STP Nuclear Operating Company
South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

January 31, 2006
NOC-AE-06001970
10CFR50.90

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Rockville, MD 20852

South Texas Project
Units 1 and 2
Docket No. STN 50-498 and STN 50-499
License Amendment Request -
Proposed Amendment to Technical Specification 3.8.3.1

Pursuant to 10 CFR 50.90, STP Nuclear Operating Company (STPNOC) hereby requests an amendment to Technical Specification (TS) 3.8.3.1, "Onsite Power Distribution - Operating," to extend the allowed outage time (AOT) for an inoperable Class 1E vital 120-vac inverter. The TS currently has an AOT of 24 hours for an inoperable inverter, which would be increased to 7 days, based on a risk-informed approach.

Attachment 1 to this letter provides the No Significant Hazards Determination and Attachment 2 provides the TS page marked up with the proposed change. Attachment 3 lists the commitments made as part of this License Amendment Request. Corresponding changes to the Bases for TS 3.8.3.1 will be made following approval of the proposed amendment in accordance with the TS Bases Control Program and 10 CFR 50.59. The proposed changes are consistent with similar changes approved for Braidwood, Byron, and North Anna stations.

Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," and Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," have been followed in preparing this proposed TS amendment.

The Plant Operations Review Committee has approved the proposed change and STPNOC has notified the State of Texas in accordance with 10CFR50.91(b).

STPNOC requests approval of the proposed amendment by March 17, 2006. STP is requesting expedited approval of the proposed amendment in order to perform necessary troubleshooting on the inverter for Unit 1 120-vac Distribution Panel DP1202, which is currently operable but degraded. It is anticipated that the desired troubleshooting, any necessary repairs, and follow-up performance testing may not be able to be completed within the 24-hour Allowed Outage Time currently permitted by TS 3.8.3.1. STP requests a

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standard 30-day implementation period, however it is our intent to implement the amendment as soon as possible following approval.

STPNOC is currently reviewing the Requests for Additional Information associated with the Byron/Braidwood and North Anna amendment requests and intends to submit a supplement which addresses any applicable questions.

If there are any questions regarding this proposed amendment to TS 3.8.3.1, please contact Mr. James Morris at (361) 972-8652 or me at (361) 972-7206.

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

Executed on 1-31-06

MA McBurnett

M. A. McBurnett
Manager, Nuclear Safety Assurance

jrm

Attachments:

1. Licensee's Evaluation
2. Proposed Technical Specification Changes (Mark-up)
3. Licensee Commitments

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Attachment 1

Licensee's Evaluation

LICENSEE'S EVALUATION

1.0 DESCRIPTION

This letter is a request to amend Operating Licenses NPF-76 and NPF-80 for South Texas Project (STP) Units 1 and 2. The proposed change would revise Technical Specification (TS) 3.8.3.1, "Onsite Power Distribution - Operating" to extend the allowed outage time (AOT) for an inoperable Class lE vital 120-vac inverter. The TS currently has an AOT of 24 hours for an inoperable inverter, which would be extended to 7 days, based on a risk-informed approach.

STP Nuclear Operating Company (STPNOC) is employing the STP Probabilistic Risk Assessment (PRA) to support extension of the AOT. The AOT extension is requested primarily to improve operational safety, reduce unnecessary burdens, provide a more consistent risk basis in regulatory requirements, and avert shutdown risk. The proposed change is consistent with a similar change approved for Byron and Braidwood stations in November 2003 and North Anna station in May 2004.

STPNOC requests approval of the proposed amendment by March 17, 2006. Although STPNOC requests a 30-day implementation period, it is our intent to implement the amendment as soon as possible upon its approval.

2.0 PROPOSED CHANGE

Currently, Action (b) for TS 3.8.3.1 states:

b. With one A.C. vital distribution panel either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus: (1) reenergize the A.C. distribution panel within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and (2) reenergize the A.C. vital distribution panel from its associated inverter connected to its associated D.C. bus within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The proposed amendment replaces "24 hours" with "7 days" in Action b.(2), and reformats the paragraph for ease in reading as follows:

b. With one A.C. vital distribution panel either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus:

(1) Reenergize the A.C. distribution panel within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and

(2) Reenergize the A.C. vital distribution panel from its associated inverter connected to its associated D.C. bus within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Corresponding changes to the TS Bases will be made following approval of the proposed amendment in accordance with the TS Bases Control Program and 10 CFR 50.59.

3.0 BACKGROUND

STPNOC is requesting expedited approval of this amendment request in order to perform necessary troubleshooting on the inverter for Unit 1 120-vac Distribution Panel DP1202, which is currently operable but degraded. It is anticipated that the desired troubleshooting, any necessary repairs, and follow-up performance testing may not be able to be completed within the 24-hour Allowed Outage Time currently permitted by TS 3.8.3.1.

On December 26, 2005, power was lost to six loads fed from DP1202. Troubleshooting revealed that the fuses associated with some of the loads had blown at the distribution panel, and some blown fuses were also found at the Channel II Nuclear Instrumentation System (NIS) panel and one fuse in the Steam Generator 1D Power Operated Relief Valve servo amplifier. All affected circuits were restored to operable by December 29, 2005. Preliminary investigation concluded that DP1202 had experienced a significant decrease in voltage possibly caused by a short circuit fault in one of its loads. A root cause investigation team was formed with focus on determining the cause of the initiating transient and how this transient resulted in multiple fuse failures. The root cause team performed a fault tree analysis of the event, as well as inspections of the DP1202 loads, associated 125-vdc battery system and backup voltage regulating transformer. The team concluded that an internal component failure within the inverter for DP1202 was a likely candidate for the cause of voltage transient.

On January 20, 2006, visual inspection and thermography was performed on the DP1202 inverter internals. Two conditions were found and are characterized as follows:

1) 1 of 10 capacitors in capacitor bank C805 was found damaged (hole in casing). No oil or collateral damage was evident. This capacitor bank shapes and tunes the inverter output. The waveform, as measured on an oscilloscope, remains very good. The operational impacts resulting from this failed capacitor include a slightly decreased voltage output

(decreased to approximately 120 v from a nominal 122.8 v) versus a design minimum specification of 117.8 v and a loss of margin in load capability. The inverter remains well within the design parameters of both.

2) A ground reference capacitor (C19) was found with a bulge in the casing. This capacitor, along with capacitor C20, is part of the ground detection circuit and does not impact operability.

An engineering evaluation of the identified conditions concluded that the inverter remains operable, but degraded. Additional maintenance and troubleshooting is expected to take longer than the 24-hour AOT currently permitted by TS 3.8.3.1. Although Unit 1 can operate indefinitely with the DP1202 inverter in this condition, STPNOC desires to complete inspection and effect repairs and testing on the inverter as soon as possible. However, given the currently permitted 24-hour AOT, a plant shutdown would likely be required to perform this work. Therefore, STPNOC requests expedited approval of the proposed amendment in order to perform necessary work on the inverter without requiring a plant shutdown.

Given the current DP1202 circumstances as discussed above, STPNOC believes it would be inappropriate to embark upon further inverter maintenance activities and request Enforcement Discretion if it appeared the currently permitted 24-hour AOT would be exceeded. Therefore, a permanent change request to extend the AOT is being submitted.

Class 1E Vital 120-vac System Design

AC control power for vital instrumentation and controls is supplied by six solid-state inverter/rectifier systems (per Unit) connected as shown on the attached figures. Distribution Panels DP1201 through DP1204 supply power to vital 120-vac Channel I through IV ESF loads, respectively. Distribution Panels DP001 and DP002 supply 120-vac power to post-accident monitoring instrumentation. The inverter/rectifiers supplying power to instrumentation channels I and II are normally energized by 480-vac feeders from separate motor control centers (MCCs) of engineered safety features (ESF) Train A. The inverter/rectifiers supplying power to channels III and IV are normally energized by 480-vac feeders from MCCs connected to the 480-vac switchgear in Trains B and C, respectively. Upon loss of power from the 480-vac feeds, the inverter/rectifiers are automatically powered from their associated Class 1E DC system. Single-phase, vital AC power from the inverter/rectifier is distributed by the instrumentation power supply busses consisting of six Class 1E vital 120-vac distribution panels.

