UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-4005

June 11, 2007

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

SUBJECT: RIVER BEND STATION - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000458/2007009

Dear Mr. Venable:

On April 27, 2007, the U. S. Nuclear Regulatory Commission (NRC) completed the onsite portion of a team inspection at your River Bend Station facility. The enclosed report documents the inspection findings, which were discussed on May 10, and May 21, 2007, with Mr. J. Roberts, Director, Nuclear Safety Assurance, and other members of your staff during exit meetings.

This inspection reviewed activities conducted under your license as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations and the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel. The team reviewed approximately 227 condition reports, work orders, associated root and apparent cause evaluations, and other supporting documents. The team reviewed cross-cutting aspects of NRC findings and interviewed personnel regarding the condition of your safety conscious work environment at River Bend Station.

On the basis of the sample selected for review, the team concluded that your performance remained generally consistent with the last problem identification and resolution inspection. On most occasions, your staff adequately identified, evaluated and prioritized and implemented effective corrective actions for conditions adverse to quality. The team identified one green finding for failure to establish effective foreign material exclusion area controls, in part, because of poor perceived low risk impact. In addition, one licensee-identified violation related to failure to comply with Technical Specification work hour limitations, which was determined to be of very low safety significance is listed in this report. If you contest the violations or the significance of the 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, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas, 76011; 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 accordance with 10 CFR 2.790 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 (PARS) 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/**

Linda J. Smith, Chief
Engineering Branch 2
Division of Reactor Safety

Docket: 50-458
License: NPF-47

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NRC Inspection Report 05000458/2007009
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

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| Docket: | 50-458 |
| License: | NPF-47 |
| Report No.: | 05000458/2007009 |
| Licensee: | Entergy Operations, Inc. |
| Facility: | River Bend Station |
| Location: | 5485 U.S. Highway 61<br>St. Francisville, Louisiana |
| Dates: | April 9, through May 21, 2007 |
| Team Leader: | G. Pick, Senior Reactor Inspector, Engineering Branch 2 |
| Inspectors: | P. Alter, Senior Resident Inspector, River Bend Station<br>D. Proulx, Senior Reactor Inspector, Engineering Branch 2<br>R. Kopriva, Senior Reactor Inspector, Engineering Branch 1<br>P. Goldberg, Reactor Inspector, Engineering Branch 2 |
| Approved By: | Linda Smith, Chief<br>Engineering Branch 2<br>Division of Reactor Safety |

## SUMMARY OF ISSUES

IR 05000458/2007009; 04/09 - 5/21/2007; Entergy Operations, Inc; River Bend Station; biennial inspection of the identification and resolution of problems; one finding identified during this assessment

The inspection was conducted by three senior reactor inspectors, one senior resident inspector and a reactor inspector. One Green finding was identified during this inspection. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the Significance Determination Process does not apply may 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 3, dated July 2000.

Identification and Resolution of Problems

The team reviewed approximately 227 condition reports, work orders, engineering evaluations, associated root and apparent cause evaluations, and other supporting documentation to assess problem identification and resolution activities. On most occasions, the team determined that the licensee adequately identified, evaluated, prioritized, and implemented timely and effective corrective actions for conditions adverse to quality. However, the team concluded that the licensee had experienced some continuing challenges in all three areas based upon the number of issues identified during the last 15 months. Examples of poor engineering evaluations continued during this assessment period; however, the licensee had recognized this deficiency and had taken actions to address the weakness. The licensee had also implemented actions to improve their ability to correctly identify and take appropriate actions in response to the Substantive Crosscutting Issue in Problem Identification and Resolution identified in 2006. The licensee improved in their coordination among plant processes when closing condition reports to other corrective action or work control documents although some instances of incorrect closure had recently been identified.

Overall, the licensee appropriately evaluated industry operating experience for relevance to the facility and had entered applicable items into the corrective action program. The licensee appropriately used industry operating experience when performing root cause and apparent cause evaluations. The licensee performed effective Quality Assurance audits and self-assessments, as demonstrated by self-identification of poor corrective action program performance and identification of ineffective corrective actions. The team concluded that the licensee maintains an appropriate safety conscious work environment. The team concluded from interviews that, although no safety conscious work environment concerns existed, the complaints related to general culture factors that have been stated for the last two safety culture surveys, if not addressed, might result in safety conscious work environment concerns.

