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U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC

Subject: River Bend Station – Unit 1
Docket No. 50-458
License No. NPF-47
Response to Generic Letter 06-02, *Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power*

File Nos. G9.5, G9.25.1.3

RBG-46554
RBF1-06-0061

Dear Sir or Madam:

On February 1, 2006, the NRC issued Generic Letter 2006-02 to request information for determining compliance with regulatory requirements governing electric power sources. Specifically, the NRC requested information regarding (1) use of protocols between the nuclear power plant (NPP) and the transmission system operator (TSO), independent system operator (ISO), or reliability coordinator/authority (RC/RA) including transmission load flow analysis tools, (2) use of NPP/TSO protocols and analysis tools by TSOs to assist NPPs in monitoring grid conditions for consideration in maintenance risk assessments; (3) offsite power restoration procedures in accordance with Section 2 of NRC Regulatory Guide (RG) 1.155, "Station Blackout;", and (4) losses of offsite power caused by grid failures at a frequency equal to or greater than once in 20 site-years in accordance with RG 1.155. The requested information is being made under the requirements of 10 CFR 50.54(f).

The River Bend Station (RBS) response to the requested information in GL 2006-02 is contained in attachment to this submittal. Responses to questions associated with Entergy offsite transmission groups are outside the

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direct control of RBS. However, they have been confirmed by offsite organizations to the extent practical. Entergy is not making any commitments as a result of our response to this letter. If you have any questions or require additional information, please contact David N. Lorfing at 225-381-4157.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 3, 2006.

Sincerely,

Paul D. Hinnenkamp
Vice President – Operations

PHD/dhw

Attachment: RBS Response to Generic Letter 2006-02

cc: Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
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Arlington, TX 76011-8064

NRC Senior Resident Inspector
River Bend Station
P. O. Box 1050
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Attachment to RBF1-06-0061

RBS Response to Generic Letter 2006-02

Requested Information

NRC Request 1 - *Use of protocols between the NPP licensee and the TSO, ISO, or RC/RA to assist the NPP licensee in monitoring grid conditions to determine the operability of offsite power systems under plant TS.*

(a) *Do you have a formal agreement or protocol with your TSO?*

RBS Response to Request 1(a):

Entergy Nuclear South (ENS) plants (i.e., Grand Gulf Nuclear Station, River Bend Station (RBS), Waterford 3, and Arkansas Nuclear One) utilize a combination of formal agreements, procedures, protocols and/or actions to have Entergy Transmission provide notification to each ENS plant if the predicted post-trip voltage does not meet the minimum value(s) specified in ENS procedure[1] ENS-DC-199, *Offsite Power Supply Design Requirements.* This is an ENS controlled procedure that is jointly reviewed by both Entergy Transmission and ENS. It contains the specifics pertaining to preferred offsite sources, including acceptable voltage, frequency, and power delivery requirements for each ENS plant. The formal agreement for RBS is referred to as the *Switchyard and Transmission Interface Agreement.*

The formal agreements for each site provide a general framework for the establishment of procedures and processes that are deemed by each agreement to be of importance to the safe operation of the respective ENS site. Each agreement contains the requirement that the respective ENS site be provided with an assured source of offsite power in accordance with procedures to be agreed upon by the respective ENS site and the Entergy Transmission organization.

The monitoring process used by Entergy Transmission to predict ENS plant post-trip voltages is contained in ENS procedure ENS-DC-201, *ENS Transmission Grid Monitoring.* This is an ENS controlled procedure that is jointly reviewed by both Entergy Transmission and ENS. This procedure contains the Transmission/ENS Off-Line Post Trip Voltage Analysis & Monitoring Process. This process is implemented by Entergy Transmission procedures.

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1 Compliance with GDC-17, as documented in the license basis and plant Technical Specifications for Entergy Nuclear South (ENS) plants, is not predicated on such agreements. Additionally, ENS plants are considered regulated, not de-regulated and ENS plants are part of vertically-integrated, Entergy Corporation utility operations.

These procedures collectively implement near-term advance (day-ahead) grid analysis specifically for ENS to use in determining the status of the Entergy Transmission grid, particularly near ENS plants. This monitoring uses Siemens Power Technologies International (Siemens PTI) PSS/E transmission analysis software program, performed for the next day, using daily cases representing that day of the month. These cases specifically consider the trip of each ENS unit and the application of design basis accident loads. These cases are also re-performed during the period of interest if previously identified specific contingencies occur or, if Entergy Transmission determines that system conditions have significantly changed during the period that could affect the offsite power source post-trip voltage availability for any ENS unit. This allows the analysis to remain bounding if system conditions change. The results of these analyses are then compared to the specific ENS unit post-trip voltage requirements for each respective ENS site. If the results indicate that site specific requirements would potentially not be met, Entergy Transmission determines if these requirements can be met for the period of interest by making changes to transmission system configuration/operation. If Entergy Transmission determines that the requirements can not be met or are not being met, then notification of the affected site is required. ENS plant compliance with GDC-17, as documented in the license basis and plant Technical Specifications for each ENS plant, is not predicated on such an agreement. Specifically, Section 8.2 of the RBS Updated Safety Analysis Report (USAR) provides the basis for the station's compliance with GDC-17 with regard to offsite power.

Compliance with GDC 17 as stated in NUREG-0800, *Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants*, is based on "each [offsite power] circuit has been sized with sufficient capacity to supply all connected loads" and "results of the grid stability analysis indicated that loss of the largest generating capacity being supplied to the grid, loss of largest load from the grid, loss of the most critical transmission line, or loss of the unit itself will not cause grid instability." As confirmed in the definitions of Generic Letter 2006-02, for a given disturbance stability equates to maintaining a state of equilibrium, and not a specific voltage. However, Entergy Transmission is presently required by the applicable Regional Coordinating Council to perform periodic studies to ensure compliance with their grid stability criteria and planning standards. These criteria include limits on the maximum allowable voltage deviation and duration of transients for a given grid disturbance. This provides additional ENS plant offsite power (stability) assurance in addition to that required by GDC 17 for stability considerations.

***(b)** Describe any grid conditions that would trigger a notification from the TSO to the NPP licensee and if there is a time period required for the notification.*

RBS Response to Request 1(b):

The process described for the Entergy response to NRC Request 1(a) is a look-ahead analysis that covers the following day. As such, this process does not incorporate an explicit time period requirement for notification, because the period of interest is in the future (next day). This allows Entergy Transmission to evaluate the projected system conditions (due to grid maintenance and system outages) and provides an opportunity to possibly prevent the actual occurrence of grid conditions that would not meet ENS requirements. If, following such evaluations for next day, or, following the occurrence of specific predetermined grid contingencies reevaluated during the present period, there are indications that ENS site specific predicted post-trip voltage will not be met or are not met the minimum value(s) specified in ENS procedure ENS-DC-199, *Offsite Power Supply Design Requirement*, notification of the affected plant(s) is required. Likewise, should actual real-time conditions occur that are outside of ENS requirements without projecting additional contingencies, then notification is also provided. While the present day and the real-time notifications do not have an explicit time requirement stated, it is expected by both parties that such communications would be performed immediately. ENS procedures require Entergy Transmission to receive periodic training by ENS on the importance of offsite power to nuclear safety and the necessity of prompt resolution of such issues.