Each inverter/rectifier assembly has two power supplies. The normal power supply is 480-vac fed directly from an ESF power train MCC and the backup power supply is 125-vdc from one of four busses in the Class 1E DC distribution system. Normally, both power supplies to the inverter are available, with the 480-vac line supplying rectified AC power to operate the inverter. Rectified AC input voltage is slightly higher than the DC battery feed and a diode in the positive side of the battery feed is prevented from conducting while normal rectified AC power is present. When 480-vac input to the rectifier is lost, the blocking voltage on the diode is lost and the battery instantly feeds power to the inverter.

Manually operated, mechanically interlocked main circuit breakers allowing "break before make" action in distribution panels DP001 and DP002 permit energization of the bus either by the corresponding inverter/rectifier or by an alternate single-phase, regulated backup transformer. For each panel DP1201 through DP1204, a static transfer switch permits energization of the bus either by the corresponding inverter/rectifier or by an alternate single-phase regulated backup transformer. In case of static transfer switch failure or during testing, manually operated, mechanically interlocked bypass switches allowing "make before break" action permit energization of the bus either by the corresponding inverter/rectifier or by an alternate single-phase regulated backup transformer. Each Class 1E vital 120-vac inverter has its own dedicated regulated backup transformer as its alternate source.

Class 1E vital 120-vac loads include:

- Nuclear instrumentation control power
- Nuclear instrumentation power
- ESF actuation trains
- Radiation monitoring system components
- Solid state protection system logic cabinets
- Nuclear steam supply system process cabinets (7300 process racks)
- Qualified display processing system
- Reactor vessel water level system
- Containment hydrogen monitoring panel
- Post-Accident Monitoring

During the last refueling outage for each of the Units, the inverters for distribution panels DP1201 through DP1204 were replaced with new Ametek/Solidstate Controls inverters. Additionally, as part of the inverter replacement, design changes were implemented which transferred Qualified Display Parameter System (QDPS) and Steam Generator Power Operated Relief Valve (SG PORV) loads from distribution panels DP001 and DP002 to DP1201 and DP1204, respectively.

4.0 TECHNICAL ANALYSIS

The following subsections are presented in the order of Regulatory Guide (RG) 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," Element 4.

4.1 Description of Proposed Change and Reasons for the Change

Refer to Section 2.0 above for a description of the proposed change to TS 3.8.3.1.

Engineering Studies

STP's PRA includes a top event for each of the four Class 1E Vital 120-vac channels. The top events are AC1, AC2, AC3, and AC4, which model Class 1E instrument channels I, II, III, and IV, respectively. A system model intermediate Top Event, INST, is used to quantify the likelihood of failure of the Class 1E Vital 120-vac System. The results of the system model quantification are used to quantify the individual channel top event split fractions.

As modeled in the PRA, each Class 1E Vital 120-vac channel consists of a 10kVA inverter and associated distribution panel (DP1201, DP1202, DP1203 and DP1204). Channels I and IV also contain a 25kVA inverter and distribution panel (DP001, DP002), however, these are not modeled in this risk analysis because recent design changes transferred QDPS and SG PORV loads to DP1201 and DP1204. Normally, all four 10kVA inverters are in service providing instrumentation and control power to their respective loads. If an operating inverter fails, power to the associated distribution panel can be automatically supplied by an associated 480V/120V voltage regulating transformer via a static transfer switch. For purposes of this analysis, this automatic transfer feature is conservatively not modeled in the risk assessment. For planned inverter maintenance, operator action is necessary to align the voltage regulating transformer to the associated DP. Distribution panels DP1201 through DP1204 have dedicated voltage regulating transformers as an alternate power source.

The four 10kVA inverters provide instrumentation and control power for the reactor protection system [Solid State Protection System (SSPS), Engineered Safety Features Actuation System (ESFAS), and reactor trip], QDPS and other essential loads. Loss of any one of the Class 1E inverters does not result in a direct plant trip. The addition of the inverter static transfer switch also reduces the likelihood of a SG water level control transient, further reducing the likelihood of an indirect plant trip.

The following key assumptions were made in the PRA inverter event study:

- Instrument inverter maintenance duration will be set to 168 hours for all maintenance events.
- As modeled in STP_RV42, the frequency of unplanned maintenance for the inverters is set by data variable ZMELEF at once every 4.6 years (2.49E-05 per hour).
- Inverter modification DCP 04-1238-40/41 has been included in the models used for this analysis, however, the voltage regulating transformer automatic transfer feature is conservatively not modeled.

Refer to Section 4.4 for further information regarding the PRA model.

NRC PRA Policy Statement

This change meets the objectives of the NRC PRA Policy Statement by making more efficient use of resources and reducing unnecessary burden. Extending the AOT for an inoperable Class 1E vital 120-vac inverter will reduce an unnecessary burden by providing operational flexibility, i.e., increase the allocation of maintenance time to more safety-significant equipment.

Reasons for Change

The proposed AOT extension is requested primarily to address the condition described previously in the Background section. However, the requested AOT extension can improve operational safety, reduce unnecessary burdens, and provide a more consistent risk basis in regulatory requirements. In addition, the assumption that shutting the plant down is the safest course of action is not always valid. Depending on the component or system of interest, it may be safer to complete component repairs at power. Potential risks associated with plant shutdown need to be considered when determining an appropriate course of action. An extended AOT enables this shutdown risk to be averted.

The proposed AOT extension is requested because, as discussed in the Background section, the current AOT may not always be adequate to allow completion of preventive and corrective maintenance activities while at power. Extending the AOT will provide increased flexibility for plant personnel to troubleshoot and complete repairs in a more controlled manner, which will enhance equipment and personnel safety.

The extension will also reduce the administrative burden on plant personnel who prepare requests for Enforcement Discretion submittals as well as reduce the number of actual Enforcement Discretion requests acted upon by the NRC.

The 24-hour AOT for an inoperable inverter also creates an unnecessary burden. The Bases in NUREG-1431 state that the 24-hour limit is based upon engineering judgement, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. The burden of performing online repair or replacement of a failed inverter is credible because the time to troubleshoot, repair/replace, warm up, and test the inverter properly will exceed the 24-hour AOT. Extending the AOT for an inoperable inverter to 7 days will:

- Eliminate an unplanned shutdown of the plant or the administrative burden to the licensee and NRC associated with requesting enforcement discretion.
- Provide additional time to complete repairs when components fail while TS 3.8.3.1 is applicable (i.e., Modes 1 - 4).
- Improve instrument bus inverter availability during shutdown modes or conditions.
- Provide time to perform additional maintenance activities in Modes 1 - 4 to reduce plant down time.
- Provide increased time to troubleshoot and complete inverter repair/replacement in a more controlled manner, which will enhance equipment and personnel safety.

Reformatting the Action paragraph (b) in TS 3.8.3.1 will make the paragraph easier to read and could prevent misunderstanding the requirements.

4.2 Process Used to Arrive at Proposed Change

The STP PRA Analyses/Assessments procedure and the RISKMAN® computer program were used to create a new maintenance state reflecting the extended AOT for an inoperable Class 1E vital 120-vac inverter and then to determine the impact on CDF.

4.3 Traditional Engineering Evaluations Performed

<u>Compliance with Current Regulations</u>

This application is being filed in accordance with the current regulations in 10 CFR 50.90. STPNOC is notifying the State of Texas at the time of the license amendment request by providing the state with a copy of the application in accordance with 10 CFR 50.91(b)(1). As documented in Section 5.1 below, STPNOC has determined that this proposed license amendment involves no significant hazards consideration in accordance with 10 CFR 50.92(c).

STPNOC has ensured that the current regulations, orders, and license conditions are met. The proposed AOT extension does not change the TS in a manner that contravenes 10 CFR 50.36. Once approved, if the proposed AOT extension is exceeded and the limiting condition for operation is not met, the reactor will be shut down in accordance with 10 CFR 50.36(c)(2).

STPNOC has ensured that there are no discrepancies between the proposed TS change and commitments made to the NRC.

<u>Defense in Depth</u>

The proposed change must meet the defense-in-depth principle, which consists of a number of elements. These elements and the impact of the proposed change on each follow:

- A reasonable balance among prevention of core damage, prevention of containment failure, and consequence mitigation is preserved.

The proposed AOT change has only a very small calculated impact on core damage frequency (CDF) and large early release frequency (LERF) as shown in Section 4.8. The quantitative impact on plant risk is very small, and less than the risk acceptance criteria established in Regulatory Guides 1.174 and 1.177. The proposed changes do not alter any system performance requirements or design functions. Additionally, Design Basis Accident analyses are not impacted.

- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided.

