach; however, the TSTF-490-A has not been incorporated correctly.

In the modification of DOSE EQUIVALENT I-131, the "Reviewer's Note" for adopting this proposed GTS definition to a future Applicant, depending upon whether the unit is eventually licensed to 10 CFR 100.11 or the unit is licensed to 10 CFR 50.67, has been removed. This will be important information for COL Applicants with multiple unit sites and with current NRC licenses. Provide a revision to the EPR GTS which replicates the reviewers notes, and incorporates the method for determining dose using the alternative thyroid dose conversions factor references.

This definition also has an typographical error in the identified Federal Guidance Report No. 11, which is missing the "L" in the first word of the title, "Limiting".

16-257

Provide the additional applicability requirement for Mode 2 with Keff < 1.0 to the Applicability for LCO 3.1.1 or provide a technical justification for not needing this additional applicability requirement to the Bases for 3.1.1.

The Bases for 3.1.1, Background Section, 4th paragraph, currently states that "when the unit is in Mode 2 with the reactor subcritical, Shut Down Margin (SDM) control is ensured by operating with the shutdown banks fully withdrawn and the control (banks) within the estimated critical condition" indicating the need for a Mode 2 subcritical SDM. Any justification for not including a Mode 2 subcritical applicability requirement would also need to consider clarification of the Bases for 3.1.1, Background Section, 4th paragraph.

The additional justification is needed to ensure the accuracy and completeness of the LCO.

16-258

Incorporate the following editorials into the EPR GTS, Section 3.1 and Bases, Section B 3.1:

Provide consistent editorial use of the term Keff with appropriate subscripting in TS Section 3.1 and where used elsewhere throughout the Technical Specifications. Example: In LCO 3.1.3 Applicability, Moderator Temperature Coefficient (MTC), Keff is subscripted; however in Required Action B.1, Keff is not written with a subscript.

Revise the last paragraph of the EPR Bases, Section B 3.1.3, LCO Section, to ensure the terms "BOC positive (upper) limit" and the "EOC negative (lower) limit" are used consistently throughout the Bases and the Technical Specifications. These terms are amplified by stating the positive or negative "sign" of the value. The LCO establishes a maximum positive value that cannot be exceeded. The beginning of cycle (BOC) positive (upper) limit and the end of cycle (EOC) negative (lower) limit are established in the COLR to allow specifying limits for each particular cycle. It is suggested that the "positive (upper) limit" and "negative (lower) limit" are the more definitive and descriptive terms and should be used throughout the Technical

Specification as appropriate. In addition, deleted the following sentence from this paragraph that states that "this permits the unit to take advantage of improved fuel management and changes in unit operating schedule."

Revise the EPR Bases, Section 3.1.4, SR 3.1.4.3 the last sentence of the first paragraph to include the word "than" after "testing at less."

Provide consistent editorial use of the term TAVG by subscripting and capitalization (or not) within the subscript, in TS Section 3.1 and where used elsewhere throughout the Technical Specifications. Example: In SR 3.1.4.3.a., the term Tavg is not subscripted and "avg" is lowercase; however, in LCO 3.1.7, Required Actions B.3, the term the term Tavg uses subscripts and lowercase; and in third paragraph of the Bases for Actions, B.1, B.2, and B.3, TAVG uses subscript with uppercase.

Revise the EPR Bases, Section B 3.1.7, Background Section second-to-last paragraph by removing the space between "RCCA" and "s."

These revisions are needed to ensure the accuracy and completeness of the EPR GTS and Bases.

16-259

Resolve the discrepancy between LCO 3.1.3 b that specifies a maximum MTC equal to 0 pcm/oF when THERMAL POWER ≥ 50% and the third paragraph of the Background section of Bases 3.1.3 which states that "beginning of cycle (BOC) MTC is less than zero when THERMAL POWER ≥ 50% RTP." Determine if any changes are need to address related inconsistencies between EPR GTS and Bases and the applicable information in the EPR FSAR.

This additional information and any changes are needed to ensure the accuracy, completeness and consistency amongst the EPR GTS, Bases, and FSAR.

16-260

Provide an additional SR 3.1.3.2 surveillance requirement or a technical justification for not including a Beginning-of-Cycle (BOC) negative Moderator Temperature Coefficient (MTC) value verification as described in NUREG 1432, "Standard Technical Specifications Combustion Engineering Plants," that states that "within 7 days after reaching 40 effective full power days and a 2/3 core burnup, satisfies the confirmatory check of the most negative MTC value. . . ."

The additional surveillance requirement or technical justification is needed to ensure the completeness of SR 3.1.3.2.

