



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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ARLINGTON, TEXAS 76011-4125

May 12, 2010

Michael Perito  
Site Vice President  
Entergy Operations, Inc.  
River Bend Station  
5485 US Highway 61N  
St. Francisville, LA 70775

Subject: RIVER BEND STATION - NRC INTEGRATED INSPECTION REPORT  
05000458/2010002

Dear Mr. Perito:

On March 31, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on April 8, 2010, with you and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding and two self-revealing findings of very low safety significance (Green). All of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd., Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the River Bend Station facility. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at River Bend Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Vincent G. Gaddy, Chief  
Project Branch C  
Division of Reactor Projects

Docket: 50-458  
License: NPF-47

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NRC Inspection Report 05000458/2010002  
w/Attachment: Supplemental Information

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File located: R:\\_REACTOR\\_RB\2010\RB 2010002-gfl1-vgg.doc

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000458  
License: NPF-47  
Report: 05000458/2010002  
Licensee: Entergy Operations, Inc.  
Facility: River Bend Station  
Location: 5485 U.S. Highway 61N  
St. Francisville, LA  
Dates: January 1 through March 31, 2010  
Inspectors: G. Larkin, Senior Resident Inspector  
C. Norton, Resident Inspector  
Approved By: Vincent G. Gaddy, Chief, Project Branch C  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000458/2010002; 01/01/2010 – 03/31/2010; River Bend Station; Integrated Inspection Report; Equipment Alignments; Maintenance Risk Assessments and Emergent Work Control; Postmaintenance Testing

The report covered a 3-month period of inspection by resident inspectors. Three Green noncited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A self-revealing noncited violation of Technical Specification 5.4.1.a. was identified for defeating the Division I emergency systems automatic start functions caused by the failure to follow a work implementation and closeout procedure when changing the work scope and tag out boundaries for a safety-related maintenance activity. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2009-06151.

The finding was more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone and affected the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance (Green) because the finding did not represent an actual loss of safety function. This finding has a crosscutting aspect in the area of human performance, work control because the licensee did not appropriately plan activities by incorporating actions to address operational impact and risk for the work scope changes [H.3(a)](Section 1R04).

- Green. The inspectors identified a Green noncited violation of Technical Specification 3.7.3 for exceeding the control room air conditioning system thirty day allowed outage time for one inoperable subsystem and the seven day allowed outage time for two inoperable subsystems and failing to enter Modes 3 and 4, as specified. Specifically, during accident conditions the control building chillers were not able to remove the design basis heat load while operating with low standby cooling water temperatures. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2010-01593, CR-RBS-2010-01817 and CR-RBS-2010-01667.

The performance deficiency was more than minor in accordance with Inspection Manual Chapter 0612, Appendix B, "Issue Disposition Screening," because the finding was associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability of multiple safety-related systems and components to respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined that because the finding resulted in an actual loss of safety function of a single train for greater than its technical specification allowed outage time and required a Phase 2 analysis. However, the Phase 2 presolved table and worksheets did not contain appropriate target sets to estimate accurately the risk impact of the finding. Therefore, the senior reactor analyst performed a Phase 3 analysis. The estimated change in core damage frequency was  $2.3E-8$ /yr. Therefore, the inspectors determined the significance of the finding was Green. This finding was not assigned a crosscutting aspect because it does not reflect current licensee performance (Section 1R13).

- Green. A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified for the failure to adequately verify suitable replacement parts essential to the operation of emergency diesel generator Division I. This resulted in multiple intercooler flange bolts failing from low stress, high cycle fatigue. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2009-06148.

The finding is also similar to example 3j of Manual Chapter 0612 Appendix E. Specifically, the number of bolting failures placed the emergency diesel generator's operability in doubt and an engineering analysis had to be performed to prove operability. In accordance with Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors performed a significant determination process Phase 1 screening and determined that the finding was of very low safety significance (Green) because a licensee analysis concluded that the bolts that were projected to fail during the emergency diesel generator mission time of thirty days would not result in an actual loss of system safety function. The inspectors determined that the finding had a crosscutting aspect in the area of human performance resources in that the licensee failed to ensure that equipment was adequate for maintaining long term plant safety by maintenance of design margins [H.2(a)] (Section 1R19).