The plant design will not be changed with the proposed AOT change. All safety systems will continue to function in the same manner with the same reliability and there will be no additional reliance on additional systems, procedures, or operator actions. The calculated risk increase for the AOT change is very small and additional control processes are not required to compensate for any risk increase. However, in order to be consistent with previously approved amendments, the compensatory measures discussed in Section 4.10 will be taken when an inverter becomes inoperable.

- System redundancy, independence, and diversity are maintained commensurate with the expected frequency and consequences of challenges to the system.

The Class 1E vital 120-vac system is designed to comply with the redundant power source independence requirements of Regulatory Guide (RG) 1.6, "Independence Between Redundant Standby (Onsite) Power Sources and Between Their Distribution Systems (Safety Guide 6)," and RG 1.81, "Shared Emergency and Shutdown Electric Systems for Multi-Unit Nuclear Power Plants." The system conforms with the separation requirements of IEEE 384-1974 and RG 1.75, "Physical Independence of Electric Systems." This permits the system to fulfill the design objectives given the failure of any single component.

In accordance with RG 1.75, separation of redundant systems is accomplished by providing physically separate areas for each independent train, separating equipment and circuits by distance and physical barriers. Raceways within a given train or separation group are separated on the basis of function and voltage. Class 1E circuits of redundant separation groups are routed through separate penetrations, cable trays, conduits, and other totally enclosed raceways to assure complete separation.

There is no impact on the redundancy, independence, or diversity of the inverters and vital distribution panels or on the ability of the plant to respond to events with diverse systems. The vital 120-vac power systems are diverse and redundant systems, and will remain so. The vital AC power system is reliable and will remain so after the proposed AOT extension is approved.

- Defenses against potential common cause failures are maintained and the potential for introduction of new common cause failure mechanisms is assessed.

A single point failure analysis was performed for the Class 1E vital 120-vac system, which included reviewing the system elementary and single-line drawings, and evaluating the loads on the system. It was found that although the loss of any safety-related 120-vac will affect non-safety-related controls, the proper operating responses are built into the off-normal procedures. Additionally, the controlling channels are normally split between two safety-related trains to prevent a single loss from affecting all controls. No single point failure was identified that would cause a reactor trip.

Defenses against common cause failures are maintained. The AOT extension requested is not sufficiently long to expect new common cause failure mechanisms to arise. In addition, the operating environment for these components remains the same so new common cause failure modes are not expected. By the same token, backup systems are not impacted by these changes and no new common cause links between the primary and backup systems are introduced.

- Independence of physical barriers is not degraded.

The barriers protecting the public and the independence of these barriers are maintained. STP is not expected to have multiple systems out of service simultaneously during an extended AOT that could lead to degradation of these barriers and an increase in risk to the public. In addition, the extended AOT does not provide a mechanism that degrades the independence of the barriers: fuel cladding, reactor coolant system, and containment.

- Defenses against human errors are maintained.

No new operator actions related to the AOT extension are required to maintain plant safety. No additional operating, maintenance, or test procedures have been introduced or modified due to these changes. The increased AOT will provide additional time to complete troubleshooting, test, and repair activities, as necessary.

<u>Safety Margins</u>

Sufficient safety margins are maintained in that the proposed AOT change is not in conflict with approved Codes and standards relevant to the Class 1E vital 120-vac system.

Voltage-regulating transformers fed from the 480-vac emergency busses supply 120-vac (nominal) to vital bus distribution panels in the event that the panel's respective inverter(s) fails or is undergoing maintenance. Having the voltage-regulating transformer providing power to a single vital AC bus is allowed by the TS until power through the inverter can be restored to the bus. Providing power to equipment from the voltage-regulating transformer is within the normal design and operation of the plant. In addition, the instrumentation and control equipment powered by the voltage-regulating transformer will be available following a Loss of Offsite Power (LOOP). A vital bus that is receiving power from the voltage-regulating transformer will lose power upon a LOOP until the standby diesel generator re-energizes the load on the emergency bus. In the event of a failure to re-energize the emergency bus or a failure of a voltage-regulating transformer, the most significant impact is the failure of one train of ESF equipment to actuate. In this condition, the redundant train of ESF equipment will automatically actuate to mitigate an accident and the affected unit will remain within the bounds of the accident analyses. Since the probability of these events occurring simultaneously during a planned maintenance activity is low, there is minimal safety impact due to the proposed extended AOT.

The safety analysis acceptance criteria stated in the UFSAR are not impacted by this change. The redundancy and diversity of the vital 120-vac distribution system will be maintained. The proposed changes will not allow plant operation in a configuration that is outside the design basis.

4.4 Changes Made to PRA for Change Evaluation

A new model was created from STP_RV42, the effective STP PRA average maintenance model, using RISKMAN® 7.0 in order to evaluate the proposed change in AOT for the inverters. This evaluation model is named INSTBASE and incorporates recent inverter design changes, excluding the static transfer switch. Several case studies (models INST7D, INST7D1, INST7D2, INST7D3, and INST7D4) were performed to evaluate the effects of the proposed TS change. Each case study was evaluated for 168 hours, which is the full duration of the proposed AOT change. These cases are bounding since it is rare that the full AOT would be used to effect repairs of a failed inverter. Both the frequency of the maintenance and component failure rates remained the same as modeled in STP_RV42 for all case studies. These sensitivity studies took into consideration the likelihood of simultaneous outages of multiple components, which is an inherent property of the STP average maintenance model.

In Case 1, model INST7D, the duration of maintenance for all Class 1E vital inverters in the top event INST, local variable @MELED, is set to 168.0 hours, and the voltage regulating transformers are guaranteed failed. This study is considered bounding because historical data shows that the equipment, like the Class 1E vital inverters, are not removed from service for the full AOT duration. Once the top event model changes were made, the systems model was then quantified and a master frequency file, T168XVR was created. The core damage frequency (CDF) and large early release frequency (LERF) were determined by performing a Level 1 and 2 batch event tree quantification using an initiating event cutoff frequency of 1E-12. These results were then evaluated against the modified STP_RV42 (INSTBASE) to determine the ΔCDF and ΔLERF.

A sensitivity Case 1a was performed by modifying the model INST7D value of inverter maintenance frequency from 2.49E-05 per hour (1 in 4.6 yrs) to 7.6E-05 per hour (1 in 1.5 yrs). This was done by creating a local variable, @MELEF that was set equal to 7.6E-05 per hour in top INST, then replacing data variable ZMELEF with @MELEF in the inverter maintenance basic events (EP_MAINT_CHNL_1 / 2/ 3/ 4). Top event quantification batch 120VACPT was performed, a new master frequency file MFF18M created, and Level 1 and 2 event tree batch quantifications performed.

In Case 2, a set of four sensitivity studies (models INST7D1, INST7D2, INST7D3, INST7D4) were conducted to evaluate the effects of guaranteed maintenance of the individual Class 1E vital 120-vac inverters. These sensitivity studies credit the operation of the voltage regulating transformers where appropriate and are also considered bounding, in that they guarantee maintenance of one vital AC distribution channel inverter for the full 168 hour proposed AOT. Incremental conditional core damage probability (ICCDP) and the incremental conditional large early release probability (ICLERP) were determined given the maintenance condition. In these sensitivity studies, all the remaining inverters were assumed to have an average maintenance duration of 168 hours at the average maintenance frequency, i.e., @MELED set at 168 hours.

For the Case 2 studies, maintenance macros for each instrument channel were used in event tree PMET. These macros were used to quantify the effect of loss of AC power to the voltage regulating transformer during maintenance of the associated inverter. In addition, top event INST was modified for each channel individually by setting the maintenance term basic event, EP_MAINT_CHNL_1(2, 3, 4), to 1.0 and requantifying the intermediate top event and the individual channel top events. Master frequency files were created for each channel maintenance configuration.

As in Case 1, the Case 2 studies take into consideration simultaneous outages for multiple components and accounts for the possibility of unplanned maintenance during the AOT. The CDF and LERF were determined by performing a Level 1 and 2 batch event tree quantification using an initiating event cutoff frequency of 1.0E-12. For the instrument channel guaranteed maintenance runs, the ICCDP and ICLERP for the maintenance duration is determined using the following equations.

ICCDP = [(conditional CDF with the inverter failed) – (baseline CDF with nominal equipment unavailability)] * (Proposed AOT duration)

ICLERP = [(conditional LERF with the inverter failed) – (baseline LERF with nominal equipment unavailability)] * (Proposed AOT duration)

The results are presented in Section 4.8.