A. NRC-Identified and Self-Identified Findings
Cornerstone: Mitigating Systems

- Green. The team identified a finding because the licensee failed to address control of foreign material in the Train B residual heat removal room in June 2003. Consequently, on March 5, 2007, maintenance technicians found foreign material in one of the sump pump discharge check valves. This failure to control foreign material resulted in sump high level alarms, which had caused the operators to enter the emergency operating procedure for auxiliary building room flooding on three different occasions. The licensee documented this deficiency in Condition Report 2007-00859.

  The finding was more than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance and affected the associated cornerstone objective to ensure the availability of the residual heat removal system. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because there was no actual loss of the residual heat removal system function and it did not screen as potentially risk significant for an internal flooding event. The cause of the finding was related to the crosscutting element of human performance work practices in that licensee management failed to communicate and enforce compliance with the site foreign material control program (Section 4OA2.e).

B. Licensee-Identified Violations

The team evaluated one licensee-identified violation of very low safety significance. Corrective actions taken or planned by the licensee have been entered into the corrective action program. This violation and corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

## 4 OTHER ACTIVITIES (OA)

### 4OA2 Problem Identification and Resolution

The team based the following conclusions, in part, on all issues identified in the assessment period that ranged from October 2005 to March 2007. The issues are divided into two groups. The first group (current issues) included problems identified during the assessment period where at least one performance deficiency occurred during the assessment period. The second group (historical issues) included issues that were identified during the assessment period but had performance deficiencies that occurred outside the assessment period.

Background

During this assessment, the licensee had several significant activities ongoing that affected implementation of the corrective action program. Specifically, the licensee: (1) continued to refine and evolve the departmental improvement coordinator program, (2) continued to implement corrective actions to address a Substantive Crosscutting issue received in August 2006 related to problem identification and resolution with a theme of ineffective and untimely identification, (3) recently, completed the common cause analysis to identify corrective actions to address a Substantive Crosscutting issue received in March 2007 related to Human Performance with a crosscutting theme in the area of work practices, (4) had continued challenges with the material condition and reliability of balance of plant support systems as demonstrated by the shutdown to remove foreign material from the condenser water boxes, and (5) continued to have challenges with work management. For example, following a plant scram personnel were contaminated as a result of poor work practices.

a. Assessment of the Corrective Action Program Effectiveness

(1) Inspection Scope

The team reviewed items selected across the seven cornerstones to verify that the licensee: (1) identified problems at the proper threshold and entered them into the corrective action system, (2) adequately prioritized and evaluated issues, and (3) established effective and timely corrective actions. The team observed control room operations and performed field walkdowns of the standby service water system and the reactor core isolation cooling system to inspect for deficiencies that should have been entered into the corrective action program. Additionally, the team reviewed a sample of self assessments, trend reports and various other documents related to the corrective action program.

The team evaluated condition reports, work orders, and operability evaluations to assess the threshold for identifying problems, entering them into the corrective action program, and the ability to evaluate the importance of adverse conditions. Also, the team evaluated licensee efforts in establishing the scope of problems by reviewing

selected self-assessments, audits, and system health reports. Team members interviewed station personnel, interviewed corrective action program group personnel and attended Condition Review Group meetings to understand the screening, and prioritization of problems, as well as the interfaces with the operability assessment and work control processes. The team performed a historical review of condition reports written over the last five years that addressed the standby service water and the reactor core isolation cooling systems.

The team reviewed a sample of condition reports, apparent cause evaluations, and root cause analyses to ascertain whether the licensee properly considered the full extent of causes and conditions, generic implications, common causes, and previous occurrences. The team assessed the timeliness and effectiveness of corrective actions, completed or planned, and looked for additional examples of similar problems. The team sampled specific technical issues to evaluate the adequacy of operability determinations.

Additionally, the team reviewed condition reports that addressed past NRC and licensee-identified violations to ensure that the corrective actions adequately addressed the issues as described in the inspection reports. The team reviewed a sample of corrective actions closed to other condition reports, work orders, or tracking programs to ensure that corrective actions were still appropriate and timely.