**B. Licensee-Identified Violations**

None

## REPORT DETAILS

### Summary of Plant Status

River Bend Station began the inspection period at 100 percent thermal power. On January 8, 2010, the plant reduced reactor power to 92 percent to exercise partially withdrawn control rods and returned to full power on January 9, 2010. On February 3, 2010, the plant reduced power to 75 percent to remove reactor feedwater pump 1B from service for shaft seal replacement and repair turbine building steam leaks. The plant returned to 100 percent reactor power on February 6, 2010. On March 12, 2010, the plant reduced power to 90 percent to perform a rod adjustment and returned to 100 percent reactor power on the same day. On March 18, 2010, the plant reduced reactor power to 75 percent to remove reactor feedwater pump 1C from service for shaft seal replacement and repair turbine building steam leaks. The plant returned to 100 percent reactor power on March 22, 2010. On March 29, 2010, the plant reduced power to 75 percent to repair a leak in condenser water box A caused by a failed cathode probe and returned to 100 percent reactor power on the same day.

### 1. REACTOR SAFETY

#### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness**

#### **1R01 Adverse Weather Protection (71111.01)**

##### Readiness for Seasonal Extreme Weather Conditions

##### a. Inspection Scope

The inspectors performed a review of the adverse weather procedures for seasonal extremes (e.g., extreme high temperatures, extreme low temperatures, or hurricane season preparations). The inspectors verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes, and evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of, and during, the adverse weather conditions.

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that plant personnel were identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures.

The inspectors' reviews focused specifically on the following plant systems:

- Dry fuel storage
- Fire pump house

These activities constitute completion of one readiness for seasonal adverse weather sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

**1R04 Equipment Alignments (71111.04)**

Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- Division 1 diesel generator
- Division 1 control building chilled water

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

Introduction. A Green self-revealing noncited violation of Technical Specification 5.4.1.a. was identified for defeating the Division I emergency systems automatic start functions caused by the failure to follow a work implementation and closeout procedure when changing the work scope and tag out boundaries for a safety-related maintenance activity.

Description. During a divisional swap of the control building chilled water system chillers, HVK-CHL1A failed to start. Entergy determined that the chiller's failure to start was related to a tag out hung to de-energize and replace a Division I emergency diesel generator logic relay. The initial tag out request contained an operational impact statement for replacing the relay with the coil de-energized and the contacts energized. Later, after a work package walk down, maintenance workers determined that the tag out also needed to de-energize the contact side of the relay in addition to the coil side. Maintenance workers requested and operations tagging officials processed this tagging boundary revision without returning the work package to work planning for an operational impact and risk evaluation to identify any unintended consequences created by the tag out revision as required by Procedure EN-WM-102, "Work Implementation and Closeout." After hanging the revised tag out, the Division I emergency systems automatic initiation function was unintentionally defeated for approximately 11 hours. Upon discovery, the tag out was cleared to restore the Division I emergency system automatic start function.

Analysis. The failure to perform an operational impact and risk evaluation as required by Procedure EN-WM-102 was a performance deficiency. The finding was more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone and affected the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance (Green) because the finding did not represent an actual loss of safety function. This finding has a crosscutting aspect in the area of human performance, work control because the licensee did not appropriately plan activities by incorporating actions to address operational impact and risk to the work scope changes [H.3(a)].

Enforcement. Technical Specification 5.4.1.a. requires that written procedures shall be established, implemented, and maintained covering the activities in NRC Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2. Regulatory Guide 1.33, Appendix A, Section 9.e, requires general procedures for the control of maintenance, repair, replacement, and modification that includes information on the method for obtaining permission and clearance for personnel to work. Procedure EN-WM-102, "Work Implementation and Closeout," Section 5.3, requires that workers perform a work order package walkdown. If a revision is needed to the work package, then return the work package to work planning for revision, and if a revised tag out is required then operations management is required to perform an additional operational impact and risk review. Contrary to the above, on December 1, 2009, workers walking down the work order package for the relay replacement did not return the work package to work planning for revision when the tag out boundary was inadequate for the revised

scope of work. Instead the workers requested and the tagging officials expanded the tag out boundary without work planning submitting a new tag out request and without operations management performing an operational impact review. This resulted in an unplanned and undetected loss of the automatic initiation function of the Division I emergency systems for over 11 hours. Because this violation is of very low safety significance and it has been entered into the licensee's corrective action program as Condition Report CR-RBS-2009-06151, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000458/2010002-01 "Failure to Evaluate a Revised Equipment Tag Out.