4.5 Applicability and Quality of PRA Models for Evaluation

STP has a Level 1/Level 2 PRA and Individual Plant Evaluation (IPE) that includes external events. The external events portion contains a fire, flood, and seismic PRA analysis. The STP PRA has been structured to have a comprehensive treatment of common cause failures and plant configurations. A detailed human reliability analysis is also included.

The STP PRA has undergone extensive NRC review:

- "A Review of the South Texas Probabilistic Safety Analysis for Accident Frequency Estimates and Containment Binning," Sandia National Laboratories, NUREG/CR 5606, dated August 1991
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to the Probabilistic Safety Analysis Evaluation," sent to Houston Lighting & Power Company under cover letter dated January 21, 1992 (ST-AE-HL-92962)
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to the Probabilistic Safety Assessment - External Events," sent to Houston Lighting & Power Company under cover letter dated August 31, 1993 (ST-AE-HL-93526)
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment Nos. 59 and 47 to Facility Operating License Nos. NPF-76 and NPF-80," sent to Houston Lighting & Power Company under cover letter dated February 17, 1994 (ST-AE-HL-93719). These amendments allow extension of the AOTs for ten various Tech Specs.
- "Staff Evaluation of South Texas Project Individual Plant Examination (IPE) (Internal Events Only)," sent to Houston Lighting & Power Company under cover letter dated August 9, 1995 (ST-AE-HL-94279) (included equipment survivability analysis)
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment Nos. 85 and 72 to Facility Operating License Nos. NPF-76 and NPF-80," sent to Houston

Lighting & Power Company under cover letter dated October 31, 1996 (ST-AE-HL-94678). These amendments allow extension of the standby diesel generator AOT to fourteen days, and extension of the essential cooling water and essential chilled water AOTs to seven days.

- "Safety Evaluation by the Office of Nuclear Reactor Regulation, Houston Lighting & Power Company South Texas Project, Units 1 and 2, Graded Quality Assurance Program," sent to Houston Lighting & Power Company under cover letter dated November 6, 1997 (ST-AE-HL-94983)
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment Nos. 125 and 113 to Facility Operating License Nos. NPF-76 and NPF-80," sent to STPNOC under cover letter dated September 26, 2000 (AE-NOC-00000688). These amendments eliminate the need to enter TS 3.0.3 when multiple trains of either the control room makeup and cleanup filtration system or the fuel handling building exhaust air system are inoperable by providing an AOT of up to 12 hours to restore at least one train.
- "Safety Evaluation by the Office of Nuclear Reactor Regulation, Risk-Informed Exemptions from Special Treatment Requirements," sent to STPNOC under cover letter dated August 3, 2001 (AE-NOC-01000845)
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment Nos. 135 and 124 to Facility Operating License Nos. NPF-76 and NPF-80," sent to STPNOC under cover letter dated January 10, 2002 (AE-NOC-02000910). These amendments allow extension of the AOT for an inoperable ECCS accumulator to 24 hours.
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment Nos. 143 and 131 to Facility Operating License Nos. NPF-76 and NPF-80," sent to STPNOC under cover letter dated September 17, 2002 (AE-NOC-02000986). These amendments allow a one-time extension of 10 CFR 50, App. J, Option B to 15 years.
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment Nos. 146 and 134 to Facility Operating License Nos. NPF-76 and NPF-80," sent to STPNOC under cover letter dated December 31, 2002 (AE-NOC-03001016). These amendments allow extension of the AOT for one inoperable motor-driven auxiliary feedwater pump to 28 days.
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment Nos. 158 and 146 to Facility Operating License Nos. NPF-76 and NPF-80," sent to STPNOC under cover letter dated December 2, 2003 (AE-NOC-03001167). These amendments eliminate the turbine missile design basis.
- "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment No. 149 to Facility Operating License No. NPF-80," sent to STPNOC under cover letter dated December 30, 2003 (AE-NOC-04001182). This amendment allows a one-time extension of the AOT for standby diesel generator SDG 22 from 21 days to 113 days.
- In April 2002, STP's PRA underwent an industry peer review performed in accordance with NEI-00-02, "Industry PRA Peer Review Process." All technical elements within the scope of the peer review were graded as sufficient to support application requiring the capabilities of a grade 2 (e.g., risk ranking applications). Most of the elements were further graded as sufficient to support application requiring the capabilities defined for grade 3 (e.g., risk-

informed applications supported by deterministic insights). The general assessment of the peer reviewers was that STP's PRA could effectively be used to support applications involving risk significance determinations supported by deterministic analyses once the items noted in the element summaries and Fact & Observations (F&O) sheets were addressed. Using STP's Corrective Action program as a tracking mechanism, with two major exceptions, all F&O items identified by the peer team have been completed and are incorporated as appropriate into the latest revision of the STP PRA (Revision 4). The STP PRA Revision 4 model is the basis for this application of Risk-Informed Technical Specifications. The two major exceptions which are not included in the current PRA are Level 2 model update and reevaluation of internal flood modeling. The Level 2 update is complete and will be incorporated by March 2006. The internal flood reevaluation is complete. No issues have been identified from the flood reevaluation to date that affect the PRA.

4.6 Risk Measures Used in Evaluations

According to RG 1.174, a change in CDF of less than 1.0E-6 per reactor year and a change in LERF of less than 1.0E-7 per reactor year are considered very small for a change to the PRA. RG 1.174 also considers changes in CDF less than 1.0E-5 and greater than 1.0E-6 to be small changes that require tracking of cumulative impact. Tracking of cumulative impact is accomplished via the Configuration Risk Management Program (CRMP) and station goals.

According to RG 1.177, the licensee has to demonstrate that the extension of the TS AOT has only a very small quantitative impact on plant risk. RG 1.177 states that an ICCDP of less than 5.0E-7 and an ICLERP of less than 5.0E-8 are considered very small for a single AOT TS change. Section 4.8 tabulates the ICCDP and ICLERP calculated in the first part of the risk management analysis performed for the extension of the AOT to 7 days for an inoperable Class 1E vital 120-vac inverter.

The second part of the analysis uses the requirements of 10 CFR 50.65(a)(4) in the bounding case to assess and manage the risk that may result from the proposed maintenance activities. An average maintenance model is used to determine the number of days it will take to reach the non-risk significant threshold (as defined in the plant procedure) with an inoperable Class 1E vital 120-vac inverter.

4.7 Data in Addition to PRA Database

There are no data required in addition to the PRA database.

4.8 Summary of Risk Measures Calculated and Intermediate Results

All case studies are conducted in reference to PRA model STP_RV42, modified for recent inverter design changes, for the quantification of CDF, LERF, ICCDP, and ICLERP. The CDF and LERF of the STP average maintenance model INSTBASE are as follows:

CDF = 9.27E-06 events/yr

LERF = 5.12E-07 events/yr

For Case 1 study, using a maintenance duration of 168 hours for all Class 1E vital 120-vac inverter maintenance, the change in CDF is 1.88E-07 events/yr. The corresponding change in LERF is 2.05E-09 events/yr. For the Case 1a sensitivity study where inverter maintenance frequency was increased to once per 1.5 years, the CDF and LERF values are shown below. Both Cases 1 and 1a results constitute a very small change in accordance with RG 1.174.

	Case 1: INST7D (MFF T168XVR) 168 hours Maint Duration No VR Transformer Credit	**Case 1a: INST7DMF (MFF18M) 168 hours Maint Duration 1 per 1.5 yrs Maint Freq No VR Transformer Credit**
CDF	9.46E-06	9.87E-06
LERF	5.14E-07	5.22E-07
ΔCDF	1.88E-07	5.99E-07
ΔLERF	2.05E-09	1.01E-08

RG 1.174 criteria: ΔCDF < 1E-06

RG 1.174 criteria: ΔLERF < 1E-07

For Case 2 studies, which assume guaranteed maintenance of an individual instrument channel for average maintenance duration of 168 hours, the highest ICCDP with average equipment unavailability is 3.63E-07. The highest ICLERP with average equipment unavailability is 1.08E-08. The results of Case Study 2 using the average maintenance duration of 168 hours constitute a very small quantitative impact on plant risk for a single TS AOT change in accordance with RG 1.177.