(2) Assessments

(a) Assessment - Effectiveness of Problem Identification

The team determined that, overall, the licensee effectively identified problems. The team concluded four of the items resulted from inattention to detail (Examples 1, 2, 4 and 5). The team identified the licensee had established an appropriate threshold for identifying conditions adverse to quality; however, during this period, one instance occurred related to having too high of a threshold (Example 3). The licensee had implemented significant effort to improve their ability to identify and take appropriate actions in response to the Substantive Crosscutting issue in Problem Identification and Resolution related to the aspect of identification of issues (refer to Section 4OA2.f). The team determined these two examples reflected missed opportunities related to prompt identification of issues (Examples 2 and 4).

The team determined that the licensee improved in their ability to use the condition report process to track adverse conditions documenting abnormal configurations (i.e., components identified as degraded and nonconforming but operable). Further, the team verified that the licensee processed assessment and audit results documenting adverse conditions in their corrective action program.

The team found that the licensee had a low threshold for identifying adverse trends and made effective use of the trending program to identify and resolve issues. In addition, because the licensee maintained their Work Management Issues as an adverse trend in addition to being an item in their 2006 Performance Improvement Program, management remained aware of the problems and remained focused on taking actions to improve the work management process.

**Current Issues**

Example 1: The resident inspectors determined that licensee personnel failed to identify that a ventilation heater (cold weather protection) for a safety-related standby cooling tower pipe chase was out of service during the winters from 2003 through 2006, as documented in Condition Report 2007-00399 (Noncited Violation 2007002-01).

Example 2: Engineers performing a surveillance failed to identify an improperly calibrated traversing in-core probe that resulted in improper calibration of 16 local power range monitors. A vendor noticed this error during post-calibration data review, as documented in Condition Report 2007-00208 (Inspection Report 2007002, Section 4OA7).

Example 3: Personnel failed to enter into the corrective action process an identified defective chart recorder prior to restart following a reactor scram, as documented in Condition Report 2006-04078 (Noncited Violation 2006013-07).

Example 4: Two senior reactor operators and a reactor operator conducting turnover panel walkdowns failed to identify that the push buttons for Main Feedwater Isolation Valves 7A and 7B were out of alignment, as documented in Condition Report 2006-04078 (Noncited Violation 2006013-05).

Example 5: The team determined that the licensee missed opportunities to identify the cause of the reactor core isolation cooling system actuation on November 23, 2006, because personnel failed to identify pressure spiking trends during the operating cycle on the steam leak detection and Division II isolation logic for residual heat removal/reactor core isolation cooling systems, as documented in Condition Report 2006-04460 (Noncited Violation 2006005-01).

Example 6: The resident inspectors determined that operators failed to identify that the computer generated primary coolant leak rate would be invalid under certain conditions, as documented in Condition Report 2005-03078 (Noncited Violation 2005005-01).

(b) Assessment - Effectiveness of Prioritization and Evaluation of Issues

Overall, the licensee appropriately prioritized and evaluated conditions adverse to quality. However, based upon the number of findings related to failure to perform adequate evaluations, the team determined improvement in this area is needed (Examples 1 - 7). The team found that the licensee was self critical and thorough in evaluating the causes of significant conditions adverse to quality. The team determined that several issues reflected continuing challenges related to engineering rigor. Specifically, on some occasions engineers did not perform timely or effective evaluations (Example 4 and Examples 2, 3 and 5 respectively).

The team determined from attending Condition Review Group meetings that management remained involved in assigning the appropriate priority and significance to identified deficiencies. The licensee routinely closed condition reports to other corrective action or work control documents. The team identified one failure to

effectively close a condition report to a corrective action in another condition report (Example 9). In addition, Quality Assurance had determined that the 14 of 100 condition reports had not properly been closed to work orders in 2006, which improved from 57 out of 307 in 2004 (Example 8).

**Current Issues**

Example 1: The team determined that the licensee failed to effectively evaluate the underlying problem for equipment failures in two separate instances (residual heat removal sumps and instrument air dryers). For both situations, if a more detailed and comprehensive investigation had occurred following a second component failure then operators could have avoided unnecessary emergency and abnormal procedure entries, as documented in Condition Report 2007-00952. The team determined that management failed to effectively communicate expectations to use troubleshooting plans following the initial failures.