***(c)** Describe any grid conditions that would cause the NPP licensee to contact the TSO. Describe the procedures associated with such a communication. If you do not have procedures, describe how you assess grid conditions that may cause the NPP licensee to contact the TSO.*

RBS Response to Request 1(c):

Grid conditions and status are the primary responsibility of Entergy Transmission for ENS plants. The observable parameters for ENS plants include voltage and frequency, generator reactive output, breaker status, status of certain lines, and certain switchyard alarm points.

The Entergy Transmission organization has procedures and practices as indicated in the Entergy response to NRC Request 1(a), that require site notification in the event that actual or projected grid conditions are not met.

As such, ENS does not explicitly dictate that individual sites perform periodic inquiries of the Entergy Transmission organization for determination of grid status. However, this does not preclude ENS plants from performing a grid status check with Entergy Transmission if such information is deemed to be beneficial in a given situation, using communications protocols provided in ENS procedures. Additionally, if the daily monitoring process is determined by Entergy Transmission to be unavailable, plant notification is required per Entergy Transmission procedures.

The following RBS procedures contain requirements to notify either the load dispatcher or the system operator:

- Abnormal Operation Procedure (AOP)-0004, *Loss of Offsite Power*
- AOP-0050, *Station Blackout*
- Alarm Response Procedure (ARP)-680-09, *P680-09 Alarm Response* provides actions to be taken in response to the following alarms:
    1. Main Transformer Trouble
    2. Main Transformer Aux Cooling Loss
    3. Generator Field Ground fault
    4. Exciter Field Ground Fault
    5. RSS 1 or 2 Pilot Wire Trouble
    6. PFD Station Transformer RTX-XSR1E(F) Cooling Power Loss
    7. Generator Field High Temp
    8. RSS 1 or 2 Backup Pilot Wire Trouble
    9. Generator Trip
    10. Generator Field Over Voltage (Gen Trip)
    11. Exciter Field Brkr Trip
    12. PFD Transformer Primary Lockout Trip or Inop
    13. PFD Station Service Transformer RTX-XSR1C(D) Cooling Power Loss
    14. PFD Station Transformer Backup Lockout Trip or Inop
- ARP-808-86, P808-86, Alarm Response Procedure
    1. PFD Station Transformer RTX-XSR1E Voltage Low
    2. Grid Monitor Trouble High/Low Frequency, Low/Low-Low Voltage
- ARP-808-88, P808-88, Alarm Response
    1. PFD Station Transformer RTX-XSR1F Voltage Low
- General Operating Procedure (GOP)-0001, *Plant Startup*
- GOP-0002, *Power Decrease/Plant Shutdown*
- GOP-0004, *Single Loop Operation*
- GOP-0005, *Power Maneuvering*
- Operations Section Procedure (OSP)-0022, *Administrative Guidelines*
- OSP-0063, *Grid Monitoring*

River Bend has indication of grid voltage in the main control room. A "Grid Trouble" alarm is provided, as described in ARP-808-86. It alarms on high and low frequency, as well as at two low voltage limits that are less than normally anticipated but still above the minimum grid voltage that would cause the degraded voltage relay to operate. The alarm requires the operator to contact the load dispatcher for any information on grid conditions and estimated time until condition is corrected. The duty engineer is contacted to address any contingency actions.

***(d)** Describe how NPP operators are trained and tested on the use of the procedures or assessing grid conditions in question 1(c).*

RBS Response to Request 1(d):

Plant operators receive training on the function and operation of the RBS onsite and offsite electrical distribution system and components. Training includes both initial and continuing training programs, which consist of a combination of classroom and simulator training. These methods provide instruction and administer testing to assess the proficiency and knowledge levels of operators in the use of procedures for basic operation of the electrical distribution system, assessing grid conditions, and responding to abnormal and/or emergency conditions. Additionally, lessons learned from operating experience associated with offsite and onsite electrical distribution, such as INPO Significant Operating Events Report (SOER) 99-01, *Loss of Grid*, are incorporated into the training curriculum. Testing methods include written exams and simulator performance evaluation.

***(e)** If you do not have a formal agreement or protocol with your TSO, describe why you believe you continue to comply with the provisions of GDC 17 as stated above, or describe what actions you intend to take to assure compliance with GDC 17.*

RBS Response to Request 1(e):

ENS plants have a combination of formal agreements, procedures, protocols, and practices as described in the response to NRC Request 1(a); therefore this question is not applicable.

***(f)** If you have an existing formal interconnection agreement or protocol that ensures adequate communication and coordination between the NPP licensee and the TSO, describe whether this agreement or protocol requires that you*

be promptly notified when the conditions of the surrounding grid could result in degraded voltage (i.e., below TS nominal trip setpoint value requirements; including NPP licensees using allowable value in its TSs) or LOOP after a trip of the reactor unit(s).

RBS Response to Request 1(f):

As discussed under the response to NRC Request 1 (a), ENS plants utilize a combination of formal agreements, procedures, protocols and/or actions to have Entergy Transmission provide notification to each ENS plant if the predicted post-trip voltage does not meet the minimum value(s) specified by ENS in ENS procedures. This procedure contains specific information pertaining to preferred offsite sources, including acceptable voltage, frequency, and power delivery requirements for each ENS plant.

If the analysis results indicate that ENS site specific requirements could potentially not be met, Entergy Transmission determines if these requirements can be met for the period of interest by making changes to transmission system configuration/operation. If Entergy Transmission determines that the requirements can not be met or are not being met, then plant notification is required. While the present and the real-time notifications do not have an explicit time requirement stated, it is expected by both parties that such communications would be performed immediately. Entergy Transmission receives periodic training by ENS on the importance of offsite power to nuclear safety and the necessity of prompt resolution of such issues.

ENS plans to implement an enhanced on-line monitoring system with Entergy Transmission during the summer of 2006. This system uses real-time models of the transmission grid and load flow analysis tools to determine if the transmission grid can meet the specific offsite power requirements for the nuclear sites, while including the effects of plant trip. This on-line enhanced system will include a notification time requirement for plant notification if the requirements cannot be met.

***(g)** Describe the low switchyard voltage conditions that would initiate operation of plant degraded voltage protection.*

RBS Response to Request 1(g):

Each ENS unit has degraded voltage protection schemes designed to ensure the capability to power essential loads for safe shutdown of each unit. The minimum voltage requirements for each ENS site are listed in procedure

ENS-DC-199. As stated in 1(a), if these voltage requirements cannot be met for a specific plant, then ENS plant notification is required.