Case 2: Inverter Failed, Associated DP Powerd by VR Xfmr for 168 Hours				
Model:	**INST7D1**	**INST7D2**	**INST7D3**	**INST7D4**
CDF	2.82E-05	9.30E-06	1.90E-05	1.97E-05
LERF	7.67E-07	5.12E-07	1.06E-06	1.07E-06
ICCDP	**3.63E-07**	6.04E-10	1.86E-07	1.99E-07
ICLERP	4.90E-09	1.34E-12	1.05E-08	**1.08E-08**

RG 1.177 criteria: ICCDP < 5E-07

RG 1.177 criteria: ICLERP < 5E-08

4.9 Sensitivity and Uncertainty Analyses Performed

All case studies evaluated for the proposed TS change are sensitivity studies on the base model. The results of this analysis introduce no new uncertainties into the STP PRA. The uncertainty of the STP PRA spans one order of magnitude.

4.10 Summary of Risk Impacts and Proposed Compensating Actions

Using a maintenance duration of the proposed allowed outage time of 168 hours for Class 1E vital 120-vac inverter maintenance and the average frequency of occurrence of planned and unplanned maintenance for the inverters, the quantitative impact on plant risk is very small, and less than the risk acceptance criteria contained in Regulatory Guides 1.174 and 1.177.

<u>Tier 1, 2 and 3 evaluations</u>

Once the new CDF and LERF were determined, a three-tiered approach was implemented in accordance with RG 1.177 to evaluate the risk associated with the proposed TS AOT extension as follows.

The Tier 1 evaluation quantifies the impact on plant risk of the proposed TS change as expressed by the ΔCDF, ICCDP, ΔLERF, and ICLERP. The results are presented in Section 4.8.

The Tier 2 evaluation identifies potentially high-risk configurations that could exist if equipment in addition to that associated with the change were to be taken out of service simultaneously, or other risk-significant operational factors, such as concurrent system or equipment testing, were also involved. For this evaluation, the Average Plant Model was used, which accounts for average maintenance, both planned and unplanned, occurring concurrent with the proposed change.

Consistent with a similar change approved for Byron, Braidwood, and North Anna stations, STP proposes the following compensatory measures to be taken when an inverter becomes inoperable:

a. Entry into the extended inverter allowed outage time will not be planned concurrent with maintenance on the associated Standby Diesel Generator.

b. Entry into the extended inverter allowed outage time will not be planned concurrent with planned maintenance on another instrument channel that could result in that channel being in a tripped condition.

Also consistent with these amendments, STP will describe these compensatory measures in the UFSAR, as well as the TS Bases.

A Tier 3 evaluation is not necessary because STP has a configuration risk management program in place.

4.11 Contemporaneous Assessment of the Impact on Safety

Configuration Risk Management Program

STP currently has in place a risk-informed, on-line maintenance tracking and control process. The CRMP was incorporated into the TS via Amendments 85 and 72, issued on October 31, 1996. In the Safety Evaluation, the NRC Staff concluded that STP has "provided the necessary assurances that appropriate assessments of the overall impacts on safety functions will be performed prior to any maintenance or other operational activities, including removal of equipment from service."

The CRMP is used to assess the risk impact of equipment out-of-service, to maintain station risk at desired levels, and to assess risk impacts for planned and unplanned equipment outages that are modeled in the STP PRA. The CRMP is applicable to risk-significant systems, structures, and components (SSCs) within the scope of the station PRA or determined to be risk-significant in the Maintenance Rule program.

The CRMP provides guidance for determining both the action time limit (i.e., time until a risk-based threshold is exceeded) and the risk reduction actions required for any noncompliance with a Limiting Condition for Operation in the Technical Requirements Manual. RAsCal (Risk Assessment Calculator) is the STPNOC computer software used to assess the changes in CDF due to varying plant configurations resulting from planned or unplanned maintenance activities on risk-significant equipment in Modes 1 and 2. RAsCal contains a database of several thousand pre-quantified maintenance configurations, which can quickly be accessed to evaluate planned and emergent configuration changes. The Risk Management Group provides assistance in the application of the station's PRA model for the Mode 3 and Mode 4 risk assessments.

The CRMP procedure satisfies the Maintenance Rule requirements for the applicable modes and is used to meet the requirements of 10 CFR 50.65(a)(4) to assess the cumulative effects of maintenance and testing on SSC.

The PRA models are maintained per the PRA Program procedure. The Risk Management Group assesses the yearly cumulative risk for each unit and communicates the results to affected personnel. Work schedules are adjusted to desired levels of risk for Modes 1 and 2. Risk assessments consider any significant performance issues associated with the standby trains of SSCs.

On-Line Maintenance - Work Window Coordinators provide preliminary and adjusted interactive schedule inputs for risk profile generation prior to the initiation of planned maintenance activities in accordance with the work process program. Work schedules are authorized and approved. Work Window Coordinators are responsible for ensuring the risk profile is updated for any planned work schedule change that occurs after the start of the workweek. Whenever the risk profile is being updated, the user ensures the most current revision of the RAsCal guidelines are used. The following risk-significant CDF thresholds are used:

- Non-Risk-Significant Threshold = 1.00E-06 ICCDP due to maintenance
- Potentially Risk-Significant Threshold = 1.00E-05 ICCDP due to maintenance

The Plant General Manager must approve a planned exceedance of the Non-Risk-Significant Threshold.

The designated on-shift Senior Reactor Operator ensures the weekly risk profiles are updated with Actual Non-Functional Times and Actual Functional Times using RAsCal as components become functional or non-functional. At the completion of the workweek, the designated on-shift Senior Reactor Operator transmits the updated risk profile to Risk Management and the responsible Work Window Coordinator for evaluation and archiving.

Unplanned Work Week Events - During an unplanned event, the Shift Supervisor determines whether the SSC is within the scope of RAsCal. Using RAsCal, the designated on-shift Senior Reactor Operator calculates a projected weekly cumulative risk for the expected duration of the unplanned event. If RAsCal is unable to generate a risk profile (e.g., due to an unquantified maintenance state), work may proceed with the Shift Supervisor's approval until the Risk Management Group completes an evaluation.

If the projected weekly cumulative risk will not exceed the Non Risk-Significant Threshold, then no further action is required. The Shift Supervisor may heighten station awareness of work that is risk-significant to ensure completion of the work as scheduled. If the projected weekly cumulative risk will exceed the Non-Risk-Significant Threshold, actions must be taken to reduce the risk.

Risk Reduction - If the Non Risk-Significant Threshold is projected to be exceeded within the current work week and the exceedance has not been previously approved by the Plant General Manager, the Shift Supervisor notifies the Duty Operations and Duty Plant Manager, and identifies and implements compensatory measures approved by the Duty Plant Manager. Any measures taken to reduce risk are recorded in the Control Room Logbook.

If the Potentially Risk Significant Threshold is projected to be exceeded within the current work week, the Shift Supervisor notifies the Duty Operations Manager and the Duty Plant Manager, and reviews the TS, Technical Requirements Manual, and the Offsite Dose Calculation Manual requirements for affected equipment to ensure associated actions are being performed. The Shift Supervisor also evaluates changing current plant conditions to place the unit in a mode or a power level that may reduce the relative risk.

Maintenance Rule Program

The purpose of the Maintenance Rule Program is to monitor the performance of program scoped SSCs against established performance criteria and goals, and to ensure appropriate corrective action is taken when performance criteria are not met.
Monitoring of system performance consists of gathering, trending, and evaluating information against applicable performance criteria or goals as addressed in the Maintenance Rule Basis Document. When a Maintenance Rule functional failure (MRFF) or a repetitive MRFF has occurred, it is recorded in the equipment history database on a continual basis as part of the work order and PM history review process.

System performance is monitored against the performance criteria and goals by evaluating system/component failures and system/train availability/unavailability on a monthly basis. The results of these monthly monitoring activities are presented to the Expert Panel for review and approval. As a minimum, the following is included as part of the monthly monitoring activities:

- Review of (a)(1) system goals
- Review of performance for Maintenance Rule scoped systems
- Reclassification of systems as (a)(1) or (a)(2), if appropriate
- MRFF failure trending
- System/train availability/unavailability trending
- Plant level performance criteria trending

The reliability and availability of the Class 1E vital 120-vac inverters are monitored under the Maintenance Rule Program. If the pre-established reliability or availability performance criteria are exceeded for the inverters, they are considered for 10 CFR 50.65(a)(1) actions, requiring increased management attention and goal setting in order to restore their performance (i.e., reliability and availability) to an acceptable level. The performance criteria are risk-based and, therefore, are a means to manage the overall risk profile of the plant.