16-261

Correct the SR 3.1.4.2 surveillance specification for "moving each RCCA not fully inserted in the core ≥ 16 steps in either direction." This surveillance states that each Rod Control Cluster Assembly (RCCA) not fully inserted should be moved greater than or equal to 16 steps in either directions. The Bases for 3.1.4, Surveillance Requirements, 2nd paragraph, states that "moving

each control RCCA by 16 steps will not cause radial or axial tilts, or oscillations to occur." This Bases statement implies a maximum movement of 16 steps.

This change in information is needed to ensure the accuracy of the EPR GTS.

16-262

Provide a definition for the term "bite position" as used only in the EPR Bases, Section B 3.1.4, RCCA Group Alignment Limits, Applicable Safety Analyses, second sentence in the fourth paragraph.

This additional information is needed to ensure the accuracy and completeness of the EPR Bases.

16-263

Provide the additional information necessary to technically justify the interpretation of the "Note" in the Applicability Section of LCO 3.1.6 that "allows the LCO to be not applicable during a partial trip, during loss of load events" as stated in the Bases for 3.1.6, Applicability Section, 2nd paragraph. An appropriate note would need to be developed to clarify the intent to remove the requirement of this LCO during a partial trip and would be contrary to the existing basis that states that "this condition is outside of the control bank insertion limits and requires prompt action to restore operation within insertion limits." If a clarifying note is developed, a technical justification will need to be added to the Bases for 3.1.6 adequately justifying the exception.

This additional information is needed to ensure the accuracy and completeness of EPR GTS and Bases.

16-264

Provide the additional information needed for clarification or the necessary changes to correct the discrepancy between LCO 3.1.6, Required Action C.1, that requires "Be in Mode 3" and the Bases for 3.1.6, Action Section, last paragraph, that states that "the plant must be brought to Mode 2 with Keff < 1.0."

This additional information or changes are needed to ensure the accuracy and completeness of EPR GTS and Bases.

16-265

Provide the additional information needed for clarification or the necessary changes to correct the discrepancy between LCO 3.1.7, Required Action A.1.2, that requires the use of the Self-Powered Neutron Detectors (SPNDs) to verify RCCA position, and the Bases for 3.1.7, Action Section, 3rd paragraph, that refers to the use of the Aeroball Measurement System (AMS) for such purpose. If SPNDs is to be used to verify RCCA position, a discussion should be added to the Bases describing how readings from the SPNDs will accurately measure RCCA position.

This additional information or changes are needed to ensure the accuracy and completeness of EPR GTS and Bases.

16-266

Provide a justification for not requiring verification of RCCA position under LCO 3.1.7, Condition B, with "one or more banks with two or more analog RCCA position indicators inoperable" using incore instrumentation to verify RCCA position.

This additional information is needed to ensure accuracy and completeness of the EPR GTS.

16-267

Provide a technical justification for not having a Required Action associated with LCO 3.1.7 to determine rod position when one or more RCCAs with inoperable position indicators have been moved and current RCCA's position is unknown.

This additional information is needed to ensure accuracy and completeness of the EPR GTS.

16-268

Provide a justification for not including an additional Required Action for LCO 3.1.8 to restore the Operability of the Volume Control Tank (VCT) and letdown isolation valves.

This additional information is needed to ensure accuracy and completeness of the EPR GTS.

16-269

Provide a justification or change to the "Frequency" of 24 months for SR 3.1.8.2 to be consistent with the Bases for 3.1.8, Surveillance Requirement Section, that identifies "the need to perform this Surveillance under conditions that apply during a plant outage," rather than a set period basis.

This additional information is needed to ensure accuracy and completeness of the EPR GTS and Bases

16-270

Provide a justification for no surveillance requirement specifically linked to physics testing under SR 3.1.9 (or Table 3.3.1-1) requiring the performance of an OPERABILITY verification of the intermediate range and power range channels.

This additional information is needed to ensure accuracy and completeness of the EPR GTS and Bases.

16-271

Provide a justification for not specifying in LCO 3.1.9 the limit on RCS loop temperature discussed in the Bases for 3.1.9, Applicable Safety Analyses Section, last sentence in the 2nd paragraph, which states "the fuel design criteria are preserved as long as, reactor coolant temperature is maintained ≥ 568oF ."

This additional information is needed to ensure accuracy and completeness of the EPR GTS and Bases.

16-272

Provide a justification for LCO 3.1.9 not allowing the suspension of LCO 3.4.2 "RCS Minimum Temperature for Criticality" during performance of physics tests. The Bases for 3.1.9, Background Section, 2nd-to-last paragraph, states that the "performance of this test could challenge LCO 3.4.2, RCS Minimum Temperature for Criticality."

This additional information is needed to ensure accuracy and completeness of the EPR GTS and Bases.