RBS has degraded voltage relays set in accordance with IEEE-Std.-741-1997. The settings were reviewed in Operating Licensee Amendment no. 128, which provided updated TS values. The relays are set to allow accident sequencing of large motor loads and addition of all automatic LOCA loads to the emergency buses at the minimum design grid voltage, thus allowing an operable grid to supply the loads. Under normal operation, a one minute time delay is applied to the degraded voltage relay pickup. The emergency buses are usually lightly loaded during normal operation, with large emergency motors in standby. A significant grid undervoltage (less than normal operating range of the RBS generator) would be required to operate the relays. Such a voltage would require operation of the main generator and nearby generators outside their rated voltage tolerances.

NRC Request 2 - *Use of criteria and methodologies to assess whether the offsite power system will become inoperable as a result of a trip of your NPP.*

(a) *Does your NPP's TSO use any analysis tools, an online analytical transmission system studies program, or other equivalent predictive methods to determine the grid conditions that would make the NPP offsite power system inoperable during various contingencies? If available to you, please provide a brief description of the analysis tool that is used by the TSO.*

RBS Response to Request 2(a)

Yes. Entergy Transmission utilizes the Siemens PTI transmission analysis program as the analysis tool to predict ENS plant's offsite power voltages under various transmission grid contingencies. This transmission analysis program is one of the leading software programs used by electric utilities to perform detailed transmission grid studies. Using this program, Entergy Transmission performs detailed transmission studies for the next day, using daily cases representing that day of the month. These cases specifically consider the trip of each ENS unit and the application of design basis accident loads. These cases provide the advantage of the accuracy of a near term projection of expected loads and load flows, system generating unit status, expected transmission system elements in or out of service and specific site requirements, in a single analysis. These cases are also re-performed during the period of interest (i.e. present day) if previously identified specific contingencies occur or, if Entergy Transmission determines that system conditions have significantly changed during the period that could affect adversely the offsite power source post-trip voltage availability for any ENS unit. This allows the analysis to remain bounding if system conditions change. The results of these analyses are then compared to the post-trip voltage requirements for each respective ENS site. If the results indicate the potential for ENS site specific requirements may not be met, Entergy Transmission then determines if these requirements can be met for the period of interest by making changes to transmission system configuration/operation. If Entergy Transmission determines that the requirements can not be met or are not being met, then plant notification is required.

Per the unit-specific licensing basis for each ENS site and the requirements of ENS procedures, studies are performed on a periodicity as specified within the license basis to confirm that the offsite power system will remain operable following a trip of that unit. As a minimum, per ENS-DC-199, grid studies are performed at least every three years. These studies are performed using an industry accepted Transmission Analysis Program, equivalent to the Siemens PTI program mentioned above. The periodic

analyses incorporate updated grid configurations and conditions, which are projected for a future period of interest (generally 2 or more years) and include such multiple contingencies as the ENS unit trip and design basis accident loading combined with significant other concurrent transmission/generation contingencies to confirm the adequacy of these sources to remain operable following such an event. This includes future projections for system load peaks and power transfers through the Entergy system, as determined by Entergy Transmission system planning.

Once submitted to ENS by Entergy Transmission, these analyses are reviewed by ENS Engineering personnel to confirm that the analyses provide the necessary assurance of the operability of the offsite power sources following a unit trip. This review is documented per the requirements of ENS procedures.

(b) *Does your NPP's TSO use an analysis tool as the basis for notifying the NPP licensee when such a condition is identified? If not, how does the TSO determine if conditions on the grid warrant NPP licensee notification?*

RBS Response to Request 2(b):

Yes. Entergy Transmission uses the above analysis tools, in conjunction with procedures, as the basis for determining when conditions warrant plant notification.

(c) *If your TSO uses an analysis tool, would the analysis tool identify a condition in which a trip of the NPP would result in switchyard voltages (immediate and/or long-term) falling below TS nominal trip setpoint value requirements (including NPP licensees using allowable value in its TSs) and consequent actuation of plant degraded voltage protection? If not, discuss how such a condition would be identified on the grid.*

RBS Response to Question 2(c):

Yes. As stated in 2.a, the day-ahead analysis tools would predict the voltage conditions that would result from an RBS plant trip well in advance of the actual condition and plant notification would occur at that time.

(d) *If your TSO uses an analysis tool, how frequently does the analysis tool program update?*

RBS Response to Request 2(d):

Entergy Transmission uses near-term advance (day-ahead) grid analysis specifically designed to notify ENS sites of such a condition on the grid. These cases are also re-performed during the period of interest (i.e. present day) if previously identified specific contingencies occur or, if Entergy Transmission determines that system conditions have significantly changed, during the period that could affect adversely the offsite power source post-trip voltage availability for any ENS unit. This allows the analysis to remain bounding if system conditions change.

(e) *Provide details of analysis tool-identified contingency conditions that would trigger an NPP licensee notification from the TSO.*

RBS Response to Request 2(e):

As stated in 2(a), Entergy Transmission provides notification to the ENS plant(s) if the predicted ENS plant post-trip voltage does not meet the minimum voltage values specified in ENS-DC-199 for that specific ENS plant. These post trip voltages are calculated by the Siemens PTI/PSS/E software transmission analysis program, used by many utilities for extensive transmission studies. As stated in procedure ENS-DC-201, if any transmission system element that is directly interconnected to the ENS switchyard or substation is lost, then the software analysis is re-performed to identify whether the post trip voltages are still acceptable. Additionally, if any transmission system contingency occurs that, in the opinion of Entergy Transmission may significantly impair the unit post-trip voltage performance for any ENS site, the software analysis is re-performed to identify whether the post trip voltages are still acceptable.

(f) *If an interface agreement exists between the TSO and the NPP licensee, does it require that the NPP licensee be notified of periods when the TSO is unable to determine if offsite power voltage and capacity could be inadequate? If so, how does the NPP licensee determine that the offsite power would remain operable when such a notification is received?*

RBS Response to Request 2(f):

Yes. Entergy Transmission uses near-term advance (day-ahead) grid analysis specifically designed to monitor ENS site grid conditions. If the near-term advance (day-ahead) monitoring process is determined by Entergy Transmission to be unavailable, plant notification is required per ENS-DC-201. Per the requirements of ENS procedures, each affected site will initiate

a Condition Report for each case that results in a notification by Transmission. The evaluation in the Condition Report would review the current plant lineups and bus loadings to determine the actual impacts of the projected grid voltage on plant equipment.

(g) *After an unscheduled inadvertent trip of the NPP, are the resultant switchyard voltages verified by procedure to be bounded by the voltages predicted by the analysis tool?*

RBS Response to Request 2(g):

Yes. Per the requirements of ENS-DC-201, ENS site engineering is required to coordinate with Entergy Transmission for a review of grid conditions that existed at the time of such an ENS unit trip to assess the accuracy of the analysis under known system conditions. This review is expected to be performed under the Condition Report process by System or Design Engineering.