## **1R05 Fire Protection (71111.05)**

### Quarterly Fire Inspection Tours

#### a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- January 7, 2010, fire pump house, 98-foot elevation
- January 26, 2010, control building, 70-foot elevation and 98-foot elevation; diesel generator building, 70-foot elevation and 98-foot elevation
- February 3, 2010, auxiliary building, 114-foot elevation
- February 12, 2010, standby service water cooling tower
- February 12, 2010, auxiliary building, high pressure core spray pump room; crescent area, 70-foot elevation
- February 12, 2010, control building, 95-foot elevation
- February 12, 2010, fire pump house

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and

extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of seven quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

**1R11 Licensed Operator Requalification Program (71111.11)**

a. Inspection Scope

On February 2, 2010, and February 23, 2010, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly licensed-operator requalification program samples as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

**1R12 Maintenance Effectiveness (71111.12)**

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- Instrument air system
- Maintenance rule 2007-08 (A)(3) periodic evaluation

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

**1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)**

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Fancy Point switchyard and Division I reactor protection system breaker emergent maintenance with normal service water pump SWP-P7B scheduled maintenance, January 13, 2010
- Failure of control building chiller C condenser service water outlet control SWP-PC32C, February 10, 2010
- Reactor feedwater pump, FWS-P1C, seal replacement, March 19, 2010
- Division 3 emergency diesel generator midcycle outage, March 25, 2010

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of Technical Specification 3.7.3 for exceeding the control room air conditioning system thirty day

allowed outage time for one inoperable subsystem and the seven day allowed outage time for two inoperable subsystems and failing to enter Modes 3 and 4, as specified. Specifically, during accident conditions without unplanned manual component manipulations the control building chillers were not able to remove the design basis heat load while operating with low standby cooling water temperatures.

Description. The NRC issued Information Notice 94-82, "Concerns Regarding Essential Chiller Reliability during Periods of Low Cooling Water Temperatures," to address the reliability of essential chillers with low condenser cooling water temperatures. The information notice expressed concern that licensees focused on peak heat loading during the design process without sufficient focus on the potential loss of an essential chiller during periods of low cooling water temperature causing over-cooled condenser refrigerant that can result in unstable chiller operation.

At River Bend Station, condenser refrigerant temperature and pressure is automatically maintained within a preset design range by automatic pressure control valves (1SWP\*PVY32A, 32B, 32C & 32D) that limit cooling water flow through the applicable chiller condenser. System Operating Procedure SOP-0066, "Control Building HVAC Chilled Water System," considered the control building chiller (A/B/C/D) inoperable when the corresponding valve SWP-PVY32 (A/B/C/D) was physically gagged open or failed open with service water supplying the applicable chiller at less than 55 degrees Fahrenheit. During normal operation, the normal service water system supplies cooling water to the condenser at approximately 70 degrees. However, during accident conditions or loss of offsite power, standby service water system would supply cooling water to the condenser.

During the winter of 2010, standby service water temperature decreased to approximately 52 degrees Fahrenheit. The inspectors were concerned that excessive condenser cooling could result. The inspectors requested technical analysis to bound chiller operability with SWP\*PVY32 (A/B/C/D) failed open and cooling water supplied to the condenser at 55 degrees Fahrenheit. Entergy contracted a vendor for analysis. The analysis concluded that 70 degrees Fahrenheit was the minimum condenser service water supply temperature to remove the maximum design heat load with SWP\*PVY 32 (A/B/C/D) failed open. The vendor concluded that an engineering change established in 1988 severely limited the ability of the chillers to operate at low entering condenser water temperatures. The change increased control building chiller capacity from 50 percent to 100 percent significantly changing entering and exiting condenser and evaporator water temperatures.

The control building chillers are part of the control room air conditioning system that maintains control room air temperatures during normal and accident conditions. Technical Specification 3.7.3 requires, in part, that two control room air conditioning systems be operable during Modes 1, 2, and 3 operation; with one subsystem operable restore two systems to operable status within 30 days or be in Mode 3 within 12 hours and Mode 4 within 36 hours; with no subsystem operable restore one systems to operable status within 7 days or be in Mode 3 within 12 hours and Mode 4 within 36 hours. From November 17, 2009 to January 3, 2010 (47 days), the licensee operated in

Modes 1 with one subsystem operable (control building chiller 1D) without taking the appropriate measures listed in the technical specification; and from December 1, 2009 to December 11, 2009 (10 days), the licensee operated in Mode 1 with no subsystems operable (control building chiller 1A and 1D) without taking the appropriate measures listed in the technical specification. During accident conditions in both periods of Control Building Chiller subsystem inoperability the licensee was capable of implementing taking unplanned manual actions to remove the design heat load; thereby, maintaining system function.