Example 2: A corrective action program self-assessment determined personnel had not properly evaluated component deficiencies documented in three condition reports as substantially degraded and nonconforming conditions, as documented in Condition Report 2006-04288.

Example 3: Quality Assurance and the team, separately, determined that personnel did not properly evaluate environmental conditions when establishing local manual actions to support an operability evaluation, as documented in Condition Report 2006-02815. In addition, the team determined that the licensee had not timely updated the operability evaluation in response to a Quality Assurance performance deficiency (refer to Section 4OA5.2). Since the system remained operable and this was a backup action, this deficiency was minor.

Example 4: The licensee failed to effectively evaluate the cause for Valve E12-MOVF037A, Train A residual heat removal fuel pool cooling assist valve, failing to close during actuation. The licensee initiated Condition Report 2006-01326 following a second failure in April 2006 and identified the cause following a third failure in January 2007 (Noncited Violation 2007002-03).

Example 5: The licensee failed to properly evaluate discrepancies between the expected response of Feedwater Isolation Valves FWS-MOV7A and FWS-MOV7B, operator observation of valve indication, and indication of actual plant parameters affected by the valves, prior to restarting the reactor on October 22, 2006. The licensee documented this deficiency in Condition Reports 2006-04078 and 2007-00877 (Noncited Violation 2006013-01).

Example 6: The resident inspectors identified the licensee failed to adequately evaluate conditions required to implement the emergency action levels when seismic instruments were out of service in response to external operating experience, as documented in Condition Report 2006-01283 (Noncited Violation 2006011-01).

Example 7: Licensee personnel failed to properly evaluate available indications to identify that the normal supply breaker to the 4.16 kV Division III engineered safety features bus was not properly racked in for a period of 24 days following maintenance, as documented in Condition Report 2006-02402 (Noncited Violation 2006003-01).

Example 8: Quality Assurance identified ineffective prioritization of issues based on 14 instances of incorrect closure of condition reports to work orders that occurred over the period January 2006 through February 2007, as documented in Condition Report 2007-00711. The team determined that the number incorrect closures had decreased based upon review of a snapshot assessment. Specifically, in Calendar Year 2004 incorrect closure of work orders with corrective actions assigned had occurred in 57 of the 307 actions assigned.

Example 9: The team determined that the licensee ineffectively prioritized a corrective action because the corrective actions for Condition Report 2007-00711 did not address all of the issues in Condition Report 2007-00978. Specifically, Condition Report 2007-00711 did not address concerns with the age of condition reports included in the work order system. Quality Assurance had expressed concerns that out of 91 work orders related to safety-related equipment 51 were greater than 24 months old. The team determined this deficiency was minor since it was an administrative issue.

**Historical Issues**

Example 1: The team determined that the licensee did not effectively evaluate deficiencies from 2003 since the corrective actions did not address securing sump covers to prevent debris from entering the sumps; consequently, the issue persisted and personnel found debris in several sumps in 2007. On one occasion, a tie wrap lodged into the Residual Heat Removal B sump pump discharge check valve and had diverted flow back into the sump, as documented in Condition Report 2007-00859 (FIN 2007009-01, Section 4OA2.e).

Example 2: The team determined that the licensee failed to effectively evaluate whether additional preventive maintenance tasks identified in routine task requests had not been implemented, as described in Condition Report 2007-01680. This finding is a minor violation of Criterion V since additional review determined that this was an isolated instance.

Example 3: The team determined that the licensee ineffectively evaluated Condition Report 2005-03529 because they did not assure that out-of-tolerance circuit breaker test equipment did not result in exceeding the surveillance procedure acceptance criteria. The licensee documented this issue in Condition Report 2007-01682. This deficiency was minor since the identified surveillance test criteria had not been exceeded.

Example 4: The licensee failed to effectively evaluate the cause for the spurious isolation of the reactor core isolation cooling system on October 1, 2004, as documented in Condition Report 2006-04460, that resulted in a spurious isolation of the reactor core isolation cooling system during power operations on November 23, 2006 (Noncited Violation 2006005-01).

Example 5: The licensee failed to effectively evaluate vendor recommendations related to the shelf life of a reactor water cooling pump coupling. Consequently, personnel did not update receiving and maintenance documents, which contributed to a pump failure that impacted reactor water chemistry control, as documented in Condition Reports 2006-04488 and 2006-04517 (FIN 2006005-05).