(h) *If an analysis tool is not available to the NPP licensee's TSO, do you know if there are any plans for the TSO to obtain one? If so, when?*

RBS Response to Request 2(h):

Entergy Transmission uses an analysis tool; therefore this question is not applicable.

(i) *If an analysis tool is not available, does your TSO perform periodic studies to verify that adequate offsite power capability, including adequate NPP post-trip switchyard voltages (immediate and/or long-term), will be available to the NPP licensee over the projected timeframe of the study?*

(a) Are the key assumptions and parameters of these periodic studies translated into TSO guidance to ensure that the transmission system is operated within the bounds of the analyses?

(b) If the bounds of the analyses are exceeded, does this condition trigger the notification provisions discussed in question 1 above?

RBS Response to Request 2(i):

Entergy Transmission uses an analysis tool; therefore this question is not applicable.

(j) *If your TSO does not use, or you do not have access to the results of an analysis tool, or your TSO does not perform and make available to you periodic studies that determine the adequacy of offsite power capability, please describe why you believe you comply with the provisions of GDC 17 as stated above, or describe what compensatory actions you intend to take to ensure that the offsite power system will be sufficiently reliable and remain operable with high probability following a trip of your NPP.*

RBS Response to Request 2(j):

Entergy Transmission uses an analysis tool. ENS plants have access to the results of an analysis tool used by Entergy Transmission. Entergy Transmission makes periodic studies available to ENS to determine the adequacy of offsite power capability. Therefore this question is not applicable.

NRC Request 3. - *Use of criteria and methodologies to assess whether the NPP's offsite power system and safety-related components will remain operable when switchyard voltages are inadequate.*

(a) *If the TSO notifies the NPP operator that a trip of the NPP, or the loss of the most critical transmission line or the largest supply to the grid would result in switchyard voltages (immediate and/or long-term) below TS nominal trip setpoint value requirements (including NPP licensees using allowable value in its TSs) and would actuate plant degraded voltage protection, is the NPP offsite power system declared inoperable under the plant TSs? If not, why not?*

Entergy Note:

GL 2006-02 uses the term "Operable" in several locations with regard to postulated offsite power conditions and for showing compliance with GDC 17. Operability is based on "the capability of performing its specified safety function(s)." This is a current capability, not a postulated capability after other events not analyzed in the USAR. Declaring offsite circuits inoperable due to projected switchyard voltages (except in combination with a plant trip) would require a plant shutdown per the TSs. A premature plant shutdown would contribute to the actual degraded voltage condition. Implementing the TS required actions potentially worsens the situation that the Generic Letter was intended to avoid. Therefore, as discussed in the following responses, Entergy applies offsite power system operability with actual or immediate conditions consistent with other Limiting Conditions for Operation within the RBS TSs.

Additionally, GL 2006-02 also appears to equate meeting GDC 17 with the operability of the offsite circuits. As stated in Regulatory Information Summary (RIS) 2005-20, *Operability Determination Process*, Appendix C.1, *Relationship Between the General Design Criteria and the Technical Specifications*, "The general design criteria (GDC) and the TSs differ in that the GDC specify requirements for the design of nuclear power reactors, whereas the TSs specify requirements for the operation of nuclear reactors." Therefore, failure to meet a General Design Criteria is considered a degraded or nonconforming condition and an operability determination is required to determine if the associated equipment is inoperable.

RBS Response to Request 3(a):

Per the requirements of ENS procedures, notification of affected plants is required if the transmission grid can not be maintained or is not within the values required by ENS procedures. These values represent the acceptable

ranges to demonstrate that a given offsite source will remain capable of powering the required onsite loads under design basis conditions. Per the requirements of ENS procedures, if such notification is made, a Condition Report will be initiated to evaluate operability. If this evaluation demonstrates the inability to power required onsite loads from a given offsite source, then that offsite source would be declared inoperable.

ENS plants would declare the offsite power source inoperable for the situation where the loss of the unit would result in inadequate switchyard voltages that would actuate plant degraded voltage protection. ENS plants do not declare the offsite power inoperable for the situation where the loss of the most critical transmission line or the largest supply to the grid would result in inadequate switchyard voltages. The loss of the unit would have to occur before any action would be taken. If predicting a most critical line loss or loss of the largest supply would predict a voltage below the degraded voltage protection setpoint, the plant would take preparatory actions without entering a Limiting Condition for Operation (LCO), since ENS plants do not enter an LCO until an event happens.

(b) *If onsite safety-related equipment (e.g., emergency diesel generators or safety-related motors) is lost when subjected to a double sequencing (LOCA with delayed LOOP event) as a result of the anticipated system performance and is incapable of performing its safety functions as a result of responding to an emergency actuation signal during this condition, is the equipment considered inoperable? If not, why not?*

RBS Response to Request 3(b):

Yes. If onsite safety related equipment is lost (as governed by plant Technical Specifications), then the equipment is declared inoperable. If an item is unable to perform its safety function during a design basis accident condition, then it is declared inoperable. Double sequencing is not in the RBS licensing basis, nor is RBS designed or analyzed for double sequencing scenarios.

(c) *Describe your evaluation of onsite safety-related equipment to determine whether it will operate as designed during the condition described in question 3(b).*

RBS Response to Request 3(c):

Double sequencing is not in the RBS licensing basis, nor is RBS designed or analyzed for double sequencing scenarios.

(d) *If the NPP licensee is notified by the TSO of other grid conditions that may impair the capability or availability of offsite power, are any plant TS action statements entered? If so, please identify them.*

RBS Response to Request 3(d):

As discussed in response to NRC Request 3(a), plant notification is required if the transmission grid can not be maintained or is not within the values required by ENS procedures. If an offsite source is declared inoperable, then the appropriate TS LCO would be entered (i.e., Technical Specifications 3.8.1 when in operating mode and Technical Specifications 3.8.2 when shutdown). However, RBS TSs are not entered for grid conditions that might occur (i.e. tornados, forest fires, severe weather events).

(e) *If you believe your plant TSs do not require you to declare your offsite power system or safety-related equipment inoperable in any of these circumstances, explain why you believe you comply with the provisions of GDC 17 and your plant TSs, or describe what compensatory actions you intend to take to ensure that the offsite power system and safety-related components will remain operable when switchyard voltages are inadequate.*

RBS Response to Request 3(e):

RBS believes that certain of the cases described could result in the affected equipment being declared inoperable as described in response to NRC Requests 3(a) and 3(b). Required actions would then be taken per Technical Specifications. Therefore, this question is not applicable to RBS.