Analysis. The inspectors determined that failure to comply with Technical Specification 3.7.3 was a performance deficiency. The performance deficiency was more than minor in accordance with Inspection Manual Chapter 0612, Appendix B, "Issue Disposition Screening," because the finding was associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability of multiple safety-related systems and components to respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined the finding resulted in an actual loss of safety function of a single train for greater than its technical specification allowed outage time and required a Phase 2 analysis. The Phase 2 presolved table and worksheets did not contain appropriate target sets to estimate accurately the risk impact of the finding. Therefore, the senior reactor analyst performed a Phase 3 analysis.

For cases where normal service water is not available, control building chiller C and D are considered not available for the 47-day exposure period. Only control building chiller A and B would be available in this situation. The use of either control building chiller A or B would be contingent on operator actions to perform necessary alignments. Given that the heat-up rates would be low, there would be excess time available for operators to diagnose and accomplish this alignment. These facts justify the use of a non-recovery value of  $1E-3$  for either the control building chiller A or B alignment, in accordance with the Standardized Plant Analysis Risk (SPAR-H) method. One control building chiller is sufficient to provide the plant's mitigation requirement.

If normal service water is available, control building chiller D would be available because the supply water temperature would be hotter than 70 degrees F. For this reason, only loss of offsite power events would add appreciably to the significance of the finding. Also, heat-up rates would be low and it is conservatively assumed that it would take at least 10 hours before risk-significant equipment would be affected by the loss of chilled water. Therefore, it is assumed that a loss of offsite power event that is recovered within 10 hours would not result in more than a negligible increase in risk. Also, a change in risk from the base case would only include those situations where either Division I or II emergency diesel generator is running (a probability close to 1.0), and that therefore the non-recovery value of control building chiller A or B would be the event of significance.

The frequency of a loss of offsite power event is  $3.59E-2/yr$  and the 10-hour non-recovery value is  $5.07E-2$ . Therefore, the probability during a one-year period that a loss of offsite power event would persist for at least 10 hours is  $3.59E-2 (5.07E-2) = 1.82E-4$ .

The estimated change in core damage frequency crediting recovery and the 47-day exposure period was 2.3E-8/yr. Therefore, the senior reactor analyst determined that the significance of the finding was Green. This finding was not assigned a crosscutting aspect because it does not reflect current licensee performance.

Enforcement. Technical Specification 3.7.3 requires, in part, that two control room air conditioning systems shall be operable during Modes 1, 2, and 3 operation; with one subsystem operable restore two systems to operable status within 30 days or be in Mode 3 within 12 hours and Mode 4 within 36 hours; with no subsystem operable restore one systems to operable status within 7 days or be in Mode 3 within 12 hours and Mode 4 within 36 hours. Contrary to the above, from November 17, 2009 to January 3, 2010 (47 days), the licensee operated in Modes 1 with one subsystem operable without taking the appropriate measures listed in the technical specification; and from December 1, 2009 to December 11, 2009 (10 days), the licensee operated in Modes 1 with no subsystems operable without taking the appropriate measures listed in the technical specification. Because this violation is of very low safety significance and it has been entered into the licensee's corrective action program as Condition Report CR-RBS-2010-01003, CR-RBS-2010-01593, CR-RBS-2010-01817 and CR-RBS-2010-01667, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000458/2010002-02 "Failure to Verify Control Building Chiller Operability During Low Service Water Temperatures."

## **1R15 Operability Evaluations (71111.15)**

### a. Inspection Scope

The inspectors reviewed the following issues:

- CR-RBS-2010-00027, control rod drive thermal couple burn out, reviewed on February 3, 2010
- CR-RBS-2010-00556, containment unit cooler B failure to start, reviewed on February 3, 2010
- CR-RBS-2010-00842, failure of loop 2 radiation monitors to display updated radiation levels, reviewed on February 19, 2010
- CR-RBS-2009-06460, Division 3 4160 VAC feeder breaker trip, reviewed on March 3, 2010
- CR-RBS-2010-01014, emergency diesel generator jacket water shroud leakage, reviewed on March 4, 2010

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no

unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Updated Safety Analysis Report to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

No findings of significance were identified.