The Class 1E vital 120-vac inverters are all currently in the 10 CFR 50.65(a)(2) category, i.e., they are meeting established performance goals. Performance of inverter on-line maintenance is not anticipated to result in exceeding the current established Maintenance Rule criteria for the inverters.

The inverter reliability and availability will be monitored and periodically evaluated to assess the effect of the proposed extended AOT upon plant performance in relationship to the Maintenance Rule goals.

The Maintenance Rule Program will be used to identify and correct adverse trends to ensure the AOT extension does not degrade operational safety over time.

Compliance with the Maintenance Rule not only optimizes reliability and availability of important equipment, it also results in management of the risk when equipment is taken out of service for testing or maintenance per 10 CFR 50.65(a)(4).

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

STPNOC has evaluated whether a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92 as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed formatting changes to TS 3.8.3.1 Action b and the change to the AOT for an inoperable inverter to be extended from 24 hours to 7 days do not alter any plant equipment or operating practices in such a manner that the probability of an accident is increased. The proposed changes will not alter assumptions relative to the mitigation of an accident or transient event.

   An evaluation was performed to determine the risk significance of the proposed change to the AOT. The risk evaluation concludes that the ΔCDF and ΔLERF associated with the proposed changes are 1.88E-07 and 2.05E-09, respectively, which are characterized as "very small changes" by RG 1.174. The ICCDP and ICLERP associated with the proposed change are 3.63E-07 and 1.08E-08, respectively, which are within the acceptance criteria in RG 1.177. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The proposed changes do not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel and fuel cladding, reactor coolant pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed change to TS 3.8.3.1 to allow the AOT for an inoperable inverter to be extended from 24 hours to 7 days has been evaluated for its effect on plant safety. The risk-informed evaluation concludes that the ΔCDF and ΔLERF associated with the proposed change are 1.88E-07 and 2.05E-09, respectively, which are characterized as "very small changes" by RG 1.174. The ICCDP and ICLERP associated with the proposed change are 3.63E-07 and 1.08E-08, respectively, which are within the acceptance criteria in RG 1.177. The proposed changes to the formatting of TS 3.8.3.1 Action b are administrative only and have no impact on margin of safety. Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Based on the above, STPNOC concludes that the proposed amendment involves no significant hazards consideration under the standards set forth in 10 CFR 50.92, and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

10 CFR 50.36(c)(2) requires that all operating licenses for nuclear reactors must include the TS for the subject plant. Limiting conditions for operation (LCO), along with required AOTs, are specified for each system that is included in the TS.

Regulatory Guide 1.174 and RG 1.177 provide specific guidance and acceptance criteria for assessing the nature and impact of licensing-basis changes, including proposed permanent TS changes in AOTs by considering engineering issues and applying risk insights. In addition, Chapter 16.1, "Risk-Informed Decisionmaking: Technical Specifications," of Standard Review Plan, NUREG-0800, describes acceptable approaches and guidelines in reviewing proposed TS modifications, including AOT changes, as part of risk-informed decisionmaking.

The Maintenance Rule, 10 CFR 50.65(a)(4), requires licensees to perform assessments before conducting maintenance activities on SSCs that are covered by the Maintenance Rule, and to manage any increase in risk that may result from the proposed activities. RG 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," provides guidance on implementing the provisions of 10 CFR 50.65(a)(4). RG 1.174, Section 2.3, Element 3, "Define Implementation and Monitoring Program," states that monitoring that is in conformance with the Maintenance Rule can be used to satisfy Element 3 when the monitoring performed under the Maintenance Rule is sufficient for the SSCs affected by the risk-informed application.

10 CFR 50, Appendix A, General Design Criterion (GDC) 17, "Electric power systems," requires that nuclear power plants have onsite and offsite electric power systems to permit the functioning of SSCs that are important to safety. The onsite power system is required to have sufficient independence, redundancy, and testability to perform its safety function, assuming a

single failure. The offsite power system is required to supply power to the onsite electric distribution system by two physically independent circuits that are designed and located so as to minimize, to the extent practical, the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. In addition, this criterion requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as a result of loss of power from the unit, the offsite transmission network, or the onsite power supplies. GDC-18, "Inspection and testing of electric power systems," requires that electric power systems that are important to safety be designed to permit appropriate periodic inspection and testing.

Section 4, "Technical Analysis," provided the information required by Element 4 of RG 1.177.

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to the use of a facility component located within the restricted area. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES AND PRECEDENTS

7.1 References

1. Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications"

2. NUREG-1431, "Standard Technical Specifications - Westinghouse Plants"

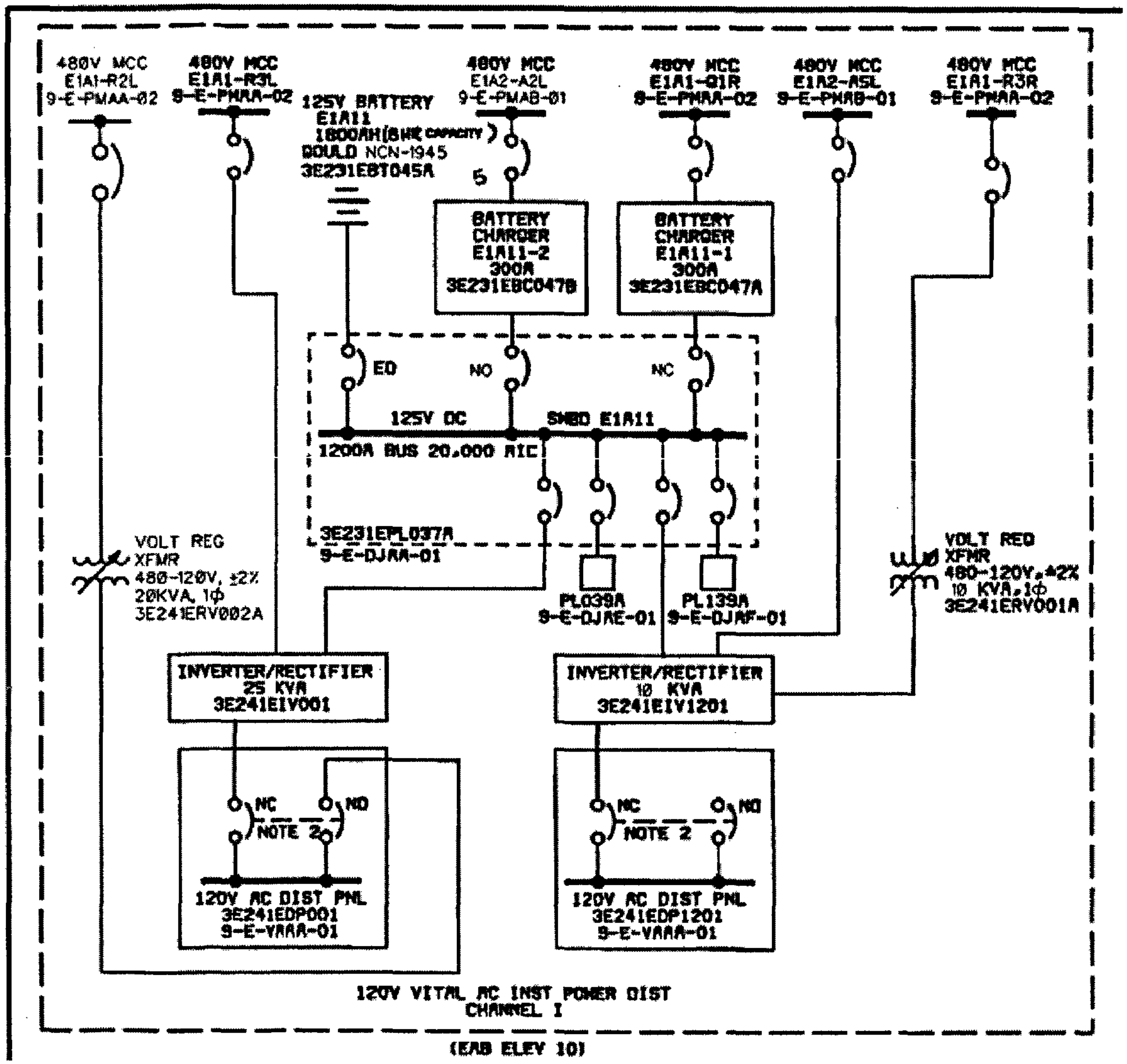
3. Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis"