(f) *Describe if and how NPP operators are trained and tested on the compensatory actions mentioned in your answers to questions 3(a) through (e).*

RBS Response to Request 3(f):

ENS did not specify any "compensatory" actions in the ENS responses to NRC Request 3(a) through 3(e). All actions described by ENS within these

responses are governed by plant procedures. Therefore, there are no applicable "compensatory" actions stated for ENS operators to be trained or tested on for this question.

NRC Request 4 - *Use of criteria and methodologies to assess whether the offsite power system will remain operable following a trip of your NPP.*

(a) *Do the NPP operators have any guidance or procedures in plant TS bases sections, the final safety analysis report, or plant procedures regarding situations in which the condition of plant-controlled or -monitored equipment (e.g., voltage regulators, auto tap changing transformers, capacitors, static VAR compensators, main generator voltage regulators) can adversely affect the operability of the NPP offsite power system? If so, describe how the operators are trained and tested on the guidance and procedures.*

RBS Response to Request 4(a):

RBS has no auto tap changing transformers, capacitors, or static VAR compensators that are capable of affecting grid voltage. The main generator is the only RBS equipment that can significantly affect grid voltage. Operation of the voltage regulator on the main generator is addressed in System Operating Procedure (SOP)-0080, *Turbine Generator Operation*. Per General Operation Procedure (GOP)-0001, *Plant Startup*, adjustment of the main generator voltage regulator is to be done at the direction of the system load dispatcher. RBS licensed operators are trained on the main generator voltage regulator in initial and recurring classroom instruction, and in the main control room simulator.

Neither RBS Technical Specifications nor the Updated Safety Analysis Report address the main generator voltage regulator.

(b) *If your TS bases sections, the final safety analysis report, and plant procedures do not provide guidance regarding situations in which the condition of plant-controlled or -monitored equipment can adversely affect the operability of the NPP offsite power system, explain why you believe you comply with the provisions of GDC 17 and the plant TSs, or describe what actions you intend to take to provide such guidance or procedures.*

RBS Response to Request 4(b):

The monitoring process used by Entergy Transmission to predict ENS plant post-trip voltages is contained in ENS procedures. The post trip voltages assume running all emergency loads and starting the largest motor. Therefore no other specific guidance is required.

RBS's offsite power system study shows the grid voltage is only reduced by maximum of approximately 4.6 kV when the unit is taken off line and

starting the largest safety related motor. The main generator voltage regulator is set to limit the VAR loading. The VAR loading is controlled with concurrence with the Transmission Operations Center (TOC). No other voltage regulators, auto tap changing transformers, capacitors, static VAR compensators are used that can impact the operability of the offsite power system. River Bend is in compliance with GDC17. Therefore no actions are required.

Use of NPP licensee/TSO protocols and analysis tool by TSOs to assist NPP licensees in monitoring grid conditions for consideration in maintenance risk assessments

The Maintenance Rule (10 CFR 50.65(a)(4)) requires that licensees assess and manage the increase in risk that may result from proposed maintenance activities before performing them.

NRC Request 5 *Performance of grid reliability evaluations as part of the maintenance risk assessments required by 10 CFR 50.65(a)(4).*

(a) *Is a quantitative or qualitative grid reliability evaluation performed at your NPP as part of the maintenance risk assessment required by 10 CFR 50.65(a)(4) before performing grid-risk-sensitive maintenance activities? This includes surveillances, post-maintenance testing, and preventive and corrective maintenance that could increase the probability of a plant trip or LOOP or impact LOOP or SBO coping capability, for example, before taking a risk-significant piece of equipment (such as an EDG, a battery, a steam-driven pump, an alternate AC power source) out-of-service?*

RBS Response to Request 5(a):

Yes. Coordination of both grid and plant major maintenance to minimize plant risk is performed by the plant and Transmission functions, although the primary responsibility and oversight functions for these actions is performed by the site organization. The site work control processes factor in scheduled nuclear switchyard activities as part of the risk evaluation process, as well as any emergent work. The site's switchyard interface agreement, the site's specific implementing procedure for these interfaces, and the ENS directive Policy Letter (PL)-158, *Switchyard and Transmission Interface Requirements,* are used to define responsibilities between the Transmission and site organizations for this purpose.

10CFR 50.65(a)(4) requires performance of a risk assessment prior to maintenance activities. Maintenance is defined broadly and would include surveillances, post maintenance testing, and preventive and corrective maintenance. Relative to increasing the initiating event frequency, such as the frequency of a plant trip, the industry guidance, NUMARC 93-01 (as endorsed without exception by NRC Regulatory Guide 1.182) states in section 11.3.2.2 that the following should be considered:

- The likelihood of an initiating event or accident that would require the

performance of the affected safety function.

- The likelihood that the maintenance activity will significantly increase the frequency of a risk-significant initiating event (e.g., by an order of magnitude or more as determined by each licensee, consistent with its obligation to manage maintenance-related risk).

Switchyard coordination is an integral part of the Switchyard and Transmission Interface Agreement. This agreement requires RBS to coordinate planned plant outages and load reductions with the Entergy Transmission. The agreement also requires coordination by Entergy Transmission with RBS for all activities directly affecting the off-site power supply.

OSP-0048, *Switchyard, Transformer Yard, and Sensitive Equipment Controls*, stipulates the development and completion of plant and component impact statements which detail exact work to be performed and the controls required. Only personnel authorized by RBS control room management are allowed to enter and perform work in the RBS switchyard. This procedure includes a list of maintenance exceptions that have been evaluated which have no impact on the plant. These activities typically do not require impact statements and are added to the integrated plant schedules as scheduled activity items. For all other activities, component and plant impact statements are prepared to assess the possible impact on the plant. These activities, once approved, are also placed on the integrated plant schedules. These processes assure that the work is thoroughly evaluated for its impact on the plant. Also, by adding the activities to the integrated plant schedules, they are evaluated to assure there are no conflicts with other in-house activities, thus maintaining adequate defense-in-depth. Operations Work Management liaisons are involved, via the impact statements and integrated schedule, to insure that grid activities are coordinated with in house activities so that adequate electrical diversity is maintained at all times.

Additionally, the RBS uses Administrative Procedure (ADM)-0096, *Risk Management Program Implementation and Online Maintenance Risk Assessment* for managing plant risk, including switchyard maintenance. This procedure is utilized in the work planning process and referenced when real time emergent conditions either impact equipment availability or grid availability/stability. The directive specifies performing risk assessments when planning maintenance or performing activities with respect to trip initiators and grid reliability.

(b) *Is grid status monitored by some means for the duration of the grid-risk-sensitive maintenance to confirm the continued validity of the risk assessment and is risk reassessed when warranted? If not, how is the risk assessed during grid-risk-sensitive maintenance?*

RBS Response to Request 5(b):

Yes. Entergy Transmission grid status is monitored by Entergy Transmission as described collectively above. Plant risk is assessed as discussed in Response 5(a), and is reassessed as conditions change.