16-273

Provide addition clarification that will distinguish between the Self-Powered Neutron Detectors (SPNDs) and the "fixed incore instrumentation" described in the Bases for 3.2.1, Background Section, 8th paragraph, or confirm that they are the same instrumentation. Revise the Bases document to include this additional information.

This additional information is needed to ensure accuracy and completeness of the EPR GTS and Bases.

16-274

Determine if it would be more accurate to revise the wording in the second-to-last paragraph of the Background section of Bases for 3.2.1 from "first LPD LCO 1 threshold" to "First High LPD LCO 1 level."

This additional information is needed to ensure accuracy and completeness of the EPR GTS and Bases.

16-275

The EPR GTS, LCO 3.2.1, Action B.1 states ≤ 10% RTP. The EPR Bases, Section 3.2.1, Action B.1 states from "< 10% RTP." Determine the correct RTP and revise the EPT GTS and EPR Bases accordingly.

This additional information is needed to ensure accuracy and consistency of the EPR GTS and Bases.

16-276

Provide additional justification for the 12 hour surveillance frequency for SR 3.2.1.1 with the Reactor Control Surveillance and Limitation System (RCSL) and its associated alarm not in service.

As stated in the Bases for 3.2.1, Surveillance Requirements, the 12 hour frequency is based on the ability to identify trends that could result in an approach to the Axial Offset (AO) limits. This statement, in itself, is not a sufficient justification for the 12 hour frequency. Operating history from current plant designs show that power distribution limits can be exceed in a shorter time frame. Note: NUREG 1432, "Standard Technical Specifications Combustion Engineering Plants" requires a two hour frequency for the similar application, under SR 3.2.1.1.

This additional information is needed to ensure accuracy and consistency of the EPR GTS and Bases.

16-277

Incorporate the following editorials into the EPR GTS and Bases as applicable:

The EPR Bases, Section B 3.2.2, Background Section, in the first paragraph change "an addition," to "in addition."

The EPR Bases, Section B 3.2.4, Background Section, in the first sentence of the third paragraph change "nuclear" to "neutron."

This revision is needed to ensure accuracy and consistency of the EPR GTS and Bases.

16-278

Clarify the purpose for LCO 3.2.2 regarding FΔHN. Various statements in the Bases for 3.2.2 appear inconsistent relative to the types of design basis events that are covered by the FΔHN LCO.

For example, the Bases for 3.2.2, Background Section, 6th paragraph states that "operation outside the LCO limits may produce unacceptable consequences if an anticipated operational occurrence (AOO) or other postulated accident occurs;" and the Applicable Safety Analyses section states that the FΔHN LCO "limits the scope of power distributions from which an accident may be initiated for all FSAR Chapter 15 events." The 3.2.2 Bases, Applicability Section, states that "this LCO applies only to LOCA analyses."

This additional information is needed to ensure accuracy of the EPR Bases.

16-279

Provide a technical justification for the 12 hour surveillance frequency for SR 3.2.3.1 with the Reactor Control Surveillance and Limitation System (RCSL) and its associated alarm not in service.

As stated in the Bases for 3.2.3, Surveillance Requirements, the 12 hour frequency is based on the ability to identify trends that could result in an approach to the DNBR limits. This statement,

in itself, is not a sufficient justification for the 12 hour frequency. Operating history from current plant designs show that power distribution limits can be exceed in a shorter time frame.

This additional information is needed to ensure accuracy and consistency of the EPR GTS and Bases.

16-280

Identify any additional design basis Anticipated Operational Occurences (AOO), other than Loss of Coolant Flow event that, although not typical, is the most limiting event relative to maximum Δ DNBR.

The statement in the Bases for 3.2.3, Applicable Safety Analyses, 2nd paragraph, states that Loss of Coolant Flow is typically the limiting Δ DNBR event and therefore provides conservative limits for all other AOOs. For an event to provide conservative limits for all other AOOs, it has to be the most limiting. Revise the Bases document to include this clarification or additional information.

This clarification or additional information is needed to ensure the accuracy and completeness of the EPR Bases.

16-281

Provide the additional information or clarification with regard to the use of "accident," "accident analyses," "AOOs," and "postulated accidents." The Bases for 3.2.4, Background Section, 1st and 2nd paragraphs, refer only to "accident" and "accident analyses," whereas the same Bases, Applicable Safety Analyses Section refers to "AOOs" and "postulated accidents." Include AOOs in the Background Section.

This information is needed to ensure accuracy and completeness of the EPR Bases.

16-282

Provide a technical justification for the 12 hour surveillance frequency for SR 3.2.4.1 with the Reactor Control Surveillance and Limitation System (RCSL) and its associated alarm not in service.

As stated in the Bases for 3.2.4, Surveillance Requirements, the 12 hour frequency is based on the ability to identify trends that could result in an approach to the AO limits. This statement, in itself, is not a sufficient justification for the 12 hour frequency. Operating history from current plant designs show that power distribution limits can be exceed in a shorter time frame.