**1R19 Postmaintenance Testing (71111.19)**

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- WO 219151, "EGS-EG1A A Four Stud Turbo charger Outlet Flange Nut is Missing," reviewed on January 4, 2010
- WO 216417, "EGS-EG1B Had Low Oil Level During STP Run," reviewed on January 11, 2009
- WO 211257, "FWS-P1B Rebuild/Replace the Outboard Mechanical Seal," reviewed on February 11, 2010
- WO 00128477, "E22MOV001 - Perform a Static Signature Test on E22-MOV001 and Replace Spring Pack," reviewed on February 25, 2010

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed

- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

Introduction. A Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified for the failure to adequately verify suitable replacement parts essential to the operation of emergency diesel generator Division I. This resulted in multiple intercooler flange bolts failing from low stress, high cycle fatigue.

Description. On December 1, 2009, during a Division 1 emergency diesel generator twenty-four hour run, operators identified air leakage from the combustion air intercooler adapter pan which functions to direct turbocharger discharge air across the intercooler heat exchanger. Operators discovered that ten of the 50 fasteners that connect the pan to the intercooler had severed during the surveillance run. The diesel generator was declared inoperable since, at the time, it was not known how the severed bolts affected emergency diesel generator operability. The bolts were subsequently replaced, restoring operability. The root cause of the bolt failure was attributed to a marginal joint design because the bolted joint was insufficiently stiff for the high vibration loads. During February 2008, Entergy replaced the existing adapter pan. During receipt inspection, no flange dimensions were verified as acceptable because the pan was intended to be a like-for-like replacement. However, the pan was manufactured with a thicker flange. Use of the thicker flange with the same length bolts resulted in less thread engagement with the mating flange threads contributing to loss of flange bolt preload. The loss of preload permitted cyclic prying action on the bolt heads from air pressure pulses generated when the air intake valves closed. This resulted in cyclic fatigue failure at the bolt head to shank boundary. To address the operability question, the licensee performed an extensive engineering analysis. This analysis projected that a total of 16 bolts could have failed if the emergency diesel generator continued to run for the thirty day design mission time. A subsequent analysis predicts that the diesel will continue to function until a total of 19 bolts fail.

Analysis. Entergy's failure to adequately verify the replacement intercooler adapter pan as a suitable replacement part essential for the operation of emergency diesel generator

Division I was a performance deficiency. The finding was more than minor because it was associated with the design control attribute of the mitigating system cornerstone and inadequate design control measures affected the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is also similar to example 3j of Manual Chapter 0612 Appendix E. Specifically, the number of bolting failures placed the emergency diesel generator's operability in doubt and an engineering analysis had to be performed to prove operability. In accordance with Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors performed a significant determination process Phase 1 screening and determined that the finding was of very low safety significance (Green) because a licensee analysis concluded that the bolts that were projected to fail during the emergency diesel generator mission time of thirty days would not result in an actual loss of system safety function. The inspectors determined that the finding had a crosscutting aspect in the area of human performance resources in that the licensee failed to ensure that equipment was adequate for maintaining long term plant safety by maintenance of design margins [H.2(a)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established for the selection and review for suitability of application of materials and parts that are essential to the safety-related functions of structures, systems, and components. Contrary to the above, in February 2008, the licensee failed to ensure the suitability of the intercooler adapter pan that was essential to the safety-related function of the Division 1 emergency diesel generator. Because this violation is of very low safety significance and it has been entered into the licensee's corrective action program as Condition Report CR-RBS-2009-06148, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000458/2010002-03 "Failure to Adequately Verify a Suitable Replacement Part Essential for Emergency Diesel Generator Operation."