NUMARC 93-01 does not define "grid-risk-sensitive maintenance", so there is no unique guidance for such activities. The following guidance is included in section 11.3.2.8:

> "Emergent conditions may result in the need for action prior to conduct of the assessment, or could change the conditions of a previously performed assessment. Examples include plant configuration or mode changes, additional SSCs out of service due to failures, or significant changes in external conditions (weather, offsite power availability). The following guidance applies to this situation:
>
> • The safety assessment should be performed (or re-evaluated) to address the changed plant conditions on a reasonable schedule commensurate with the safety significance of the condition. Based on the results of the assessment, ongoing or planned maintenance activities may need to be suspended or rescheduled, and SSCs may need to be returned to service.
>
> • Performance (or re-evaluation) of the assessment should not interfere with, or delay, the operator and/or maintenance crew from taking timely actions to restore the equipment to service or take compensatory actions.
>
> • If the plant configuration is restored prior to conducting or re-evaluating the assessment, the assessment need not be conducted, or re-evaluated if already performed."

(c) *Is there a significant variation in the stress on the grid in the vicinity of your NPP site caused by seasonal loads or maintenance activities associated with critical transmission elements? Is there a seasonal variation (or the potential for a seasonal variation) in the LOOP frequency in the local transmission region? If the answer to either question is yes, discuss the time of year when the variations occur and their magnitude.*

RBS Response to Request 5(c):

No. Within the context of the definition provided for "Grid Stress or a Stressed Grid" for this Generic Letter, Entergy Transmission system loads typically reach annual maximums within the summer months, however Entergy Transmission continually accounts for such loads as transmission system operators when balancing these loads with available generation and power import/export and load flow capability.

Major transmission lines near the ENS site that might affect the viability of the Offsite Power System and/or the nuclear generation, have their maintenance outages scheduled away from the summer or peak load times or during plant outages to avoid grid stress in the vicinity of the plant.

Entergy Transmission maintains grid stability with an automatic load shedding system. This system sheds up to 30% of the system load in three successive increments of degrading grid frequency. Entergy Transmission also maintains a stable grid by shedding selective load if necessary after potential re-dispatch solutions are exhausted to ensure continued grid reliability. Thus, two goals exist: Grid Reliability and Service Reliability. The residential and commercial customers may experience electrical outages at the distribution level while the grid is unaffected. Hence, offsite power continues to be available to ENS plants.

(d) *Are known time-related variations in the probability of a LOOP at your plant site considered in the grid-risk-sensitive maintenance evaluation? If not, what is your basis for not considering them?*

RBS Response to Request 5(d):

Yes. The RBS Equipment Out of Service (EOOS) online risk model satisfies the guidance of NUMARC 93-01, *Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants*, which states that risk assessments should consider the impact of maintenance activities on availability of electrical power. Specifically, the assessments for maintenance activities involving the switchyard and transformer yard should consider the impact on offsite power availability. When there is switchyard/transformer yard work or grid instabilities, the EOOS risk model allows the operators and schedulers to increase the LOOP frequency by a factor of 10. In addition, RBS uses the time-averaging technique (convolution) to account for recovering offsite power due to plant-centered, weather related, or grid related events. This technique is documented in EPRI TR-1009187,

Treatment of Time Interdependencies in Fault Tree Generated Cutset Results. Offsite power restoration data utilized in this analysis is based on industry experience, and the offsite power recovery analysis is periodically updated to reflect this experience.

Guidance to RBS operators and schedulers is provided in ADM-0096, *Risk Management Program Implementation and On-Line Maintenance Risk Assessment.* ADM-0096 establishes actions to be taken by plant personnel for activities that are high risk. For activities that can impact AC/DC power, including the potential impact to offsite power, and that are evaluated as high risk, the guidance of ADM-0096 will be followed. See response to Request 6(c) also.

(e) *Do you have contacts with the TSO to determine current and anticipated grid conditions as part of the grid reliability evaluation performed before conducting grid-risk-sensitive maintenance activities?*

RBS Response to Request 5(e):

Yes. ENS plants contact Entergy Transmission at any time necessary, using communications protocols provided in ENS procedures.

(f) *Describe any formal agreement or protocol that you have with your TSO to assure that you are promptly alerted to a worsening grid condition that may emerge during a maintenance activity.*

RBS Response to Request 5(f):

As discussed in the Response to NRC Request 1(a), Entergy Nuclear South plants utilize a combination of formal agreements, procedures, protocols and/or actions to have Entergy Transmission provide notification to each ENS plant if the predicted post-trip voltage does not meet the minimum value(s) specified by ENS in ENS procedures. This is an ENS controlled procedure that is jointly reviewed by both Entergy Transmission and ENS. It contains specific information pertaining to preferred offsite sources, including acceptable voltage, frequency and power delivery requirements for each ENS plant.

If analysis results indicate the potential for ENS site specific requirements to not be met, Entergy Transmission determines if these requirements can be met for the period of interest by making changes to transmission system configuration/operation. If Entergy Transmission determines that the

requirements can not be met or are not being met, then notification of the affected plants is required. Per the requirements of ENS-DC-201, if such notification is made, ENS will initiate a Condition Report and evaluate operability. Thus, ENS plant operations will be made aware of worsening grid conditions that could result in the ENS site inability to meet the post-trip design basis accident load requirements from the offsite power source.

(g) *Do you contact your TSO periodically for the duration of the grid-risk-sensitive maintenance activities?*

RBS Response to Request 5(g):

Whenever any risk significant preplanned or emergent maintenance is required that could impact offsite power, Entergy Transmission is contacted. The process used for ENS plant notification by Entergy Transmission effectively removes any perceived necessity for ENS sites to contact Entergy Transmission periodically, as Entergy Transmission initiates notification to ENS sites when necessary. Entergy Policy Letter (PL)-158 defines the Primary Point of Contact for the site. The purpose of the point of contact is to ensure open lines of communication are maintained. Transmission and the primary point of contact will coordinate their activities to ensure transmission personnel are allowed access and work is performed per maintenance schedule. During transmission activities the point of contact will act as a liaison between the organizations, provide nuclear safety oversight, and provide the crews with a dedicated advocate for integration of switchyard work with the site processes. This communication will require periodic contact during the activity.

(h) *If you have a formal agreement or protocol with your TSO, describe how NPP operators and maintenance personnel are trained and tested on this formal agreement or protocol.*

RBS Response to Request 5(h):

OSP-0063, *Grid Monitoring,* provides guidance to the RBS operators concerning their role in implementing ENS-DC-199 and ENS-DC-201. Computer based instruction has been provided to RBS licensed operators, but did not include testing. No such training has been provided to the maintenance staff.

(i) *If your grid reliability evaluation, performed as part of the maintenance risk assessment required by 10 CFR 50.65(a)(4), does not consider or rely on*

some arrangement for communication with the TSO, explain why you believe you comply with 10 CFR 50.65(a)(4).