This additional information is needed to ensure accuracy and consistency of the EPR GTS and Bases.

16-283

Provide the additional information needed to clarify the EPR Bases, Section B 3.6 for consistency with the EPR FSAR.

Revise Bases 3.6.1 and Bases 3.6.6 together to expand and integrate the relevant explanation of the EPR dual containment feature from FSAR Section 6.2.3, Secondary Containment Functional Design. Describe the secondary containment protective function of the Shield Building (inclusive of its doors, openings, and penetrations in its boundary) which complements the function of the primary (inner) Containment Building. Provide a description of the collective tests, methods, inspections, and verifications that together ensure the integrity of the Shield Building (secondary containment) can be maintained.

The inner Containment Building and its penetrations establish the leak limiting boundary of the primary containment.

This information is needed to ensure the accuracy and completeness of the EPR Bases.

16-284

Provide additional information to verify the accuracy of the information in the EPR Bases, Section B 3.2.1.

The EPR Bases, Section B 3.2.1, Applicability Section states that "power distribution is a concern any time the reactor is critical. The power distribution LCOs, however, are only applicable in MODE 1 above 10% RTP. This LCO is not a concern below 10% RTP because the core is operating well below its thermal limits." Confirm that it would be more accurate if the last sentence of this quote was worded to say "at or below 10%."

This additional information is needed to ensure the accuracy completeness of the EPR Bases for 3.2.1

16-285

Provide additional information to adequately describe the bases or reasons for information in the EPR Bases, Section B 3.2.1.

The EPR Bases, Section B 3.2.1, Background Section, 12th paragraph states that "the SPND signal gradually increases (conservative) and the gain constants must be periodically recalibrated to prevent unnecessary LPD penalties." Provide the additional information necessary to explain the reason for the Self-Powered Neutron Detector (SPND) signal (has to [can it decrease or go unchanges]) gradually increases between calibrations. Revise the Bases document to include this additional information.

This additional information is needed to ensure the accuracy completeness of the EPR Bases for 3.2.1.

16-286

Provide additional information to adequately describe the bases or reasons for information in the EPR Bases, Section B 3.2.1.

The EPR Bases, Section B 3.2.1, Background Section, 10th paragraph states that "after calibration, all twelve SPNDs within the same axial slice therefore provide the same value, which corresponds to the maximum linear power density value for that axial slice." Identify and justify the conditions for all twelve SPNDs within the same axial slice providing the same value after calibration.

This additional information is needed to ensure the accuracy and completeness of the EPR Bases for 3.2.1.

16-287

Provide additional information to adequately describe the bases or reasons for information in the EPR Bases, Section B 3.2.1.

Provide the additional information necessary to adequately explain the following statement from the EPR Bases, Section B 3.2.1, Background Section, 7th paragraph: "such a condition signifies a reduction in the capability of the plant to withstand an AOO or postulated accident, but does not necessarily imply a violation of fuel design limits." Revise the Bases document to include this additional information.

This additional information is needed to ensure the completeness of the EPR Bases, Section B 3.2.1.

16-288

Provide additional information to verify the accuracy of the information in the EPR Bases, Section B 3.2.2.

The EPR Bases, Section B 3.2.2, Applicability Section, 2nd paragraph currently states the following: "The LOCA safety analysis indirectly models N H FΔ as an input parameter. The Nuclear Heat Flux Hot Channel Factor (FQ(Z)) and the axial peaking factors are inserted directly into the LOCA safety analyses that verify the acceptability of the resulting peak cladding temperature (Ref. 1). Include additional information that explains the relationship between FΔHN and FQ (z).

This additional information is needed for clear understand of FΔHN in the aPR Basses.

16-289

Provide additional information to adequately describe the bases or reasons for information in the EPR Bases, Section B 3.2.3.

The EPR Bases, Section B 3.2.3, Background Section, 11th paragraph states that "after calibration, all twelve SPND fingers therefore provide the same axial power shape representative of the power shape of the actual hot channel." Provide an explanation identify and justify the conditions all twelve SPNDs within the same axial slice will provide the same value after calibration.

This additional information is needed to ensure the accuracy and completeness of the EPR Bases for 3.2.3.

16-290

Provide additional information to adequately describe the bases or reasons for information in the EPR Bases, Section B 3.2.3.

The EPR Bases, Section B3.2.3, Background Section, 8th paragraph states that "such a condition signifies a reduction in the capability of the plant to withstand an AOO or postulated accident, but does not necessarily imply a violation of fuel design limits." Provide addition information necessary to more clearly explain this statement. Revise the Bases document to include this additional information.

This additional information is needed to ensure the accuaracy and completeness of the EPR Bases Section B 3.2.3.