7.2 Precedents

Byron Units 1 and 2
50-454 and 50-455
Amendments 135/135
MB6569 and MB6570
November 19, 2003

Braidwood Units 1 and 2
50-456 and 50-457
Amendments 129/129
MB6571 and MB6572
November 19, 2003

North Anna Units 1 and 2
50-338 and 50-339
Amendments 235/217
MB6957 and MB6958
May 12, 2004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9-E-PMAA-02
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E1A11
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GOULD NCN-1945
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5
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E1A1-R3R
9-E-PMAA-02
BATTERY
CHARGER
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300A
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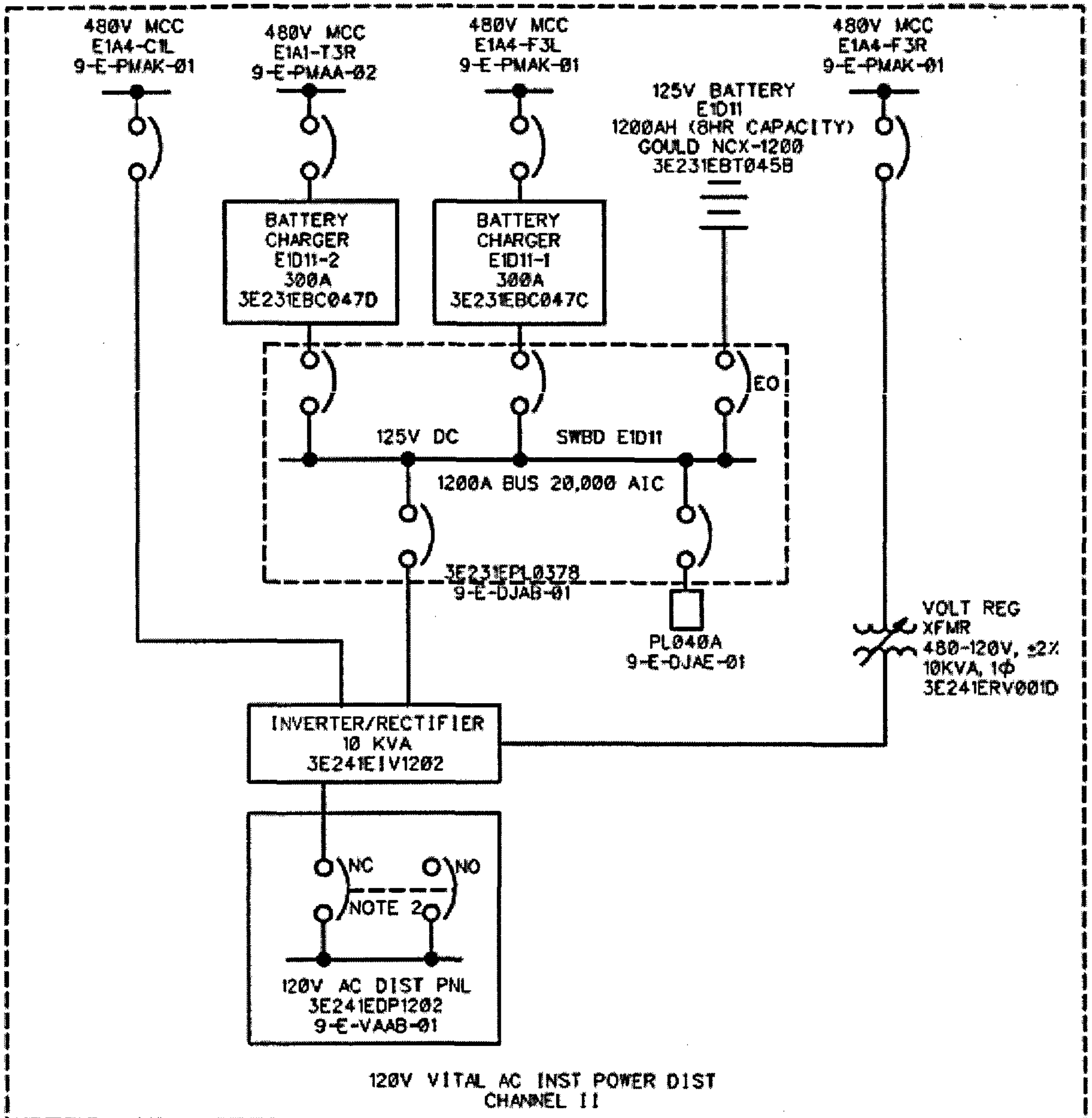
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9-E-PMAK-01
480V MCC
E1A4-F3R
9-E-PMAK-01
125V BATTERY
E1D11
1200AH (8HR CAPACITY)
GOULD NCX-1200
3E231EBT045B
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CHARGER
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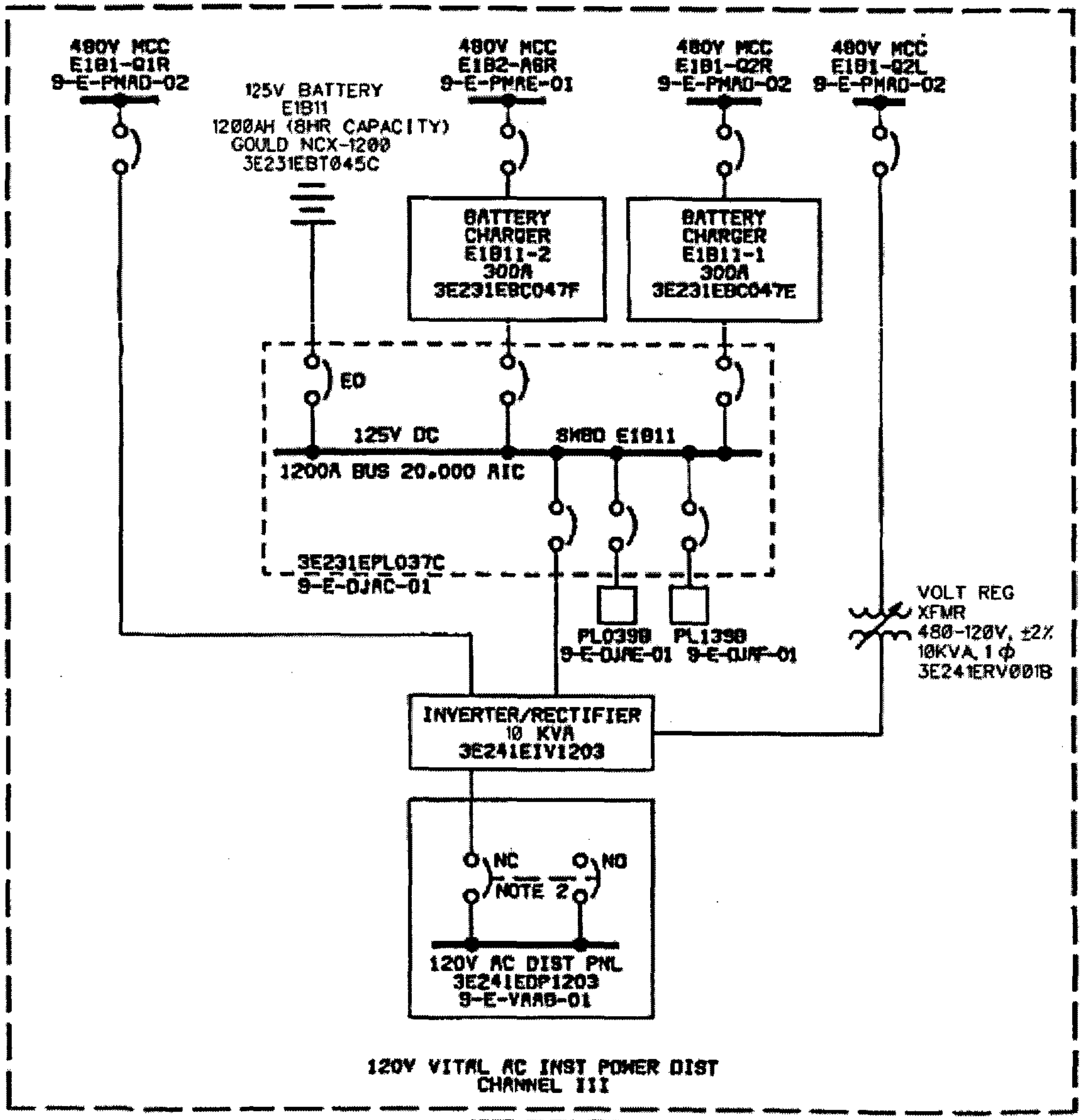
(EAB ELEV 10)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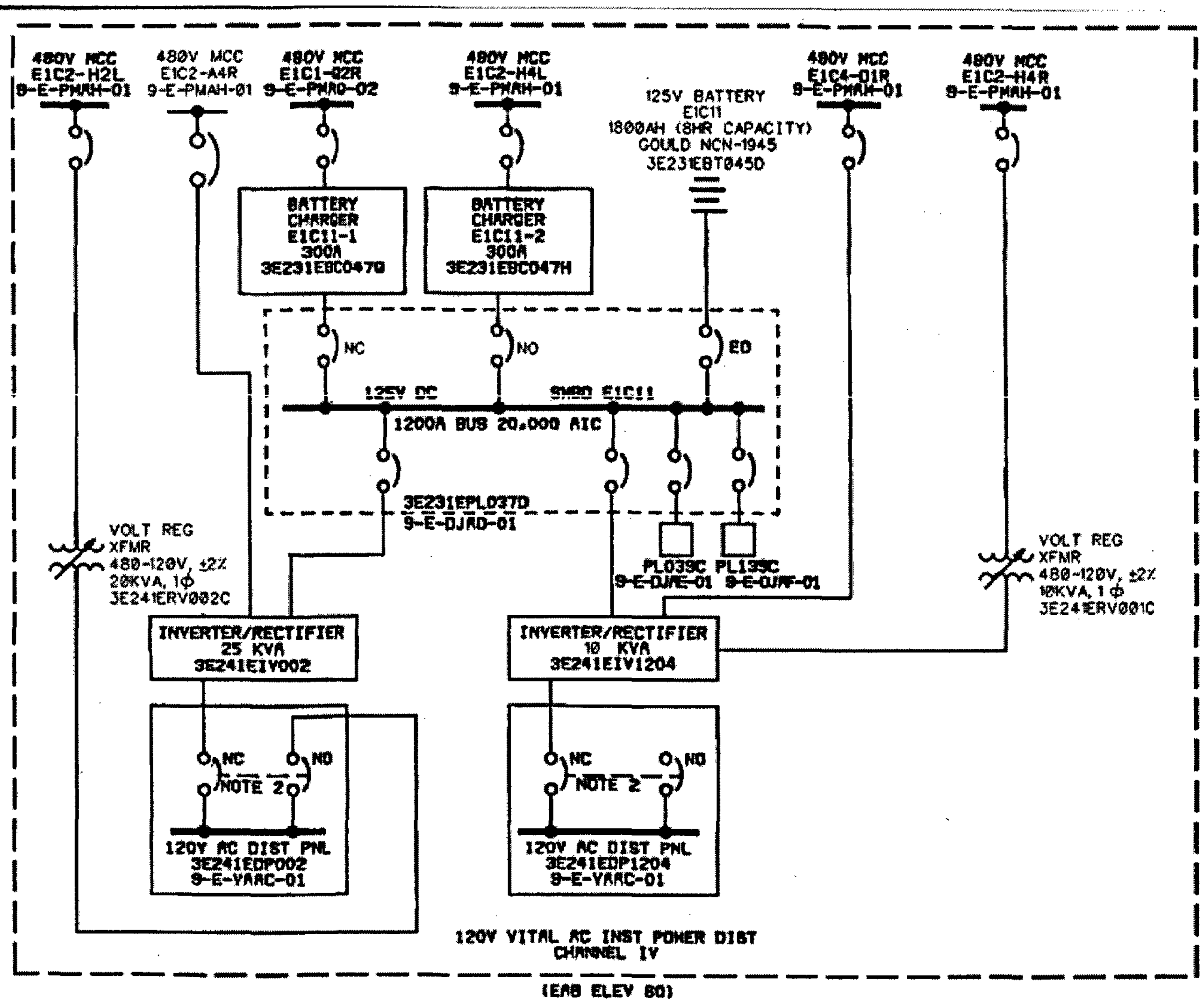
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9-E-PMAO-02
480V MCC
E1C2-H4L
9-E-PMAH-01
125V BATTERY
E1C11
1800AH (8HR CAPACITY)
GOULD NCN-1945
3E231EBT045D
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E1C4-D1R
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480V MCC
E1C2-H4R
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PL039C
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PL139C
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NOTE 2
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120V VITAL AC INST POWER DIST
CHANNEL IV
(EAB ELEV 80)