RBS Response to Request 5(i):

Arrangements for communication of grid status between ENS sites and Entergy Transmission are those as described in the response to previous questions. As previously discussed, risk sensitive maintenance activities are communicated with Entergy Transmissions and changes in risk during the maintenance evolution are similarly communicated as required. Therefore this question is not applicable to RBS.

(j) *If risk is not assessed (when warranted) based on continuing communication with the TSO throughout the duration of grid-risk-sensitive maintenance activities, explain why you believe you have effectively implemented the relevant provisions of the endorsed industry guidance associated with the maintenance rule.*

RBS Response to Request 5(j):

As previously discussed, risk sensitive maintenance activities are communicated with Entergy Transmissions and changes in risk during the maintenance evolution are similarly communicated as required. Therefore this question is not applicable to RBS.

(k) *With respect to questions 5(i) and 5(j), you may, as an alternative, describe what actions you intend to take to ensure that the increase in risk that may result from proposed grid-risk-sensitive activities is assessed before and during grid-risk-sensitive maintenance activities, respectively.*

RBS Response to Request 5(k):

Since RBS maintains communication with Entergy Transmissions for risk-sensitive maintenance, no alternative communications are considered necessary.

NRC Request 6. *Use of risk assessment results, including the results of grid reliability evaluations, in managing maintenance risk, as required by 10 CFR 50.65(a)(4).*

(a) *Does the TSO coordinate transmission system maintenance activities that can have an impact on the NPP operation with the NPP operator?*

RBS Response to Request 6(a):

Yes. Entergy Transmission maintenance is classified as either planned maintenance or emergent maintenance. Additionally, ENS has an added tool where planned transmission system outages that are relevant to ENS sites are posted on an Entergy intranet web page.

On line work management process is designed to minimize plant risk during on line maintenance. The process is controlled by procedure EN-WM-101, *On-line Work Management Process*. Transmission related maintenance is communicated to the site through an electrical switchyard coordinator and the scheduling coordinators. A Work Week Manager is responsible for ensuring both quantitative and qualitative risk insights are thoroughly reviewed during the twelve week scheduling process.

Planned maintenance activities with the potential to affect ENS operation are incorporated into the near-term advance (day-ahead) grid analysis specifically for Nuclear to use in determining the status of the Entergy Transmission grid, particularly near ENS plants. Emergent maintenance activities and planned maintenance activities with the potential to affect ENS operation are required to be coordinated with the affected ENS site per the formal agreements indicated in this response for each respective ENS site.

(b) *Do you coordinate NPP maintenance activities that can have an impact on the transmission system with the TSO?*

RBS Response to Request 6(b):

Yes. Scheduled and unscheduled ENS unit outages and power reductions are communicated between ENS units, Entergy Energy Management Organization and Entergy Transmission for transmission security purposes. The ENS sites through the Work Week Manager will provide current plant status and concerns prior to performing switchyard/transformer yard activities with an emphasis on nuclear safety. These may include activities such as switchyard work, insulator cleaning, and transformer maintenance. Also, see the RBS response to Request 5(a).

(c) *Do you consider and implement, if warranted, the rescheduling of grid-risk-sensitive maintenance activities (activities that could (i) increase the likelihood of a plant trip, (ii) increase LOOP probability, or (iii) reduce LOOP or SBO coping capability) under existing, imminent, or worsening degraded grid reliability conditions?*

RBS Response to Request 6(c):

Yes. Grid-risk sensitive maintenance is performed when the site personnel conclude that the risk of the work is small compared to the safety benefit. Emergent issues with the grid are managed to maintain a high level of plant safety. At times, it is appropriate to reschedule activities. At other times the Shift Manager will order the on-shift crew to stop the task and restore the safety-related function of the equipment.

River Bend procedure OSP-0048, *Switchyard, Transformer Yard and Sensitive Equipment Controls*, provides the guidance for scheduling and maintenance activities associated with work in these sensitive equipment areas. Controlling the implementation of the associated work minimizes the risk to the station for a LOOP event. This procedure applies to operation, maintenance and access controls for the Fancy Point Switchyard, River Bend transformer yards, and sensitive equipment locations. The procedure provides guidance with respect to requirements of the applicable switchyard and transmission interface agreement and ENS Policy Letter (PL)-158, *Switchyard and Transmission Interface Requirements*.

Maintenance risk is assessed utilizing the Equipment Out Of Service (EOOS) software and procedural guidance to ensure changing conditions with the plant and environmental variables are tracked to ensure overall plant risk is maintained.

(d) *If there is an overriding need to perform grid-risk-sensitive maintenance activities under existing or imminent conditions of degraded grid reliability, or continue grid-risk-sensitive maintenance when grid conditions worsen, do you implement appropriate risk management actions? If so, describe the actions that you would take. (These actions could include alternate equipment protection and compensatory measures to limit or minimize risk.)*

RBS Response to Request 6(d):

Yes. As stated in 6(c), risk is assessed procedurally and with risk assessment software to maintain adequate control of maintenance activities. A high risk assessment will drive the development of contingency plans prior to performing the required scheduled or unscheduled activities. If maintenance or surveillance activities must be performed during high risk periods, the configuration of the plant is evaluated and aligned to minimize the potential impact of a grid instability event. Station procedure AOP-0029, *Severe Weather Operation,* provides additional guidance for station control during periods of extreme weather. ADM-0096 states that notification to the plant manager is required when the emergent issues raise the level of risk to a higher level during planned maintenance or testing. Compensatory measures or actions that could be taken include restoring equipment to service or deviations from the scheduled work. The Work Week Manager evaluates schedule changes bases on any offsite transmission system failure or system conditions adversely affecting grid stability.

(e) *Describe the actions associated with questions 6(a) through 6(d) above that would be taken, state whether each action is governed by documented procedures and identify the procedures, and explain why these actions are effective and will be consistently accomplished.*

RBS Response to Request 6(e):

RBS actions discussed in the responses to 6(a) through 6(d) above are prescribed in OSP-0048, *Switchyard, Transformer Yard and Sensitive Equipment Controls,* ENS Policy Letter (PL)-158, *Switchyard and Transmission Interface Requirements*, AOP-0029, *Severe Weather Operation, and ADM-0096, Risk Management Program Implementation and On-Line Maintenance Risk Assessment.*

All actions described in the responses to Requests 6(a) through 6(d) are directed by either Entergy transmission agreements and or RBS specific procedures. These agreements and procedures have been utilized on a routine basis by plant scheduling, operations and transmission personnel during the implementation of work activities. Based on the use of these procedures to date, Entergy believes that the specific requirements of the procedures discussed are effective and repeatable.