## **1R22 Surveillance Testing (71111.22)**

### **a. Inspection Scope**

The inspectors reviewed the Updated Safety Analysis Report, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria

- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- STP-204-0201, "Low Pressure Coolant Injection Discharge Piping Fill Verification," performed on February 2, 2010
- STP-204-1302, "Low Pressure Core Injection Pump C Start Time Delay Channel Calibration and Channel Functional Test," performed on February 18, 2010
- GMP-0108, "E22-MOVF001 – Perform a Static Signature Test on E22-MOVF001," performed on February 24, 2010 (IST Valve)
- STP-201-6310, "Standby Liquid Control Pump and Valve Operability Test," performed on February 25, 2010
- STP-000-0001, "Reactor Coolant System Leak Detection," performed on February 26, 2010

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

**1EP6 Drill Evaluation (71114.06)**

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on February 23, 2010, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Control Room, Technical Support Center, and the Emergency Operations Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

.2 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on February 2, 2010, and February 23, 2010, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the

inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These activities constitute completion of two samples as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

**4OA1 Performance Indicator Verification (71151)**

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the fourth quarter 2009 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams per 7000 critical hours performance indicator for the period from the first quarter 2009 through the fourth quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 2009 through December 2009 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one unplanned scrams per 7000 critical hours sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Unplanned Scrams with Complications (IE02)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams with complications performance indicator for the period from the first quarter 2009 through the fourth quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 2009 through December 2009 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one unplanned scrams with complications sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Unplanned Power Changes per 7000 Critical Hours (IE03)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned power changes per 7000 critical hours performance indicator for the period from the first quarter 2009 through the fourth quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's operator narrative logs, issue reports, maintenance rule records, event reports, and NRC integrated inspection reports for the period of January 2009 through December 2009 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one unplanned transients per 7000 critical hours sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

**40A2 Identification and Resolution of Problems (71152)**

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item requiring an equipment failure evaluation concerning nonfunctional radiation monitors used to assess entry into emergency operating procedure EOP-0003, "Secondary Containment and Radioactive Release Control." EOP-0003 used radiation dose rate criteria, sump water level, and room temperature indications to determine whether to shut down, scram, or rapidly depressurize the reactor following a piping failure in the emergency core cooling pump rooms. The inspectors needed to determine whether sufficient functional instrumentation existed to adequately inform the control room of the magnitude and location of changing plant conditions due to piping failures.

These activities constitute completion of one in-depth problem identification and resolution sample defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

## **40A6 Meetings**

### Exit Meeting Summary

On April 8, 2010, the inspectors presented the integrated inspection results to Mr. M. Perito, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

D. Burnett, Manager, Emergency Preparedness  
G. Bush, Manager, Maintenance  
M. Chase, Manager, Training  
J. Clark, Assistant Operations Manager – Shift  
B. Cox, Manager, Operations  
M. Feltner, Manager, Outage  
C. Forpahl, Manager, Engineering Programs & Components  
W. Fountain, Senior Licensing Specialist  
H. Goodman, Director, Engineering  
R. Heath, Manager, Chemistry  
B. Houston, Manager, Radiation Protection  
K. Huffstatler, Senior Licensing Specialist  
A. James, Manager, Security  
L. Kitchen, Manager, Planning, Scheduling, and Outages  
R. Kowalewski, Manager, Corrective Actions & Assessments  
G. Krause, Assistant Operations Manager - Support  
D. Lorfing, Manager, Licensing  
W. Mashburn, Manager, Design Engineering  
R. McAdams, Manager, System Engineering  
E. Olson, General Manager, Plant Operations  
M. Perito, Site Vice President  
R. Persons, Superintendent, Training  
J. Roberts, Director, Nuclear Safety Assurance  
T. Shenk, Assistant Operations Manager - Training  
J. Vukovics, Supervisor, Reactor Engineering  
J. Wilson, Supervisor, Mechanical Systems  
L. Woods, Manager, Quality Assurance

#### **NRC Personnel**

G. Larkin, Senior Resident Inspector  
C. Norton, Resident Inspector

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened and Closed

05000458/2010002-01	NCV	Failure to Evaluate a Revised Equipment Tag Out (Section 1R04)
05000458/2010002-02	NCV	Failure to Verify Control Building Chiller Operability During Low Service Water Temperatures (Section 1R13)
05000458/2010002-03	NCV	Failure to Adequately Verify a Suitable Replacement Part Essential for Emergency Diesel Generator Operation (Section 1R19)

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

#### CONDITION REPORTS

CR-RBS-2004-0030

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OSP-0043	Freeze Protection and Temperature Maintenance	9

#### UPDATED SAFETY ANALYSIS REPORT DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
USAR 2.3	Meteorology	August 1987