Example 6: As part of a 1996 modification, engineers failed to properly evaluate the worst case conditions when sizing the reactor core isolation cooling turbine exhaust line vacuum breaker system, as documented in Condition Report 2005-00724. Consequently, following a scram and loss of feedwater, the turbine exhaust line filled with water, complicating operator response to the event (Noncited Violation 2005005-003).

(c) Assessment - Effectiveness of Corrective Actions

Generally, the licensee implemented effective corrective actions to address conditions adverse to quality; however, the number of findings in this area demonstrated the licensee had continuing challenges. The team determined that two examples affected multiple groups and had an impact on effective implementation of work management (Examples 1 and 5). The team concluded that some examples of ineffective corrective action related to engineering (Examples 1 - 3). The team determined that several instances of ineffective corrective actions occurred during this assessment period related to issues such as management expectations not being met and/or organizational interface deficiencies (Examples 1, 4 and 5).

**Current Issues**

Example 1: The team determined that personnel did not implement effective corrective actions to assess the condition of butterfly valves; specifically, personnel did not effectively communicate within engineering and among work groups that a simple, nonintrusive test would not render the valve inoperable and would ensure the theory regarding operability (related to the length of time the valves had been installed in the system) remained valid (Section 4OA5.2).

Example 2: The team determined the licensee implemented ineffective corrective actions to fully inform system engineers of the need to critically question and fully evaluate abnormal system indications. Subsequently, the licensee added Corrective Action 26 to Condition Report 2006-04460 to provide training to system engineering staff on the need for detailed monitoring as a result of the reactor core isolation cooling isolation because of spiking event.

Example 3: Quality Assurance identified that engineering personnel failed to effectively implement corrective actions in response to industry information. Specifically, Condition Report 2007-01302 documented that personnel failed to timely update vendor manuals in response to processing Information Notice 2005-023, "Vibration-Induced degradation of Butterfly Valves."

Example 4: The licensee did not implement effective corrective actions since management failed to fully convey and ensure expectations were understood related to working over control panels prior to the reactor restart on October 22, 2006, as documented in Condition Reports 2006-04078 and 2007-00882 (Noncited Violation 2006013-08).

Example 5: The resident inspectors had determined that the licensee implemented ineffective actions since they failed to implement required compensatory actions to mitigate elevated shutdown risk conditions, as documented in Condition Report 2006-01937 (Noncited Violation 2006003-02).

**Historical Issues**

Example 1: The licensee implemented ineffective corrective actions to prevent automatic actuation of the standby service water pumps while shifting the running nonsafety service water pumps, consequently, as documented in Condition Report 2006-01257 the event repeated. This was a minor violation (Inspection Report 2007002, Section 4OA3.3).

Example 2: The licensee took ineffective corrective actions that resulted in inadvertent entry into a limiting condition for operation, as documented in Condition Report 2006-01054. Procurement engineers had failed to update the repetitive task database with the correct part number in response to Condition Report 2003-03678 (Noncited Violation 2006002-01).

b. Assessment of the Use of Operating Experience

(1) Inspection Scope

The team examined licensee programs for reviewing industry operating experience. The team selected a number of operating experience notification documents (NRC bulletins, information notices, generic letters, 10 CFR Part 21 reports, licensee event reports, vendor notifications, et cetera), which had been issued during the assessment period, to verify whether the licensee had appropriately evaluated each notification for relevance to the facility. The team then examined whether the licensee had entered those items deemed relevant into their corrective action program. Finally, the team reviewed a number of significant conditions adverse to quality and conditions adverse to quality to verify if the licensee had appropriately evaluated them for industry operating experience.

(2) Assessment

Overall, the team determined that the licensee had appropriately evaluated industry operating experience for relevance to the facility and had entered applicable items in the corrective action program. The licensee appropriately evaluated for internal and external industry operating experience when performing root cause and apparent cause evaluations. Three instances of inappropriate use of operating experience contributed to findings during this assessment period (Examples 1 - 3).

**Current Issues**

Example 1: The licensee failed to take all necessary actions when they processed external operating experience information documented in Condition Report 2006-01283, which resulted in exceeding allowed outage times. Specifically, operators failed to contact the emergency planning staff and the procedure did not have the required compensatory actions (Noncited Violation 2006011-01).