(f) *Describe how NPP operators and maintenance personnel are trained and tested to assure they can accomplish the actions described in your answers to question 6(e).*

RBS Response to Request 6(f):

Plant risk analysis is provided by the Equipment Out Of Service (EOOS) monitor. Training is provided under lesson plan RLP-LOR-EOOS (Equipment Out-Of Service (EOOS), *Probabilistic Safety Assessment, and Administrative Procedure* (ADM)-0096, *Risk Management Program Implementation and On-Line Maintenance Risk Assessment*. Training on AOP-0029, *Severe Weather Operation*, is provided initially to new license candidates. Requalification training for licensed operators in the simulator may involve scenarios that are initiated due to severe weather conditions.

(g) *If there is no effective coordination between the NPP operator and the TSO regarding transmission system maintenance or NPP maintenance activities, please explain why you believe you comply with the provisions of 10 CFR 50.65(a)(4).*

RBS Response to Request 6(g):

ENS believes that there is effective coordination between ENS operators and Entergy Transmission maintenance activities, so this portion of the question is not applicable.

(h) *If you do not consider and effectively implement appropriate risk management actions during the conditions described above, explain why you believe you effectively addressed the relevant provisions of the associated NRC-endorsed industry guidance.*

RBS Response to Request 6(h):

ENS believes that there is effective coordination between ENS operators and Entergy Transmission maintenance activities, so this portion of the question is not applicable.

(i) *You may, as an alternative to questions 6(g) and 6(h) describe what actions you intend to take to ensure that the increase in risk that may result from grid-risk-sensitive maintenance activities is managed in accordance with 10 CFR 50.65(a)(4).*

RBS Response to Request 6(i):

No alternate actions are considered necessary and therefore, this question is not applicable to RBS.

Offsite power restoration procedures in accordance with 10 CFR 50.63 as developed in Section 2 of RG 1.155

Pursuant to 10 CFR 50.63, the NRC requires that each NPP licensed to operate be able to withstand an SBO for a specified duration and recover from the SBO. NRC RG 1.155 gives licensees guidance on developing their approaches for complying with 10 CFR 50.63.

NRC Request 7. *Procedures for identifying local power sources[2] that could be made available to resupply your plant following a LOOP event.*

Note: Section 2, "Offsite Power," of RG 1.155 (ADAMS Accession No. ML003740034) states:

Procedures should include the actions necessary to restore offsite power and use nearby power sources when offsite power is unavailable. As a minimum, the following potential causes for loss of offsite power should be considered:

- Grid undervoltage and collapse

- Weather-induced power loss

- Preferred power distribution system faults that could result in the loss of normal power to essential switchgear buses

(a) *Briefly describe any agreement made with the TSO to identify local power sources that could be made available to resupply power to your plant following a LOOP event.*

RBS Response to Request 7(a):

Formal agreements previously described dictate priority restoration of offsite power to RBS. Entergy Transmission maintains restoration plans for the Entergy Transmission system. The plans include the use of system black-start capable generation, where available. Such restoration plans consider all available Entergy Transmission restoration options, including but not limited to use of other local area generation for re-supply of ENS plants. Restoration of offsite power to nuclear facilities has the highest priority. Grid operators train on this procedure annually per NERC training requirements. Entergy Transmission is not responsible for the use of any onsite generation sources under site control.

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[2] This includes items such as nearby or onsite gas turbine generators, portable generators, hydro generators, and black-start fossil power plants.

(b) *Are your NPP operators trained and tested on identifying and using local power sources to resupply your plant following a LOOP event? If so, describe how.*

RBS Response to Request 7(b):

ENS operators are responsible for the use of onsite resources under ENS control only. Entergy Transmission is responsible for the use of Entergy system resources, including, but not limited to, use of local (offsite) generation to resupply ENS plants following a LOOP event and such re-supply is designated as a priority activity within Entergy Transmission restoration plans, as previously described.

RBS licensed operators are trained on procedures for both LOOP (AOP-0004, *Loss of Offsite Power*) and SBO (AOP-0050, *Station Blackout*) events. Classroom training is conducted initially for new license candidates. On a biennial basis, simulator based scenarios are used as part of licensed operator requalification. Testing includes both written examinations and graded simulator scenarios.

(c) *If you have not established an agreement with your plant's TSO to identify local power sources that could be made available to resupply power to your plant following a LOOP event, explain why you believe you comply with the provisions of 10 CFR 50.63, or describe what actions you intend to take to establish compliance.*

RBS Response to Request 7(c):

ENS has agreements previously described between ENS plants and Entergy Transmission that dictate priority restoration of offsite power to ENS units. Entergy Transmission maintains restoration plans for the Entergy Transmission system. The plans include the use of system black-start capable generation, where available. Such restoration plans consider all available Entergy Transmission restoration options, including but not limited to use of other (offsite) local-area generation for re-supply of ENS plants. Therefore, this question is not applicable.

Losses of offsite power caused by grid failures at a frequency of equal to or greater than once in 20 site-years in accordance with Table 4 of Regulatory Guide 1.155 for complying with 10 CFR 50.63

Pursuant to 10 CFR 50.63, the NRC requires that each NPP licensed to operate be able to withstand an SBO for a specified duration and recover from the SBO. NRC RG 1.155 gives licensees guidance on developing their approaches for complying with 10 CFR 50.63.

NRC Request 8. *Maintaining SBO coping capabilities in accordance with 10 CFR 50.63.*

(a) *Has your NPP experienced a total LOOP caused by grid failure since the plant's coping duration was initially determined under 10 CFR 50.63?*

RBS Response to Request 8(a):

No such event has occurred at RBS since the plant's coping duration was determined.

(b) *If so, have you reevaluated the NPP using the guidance in Table 4 of RG 1.155 to determine if your NPP should be assigned to the P3 offsite power design characteristic group?*

RBS Response to Request 8(b):

This question is not applicable to RBS.

(c) *If so, what were the results of this reevaluation, and did the initially determined coping duration for the NPP need to be adjusted?*

RBS Response to Request 8(c):

This question is not applicable to RBS.

(d) *If your NPP has experienced a total LOOP caused by grid failure since the plant's coping duration was initially determined under 10 CFR 50.63 and has not been reevaluated using the guidance in Table 4 of RG 1.155, explain why you believe you comply with the provisions of 10 CFR 50.63 as stated above, or describe what actions you intend to take to ensure that the NPP maintains its SBO coping capabilities in accordance with 10 CFR 50.63.*

RBS Response to Request 8(d):

This question is not applicable to RBS.

Actions to ensure compliance

NRC Request 9. *If you determine that any action is warranted to bring your NPP into compliance with NRC regulatory requirements, including TSs, GDC 17, 10 CFR 50.65(a)(4), 10 CFR 50.63, 10 CFR 55.59 or 10 CFR 50.120, describe the schedule for implementing it.*

RBS Response to Request 9

Entergy believes that RBS is in compliance with NRC regulatory requirements and no further actions are necessary.