### **Section 1R04: Equipment Alignment**

#### CONDITION REPORTS

CR-RBS-2009-06151

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-OP-102	Protective and Caution Tagging	12

EN-OP-102-01	Protective and Caution Tagging Forms and Checklist	6
EN-WM-102	Work Implementation and Closeout	4
OSP-0038	Protective Tagging Guidelines	019
STP-309-0601	Division I ECCS Test	033

**TECHNICAL SPECIFICATIONS**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Technical Specification B 3.5	Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System	0

**Section 1R05: Fire Protection**

**MISCELLANEOUS**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
TRM 3.7.9.6	Fire Related Assemblies	
USAR Section 9A.2	Fire Hazards Analysis	
USAR 9.4.7.2.1		15

**PROCEDURES**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AOP-0009	Loss of Normal Service Water	18
EN-DC-127	Control of Hot Work and Ignition Sources	7
EN-DC-128	Fire Protection Impact Reviews	4
FPP-0100	Fire Protection System Impairment	10
FPP-0101	Fire Suppression System Inspection	11
SOP-0037	Fire Protection Water System Operating Procedure (System 251)	30

**Section 1R11: Licensed Operator Requalification Program**

**SCENARIOS**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RSMS-OPS-534	Trip of CWS Pump – Major Leak in the Drywell	00
RDRL-EP-1001	Site Drill Scenario	00

**Section 1R12: Maintenance Effectiveness**

CONDITION REPORTS

CR-RBS-2008-00512	CR-RBS-2009-02372	CR-RBS-2009-05948	CR-RBS-2010-00673
CR-RBS-2008-00544	CR-RBS-2009-04838	CR-RBS-2009-05962	CR-RBS-2010-00696

MAINTENANCE RULE DOCUMENTS

Maintenance Rule Assessment, dated 2006

Maintenance Rule Program 2005-06 (a)(3) Periodic Assessment Engineering Report #RBS-SE-07-00001, Revision 000

Maintenance Rule Program 2007-08 (a)(3) Periodic Assessment Engineering Report #RBS-SE-09-00001, Revision 000

MRULE UNAVAILABILITY DATA 02/01/2010 through 03/01/2010

RBS CURRENT NEAR A1 LIST 02/15/2010

OTHER

Calculation “RBS Revision 4 PSA Summary Report,” Document Number PRA-RB-01-002

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-205	Maintenance Rule Monitoring	2
EN-DC-206	Maintenance Rule (a)(1) Process	1
EN-DC-207	Maintenance Rule Periodic Assessment	2

WORK ORDERS

<u>NUMBER</u>	<u>TITLE</u>
WO 194749	IAS-C4A Oil Leak at Aftercooler Section

## Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

### CALCULATION

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
G13.18.2.1*018	Control Building Air Handling Units Chilled Water Flow Requirements and Associated Required Chiller Capacity	1

### CONDITION REPORTS

CR-RBS-2008-01415    CR-RBS-2009-04204    CR-RBS-2009-05795    CR-RBS-2010-00239  
CR-RBS-2010-00692

### OTHER

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
Licensee Event Report 94-005-01	Loss of Both Trains of Control Room Emergency Recirculation Due to Low Emergency Closed Cooling Temperature	10/28/1994
Regulatory Guide 1.160	Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	2

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ADM-0096	Risk Management Program and Implementation Risk Assessment	303/304
AOP-0029	Severe Weather Operation	24
AOP-0064	Degraded Grid	2
EN-DC-204	Maintenance Rule Scope and Basis	2
EN-DC-205	Maintenance Rule Monitoring	2
EN-MA-125	Troubleshooting and Control of Maintenance Activities	6
EN-WM-101	On-Line Work Management Process	6
ENS-DC-199	Off-Site Power Supply Design Requirements	2

OSP-0028	Log Report – Normal Switchgear, Control, and Diesel Generator Buildings	055
OSP-0048	Switchyard, Transformer Yard, and Sensitive Equipment Controls	6
SDC-402/410	Control Building HVAC System Control Building Chilled Water System Ventilation Chilled Water System Design Criteria System Numbers 402, & 410	2