Example 2: Radiation protection personnel failed to make proper use of internal operating experience that resulted in unnecessary exposure, as documented in Condition Report 2006-04340. Specifically, they failed to: (1) survey the desiccant filter and water trap in the test equipment and (2) install telemetry on test equipment inside the off-gas sample to alert personnel of the changing radiological conditions (Noncited Violation 2006005-03).

Example 3: Maintenance personnel failed to make appropriate use of internal operating experience that resulted in an inadvertent initiation of the high pressure core spray system, as documented in Condition Report 2006-00283. Specifically, the procedure for use of a test plug was not revised (Noncited Violation 2006002-03).

**Historical Issues**

Example: The licensee identified four additional examples of failure to properly process industry operating experience as a result of a periodic evaluation of operating experience. Subsequently, the licensee documented in Condition Report 2006-04267 that personnel reviewing for the applicability of operating experience information are too narrowly focused in their reviews.

c. Assessment of Self-Assessments and Audits

(1) Inspection Scope

The team reviewed numerous audits, self-assessments, quality surveillances, and site performance indicators. The team reviewed program procedures and interviewed process managers related to the corrective action program, and the Quality Assurance department. The team evaluated the use of self-assessments, the role of Quality Assurance, and the role of the corrective action program administrators.

(2) Assessment

The team determined that the licensee implemented self-critical trending, Quality Assurance audit and surveillance, and self-assessment programs. The team determined that overall the licensee performed thorough critical self-assessments (Example 1), although the licensee failed to implement appropriate administrative requirements for one self-assessment (Example 2). For example, the licensee provided self-critical evaluations of their corrective action program that identified failures to properly approve apparent cause evaluations and failure to correctly identify degraded and nonconforming conditions. The number of self-assessments performed and the

variety of ways used to assess site performance provided a broad perspective on site performance. Quality Assurance performed critical audits and surveillances and provided detailed assessments of the reviewed organizations performance (Examples 3 - 5). The team verified that the licensee had implemented performance indicators and trended data that allowed the managers to evaluate the progress of their actions to improve performance related to corrective action program deficiencies. The team concluded that the licensee used their trending program to critically evaluate potential deficiencies (Examples 6 and 7). The trending program identified issues similar to the issues identified during this inspection by the team. The team concluded that the licensee performed a critical evaluation of operating experience in areas that could result in a substantive crosscutting issue (Example 8).

**Current Issues**

Example 1: The licensee corrective action program self-assessment identified several areas for improvement and negative observations: (1) long term corrective actions did not receive the required approvals; (2) twenty Significance B condition reports did not receive appropriate approvals; (3) incomplete response to operating experience related to industrial safety (material condition of safety barriers around the cooling towers); (4) identification of substantially degraded and nonconforming conditions; (5) not all corrective actions linked to their causes; (6) extent of condition evaluations did not effectively address other problems or cause relationships; and (7) sometimes corrective actions were inappropriately labeled as enhancements.

Example 2: The immediate actions for the 2006 Safety Culture assessment only addressed specific groups and did not discuss concerns related to the general culture and work environment issues identified in the executive summary. From interviews the team determined that the licensee had decided to use the 2006 Performance Improvement Plan to address the issues since many of the issues were similar. The team confirmed from review of the assessments identified in the attachment that the 2006 Performance Improvement Plan had, in fact, covered the same concerns raised in the safety culture survey.

Example 3: Quality Assurance identified a performance deficiency in Condition Report 2006-03145 related to the use of large amounts of overtime to fill the routine minimum shift manning required by Technical Specification 5.2.2.e (Section 4OA7).

Example 4: Quality Assurance determined that two operability determinations failed to properly assess the environments related to use of manual actions, as documented in Condition Reports 2006-03615 and 2006-03262.

Example 5: Quality Assurance identified in Condition Report 2007-00711 that, during a review of condition reports closed to work orders, 14 instances of incorrect closure occurred over the period January 2006 through February 2007.

Example 6: The 4$^{th}$ Quarter 2006 Trend report continued after five quarters to maintain work management as an adverse trend to ensure significant management involvement continues to address the concerns. Several adverse trend condition reports remain

open from 2 years previously since significant improvements in work management execution have not occurred, as evidenced by level performance and preliminary improvements in numbers and types of issues identified do not demonstrate long term sustained improvement.