Attachment 2

Proposed Technical Specification Changes (Mark-up)

ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION

OPERATING

NO CHANGES ON THIS PAGE

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following electrical busses shall be energized in the specified manner:

a. Train A A.C. ESF Busses consisting of:
   1) 4160-Volt ESF Bus # E1A (Unit 1), E2A (Unit 2), and
   2) 480-Volt ESF Busses # E1A1 and E1A2 (Unit 1), E2A1 and E2A2 (Unit 2) from respective load center transformers.

b. Train B A.C. ESF Busses consisting of:
   1) 4160-Volt ESF Bus # E1B (Unit 1), E2B (Unit 2), and
   2) 480-Volt ESF Busses # E1B1 and E1B2 (Unit 1), E2B1 and E2B2 (Unit 2) from respective load center transformers.

c. Train C A.C. ESF Busses consisting of:
   1) 4160-Volt ESF Bus # E1C (Unit 1), E2C (Unit 2), and
   2) 480-Volt ESF Busses # E1C1 and E1C2 (Unit 1), E2C1 and E2C2 (Unit 2) from respective load center transformers.

d. 120-Volt A.C. Vital Distribution Panels DP1201 and DP001 energized from their associated inverters connected to D.C. Bus # E1A11* (Unit 1), E2A11* (Unit 2),

e. 120-Volt A.C. Vital Distribution Panel DP1202 energized from its associated inverter connected to D.C. Bus # E1D11* (Unit 1), E2D11* (Unit 2),

f 120-Volt A.C. Vital Distribution Panel DP1203 energized from its associated inverter connected to D.C. Bus # E1B11* (Unit 1), E2B11* (Unit 2),

g. 120-Volt A.C. Vital Distribution Panels DP1204 and DP002 energized from their associated inverters connected to D. C. Bus #E1C11 * (Unit 1), E2C11 * (Unit 2),

h. 125-Volt D.C. Bus E1A11 (Unit 1) E2A11 (Unit 2) energized from Battery Bank E1A11 (Unit 1), E2A11 (Unit 2),

i. 125-Volt D.C. Bus E1D11 (Unit 1) E2D11 (Unit 2) energized from Battery Bank E1D11 (Unit 1), E2D11 (Unit 2),

j. 125-Volt D.C. Bus E1 B11 (Unit 1) E2B11 (Unit 2) energized from Battery Bank E1B11 (Unit 1), E2B11 (Unit 2), and

k. 125-Volt D.C. Bus E1C11 (Unit 1) E2C11 (Unit 2) energized from Battery Bank E1C11 (Unit 1), E2C11 (Unit 2).

*The inverter(s) associated with one channel may be disconnected from its D.C. bus for up to 24 hours as necessary, for the purpose of performing an equalizing charge on its associated battery bank provided: (1) its vital distribution panels are energized, and (2) the vital distribution panels associated with the other battery banks are energized from their associated inverters and connected to their associated D.C. busses.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With one of the required trains of A.C. ESF busses not fully energized, reenergize the train within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one A.C. vital distribution panel either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus:

   (1) Reenergize the A.C. distribution panel within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and

   (2) Reenergize the A.C. vital distribution panel from its associated inverter connected to its associated D.C. bus within ~~24 hours~~ 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one D.C. bus not energized from its associated battery bank, reenergize the D.C. bus from its associated battery bank within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.1 The specified busses shall be determined energized in the required manner at least once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

Attachment 3

Licensee Commitments

Licensee Commitments

STPNOC makes the following commitments regarding the proposed license amendment:

The following compensatory measures will be taken when an inverter becomes inoperable (CR 06-1051- 3, 06-1051-4):

a. Entry into the extended inverter allowed outage time will not be planned concurrent with maintenance on the associated Standby Diesel Generator.

b. Entry into the extended inverter allowed outage time will not be planned concurrent with planned maintenance on another instrument channel that could result in that channel being in a tripped condition.

Also consistent with these amendments, STP will describe these compensatory measures in the UFSAR, as well as the TS Bases (CR 06-1051-5).