**Section 1R15: Operability Evaluations**

CONDITION REPORTS

CR-RBS-2010-00027 CR-RBS-2010-00910

OTHER

<u>TITLE</u>	<u>DATE</u>
BWROG CRD Subcommittee Technical Paper, Generic Response to SIL-173 Supplement 1, Position Paper No. BWROG-CRD-01-A	December 4, 2001
General Electric BWR Services Information Letter 173, Control Rod Drive High Operating Temperature	May 28, 1976
General Electric BWR Services Information Letter 173, Control Rod Drive High Operating Temperature, Supplement 1	September 20, 1999

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-LI-102	Corrective Action Process	14
EN-OP-104	Operability Determinations	4
EN-OP-115	Conduct of Operations	9

TECHNICAL SPECIFICATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>AMENDMENT</u>
Technical Specification 3.1.4	Control Rod Scram Times	81

## Section 1R19: Postmaintenance Testing

### CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
G13.18.2.6*068-0	Division I, II, III Diesel Generator Lube Oil Sump Dipstick Markings for Technical Specification Compliance	09/28/1995

### CONDITION REPORTS

CR-RBS-2009-06031	CR-RBS-2009-06040	CR-RBS-2009-06043	CR-RBS-2009-06132
CR-RBS-2009-06148			

### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
Bingham B-34293	Bearing Assembly Sleeve Journal with Kingsbury Thrust Bearing (JHJ—8)	---
Delaval 101010	Gear Case Assembly	1976
Entergy Drawing No. 0227.500-007-066	Single Cartridge Mechanical Seal Driver's End	301

### OTHER

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
LCR 1.ILEGO.018	Loop Calibration Report – Diesel Generator Lube Oil Sump Tank A Level Loop	4

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ADM-0081	Cleanliness Control	8
CMP-1282	Limitorque SMB-000 and SMB/SB-00 Overhaul	17
EN-LI-118-06	Common Cause Analysis (CCA)	0

EN-MA-118	Foreign Material Exclusion	5
GMP-0018	General Torquing Guide	12
GMP-0108	Signature Testing of Gate, Globe, and Torque Seated Butterfly Valves with Limitorque Actuators	8
GMP-1289	Torque Switch Balancing and Spring Pack Testing of Limitorque Actuators	7
STP-309-0207	Division II Diesel Generator 184 Day Operability Test	9

TECHNICAL SPECIFICATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>AMENDMENT</u>
Technical Specification 3.8.1	Electrical Power Systems – AC Sources-Operating	156

WORK ORDERS

<u>NUMBER</u>	<u>TITLE</u>
MWO R219785	Engine Driven Lube oil Pump Housing is Cracked
WO 00064768	EGT-P2B – Seal Has a 60 Drop/Min Oil Leak
WO 00135467	EGS-EG1A: Modify Piping (Ref. EC-4861) at Turbo, 12/14-Inch
WO 00203485	EGS-EG1A, CR-09-03491, Restore Missing Tubing Clip Screw, #3
WO 00216417	EGS-EG1B Had Low Oil Level During STP Run
WO 00219151	EGS-EG1A A Four Stud Turbo Charger Outlet Flange Nut Missing

**Section 1R22: Surveillance Testing**

CONDITION REPORTS

CR-RBS-2008-0495	CR-RBS-2008-5905
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DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
GE-828E534AA, Sheet 8	Elementary Diagram of Residual Heat Removal System	26

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-OP-109	Drywell Leakage	2
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WO 52223496	Low Pressure Core Injection Pump C Start Time Delay Channel Calibration and Channel Functional Test
WO 00128477	E22-MOVF001 – Perform a Static Signature Test on E22-MOVF001 and Replace Spring Pack

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**Section 4OA2: Problem Identification and Resolution**

CONDITION REPORTS

CR-RBS-2007-05381	CR-RBS-2007-05436	CR-RBS-2007-05503	CR-RBS-2007-05573
CR-RBS-2008-00519	CR-RBS-2008-01283	CR-RBS-2008-01659	CR-RBS-2008-01866
CR-RBS-2008-01935	CR-RBS-2008-02513	CR-RBS-2009-01472	CR-RBS-2009-02780
CR-RBS-2010-00584			

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USAR 12.3	Radiation Protection Design Features	August 1987
USAR Table 12.3-1	Area Direct Radiation Monitor Locations	March 2003

WORK ORDERS

<u>NUMBER</u>	<u>TITLE</u>
WO 00138434	RMS-RE5A Would Not Restart Following Div I ECCS LOP Test
WO 51047536	RMS-Control Room Fresh Air System Radiation Monitor Remote