Example 7: Engineering initiated Condition Report 2007-00131 to document a lack of engineering rigor had impacted the technical quality of failure mode analyses, cause evaluations, trouble shooting plans and preventive maintenance strategies, and design modifications. In addition, engineering identified process and supervisor oversight issues.

Example 8: The licensee issued Condition Report 2006-04267 because their periodic assessment identified four additional failures to effectively process operating experience information. The licensee concluded that the seven examples indicate that personnel who review operating experience information are too narrowly focused in their reviews.

d. Assessment of Safety Conscious Work Environment

(1) Inspection Scope

The team reviewed an April 2005 site safety culture survey and the 2006 Nuclear Safety Culture Assessment results, including the redacted comments. The team reviewed the redacted comments to identify concerns that were expressed by more than a few people for further followup. The team reviewed concerns involving: (1) high workload; (2) sufficient staff and resources to effectively perform duties; (3) issues with the work management program; and (4) concerns related to morale, feeling valued and the general work environment.

To assess these concerns, the team evaluated: (1) overtime records for operators and system engineers; (2) 2006 Performance Improvement Plan; and (3) plans for realignment of the Entergy Fleet, which will directly affect staffing of many of the affected groups. Also, the team interviewed an organizational cross-section of 37 site personnel including 5 security officers to assess their willingness to raise safety issues, use the corrective action program and use the employee concerns program. These interviews assessed whether conditions existed that would challenge the establishment of a safety-conscience work environment. The team also met with the Employee Concerns Coordinator.

(2) Assessment

The team concluded that the licensee maintained an appropriate safety conscious work environment. The team determined that the 2005 safety culture assessment response included a large number of expressed concerns related to work management, staffing, funding and resources. Employees expressed concerns with equipment maintenance that affected reliability, particularly on the secondary side support systems. The team determined that the licensee took appropriate actions to address the concerns. Similarly, the team found that the Synergy safety culture survey (performed 10 months later) identified that workers continued to have concerns with work management, staffing, funding and resources. The employees remained concerned with the reliability

of plant equipment. The team found that the licensee had not, initially, documented that they had addressed the General Culture and Work Environment factors described in the executive summary and redacted comments of the 2006 Safety Culture survey. However, the team confirmed that the 2006 Performance Improvement Program had addressed similar concerns and General Culture and Work Environment factors.

From the interviews conducted during this inspection, the team determined: (1) personnel would not hesitate to use the corrective action program and raise concerns to management or bring a concern to the NRC; (2) some recently hired individuals did not understand the role of the employee concerns program, the location of the Employee Concerns Coordinator's office, nor the name of Employee Concerns Coordinator; and (3) individuals continued to express concerns related to a lack of resources, poor work planning, a difficult work management program, and the ability to perform routine duties and reduce the backlog of outstanding maintenance items. The team concluded from interviews that, although no safety conscious work environment concerns existed, the complaints related to general culture factors that have been stated for the last two safety culture surveys, if not addressed, might result in safety conscious work environment concerns.

e. Specific Issues Identified During This Inspection

(1) Inspection Scope

The team reviewed the root cause analysis, including the identified corrective actions to prevent recurrence, reviewed supporting documents and interviewed personnel. During the reviews described in Sections 4OA2.a(2)(a), 4OA2.a(2)(b) and 4OA2.a(2)(c), the team identified the following finding.

(2) Findings and Observations

Foreign material found in residual heat removal room sump pump discharge check valve

Introduction. The team identified a Green finding because the licensee failed to adequately address control of foreign material in the Train B residual heat removal room in June 2003. Consequently, on March 5, 2007, maintenance technicians found foreign material in one of the sump pump discharge check valves. This failure to control foreign material resulted in sump high level alarms, which had caused the operators to enter the emergency operating procedure for auxiliary building room flooding on three different occasions.

Description. Between January 9, and March 5, 2007, maintenance technicians performed maintenance on the Train B residual heat removal floor drain sump. Problems with the floor drain sump had required operators to enter Procedure EOP-3, "Secondary Containment and Radioactive Release Control," Revision 11, on three different occasions. The technicians replaced the sump high water level alarm switch that caused the entry conditions for Procedure EOP-3 and replaced the start controller for the sump pumps.

On March 5, 2007, during final testing of the start controller for the sump pumps, the technicians observed water exiting the idle pump suction while the running pump pumped water from the sump. When the idle pump started, the sump level perturbation caused the sump high level alarm. Upon inspection, the technicians found a portion of a plastic fastener lodged between the valve disc and its seat, preventing the check valve from fully seating, which caused the reverse flow. The repaired check valve tested satisfactorily.

On March 8, 2007, during the closeout of the Train B residual heat removal floor drain sump, the technicians identified additional foreign material in the sump. The technicians noted the material "appeared to have been in the sump for years." The resident inspectors challenged the operators to inspect the other emergency core cooling system floor drain sumps. Subsequently, the licensee found foreign material in all six emergency core cooling system room floor drain sumps. On March 30, 2007, the resident inspectors found that the 12- by 18-inch inspection manhole covers were not properly closed (left ajar) on the residual heat removal and reactor core isolation cooling room floor drain sumps. Maintenance technicians then properly secured the inspection covers for all of the emergency core cooling system room floor drain sumps.

The resident inspectors reviewed a similar self-revealing Finding 05000458/2003004-01 and the licensee corrective actions. In June 2003, the licensee had both Train B residual heat removal floor drain sump pumps out-of-service (one for maintenance and the other failed after a plastic bag disabled the pump impeller). The root cause stated, "at some point in the past, the black[ened] plastic was introduced into the sump through [floor drain] hubs or through the 12- by 18-inch inspection manhole on top of the tank." Additionally, the resident inspectors found foreign material on all elevations of all of the emergency core cooling system rooms.

The team determined that the licensee had implemented ineffective corrective actions for the June 2003 finding since the actions failed to prevent the entry of foreign material into the sump. Although the licensee found foreign material in all the emergency core cooling system rooms, the licensee did not inspect the floor drain sumps. Although the apparent cause discussed the inspection manhole cover, the licensee did not properly secure the inspection manhole covers. The team considered the corrective actions narrow in focus since they only addressed maintenance activities, even though radiation protection, engineering, chemistry, and operations personnel introduced some of the foreign material found in the emergency core cooling system rooms. The licensee identified the plastic wrapped around the impeller of the sump pump as a foreign material control problem. Yet, the licensee did not institute a foreign material control improvement plan until December 1, 2006, and only as an enhancement to the site foreign material exclusion program documented in Condition Report LO-RLO-2006-00142.

The team reviewed corporate Procedure EN-MA-118, "Foreign Material Exclusion," Revision 2, which replaced Procedure ADM-0092, "Foreign Material Exclusion," and found that, although the new procedure defines permanent foreign material exclusion areas, the licensee had established no process for designating a new permanent foreign material exclusion area. The team determined the floor drain sumps in the auxiliary building, namely the emergency core cooling system rooms and the emergency core

cooling system valve and piping "crescent" area, fit the definition of a permanent foreign material exclusion area. Additionally, Procedure EN-MA-118 requires that all work order packages for any foreign material exclusion area include a foreign material exclusion checklist. The team reviewed six closed work packages for floor drain sump work and none of them contained foreign material exclusion checklists.

The team determined that the corrective actions failed to address the extent of the foreign material exclusion problem with the Train B residual heat removal sump pumps and other issues with foreign material exclusion controls found during June 2003. In addition, although the licensee implemented corrective actions to clean out the Train B residual heat removal floor drain sump in June 2003, maintenance technicians found foreign material in that sump on March 8, 2007.

Using MC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," and the licensee's probabilistic risk assessment for internal flooding events, the team determined that a single emergency core cooling system room floor drain sump pump failure was not potentially risk significant for internal flooding. The senior reactor analyst agreed with that determination.

Analysis. The performance deficiency associated with this finding involved the failure of station personnel to control foreign material in the Train B residual heat removal room in accordance with Procedure EN-MA-118 during routine maintenance and in accordance with Procedure EN-MA-132, "Housekeeping/Facility and Grounds Maintenance," Revision 0, during normal access to the room. The finding was more than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance and affected the associated cornerstone objective to ensure the availability, reliability, and capability of the residual heat removal system. Using the MC 0609, "Significance Determination Process," Phase 1 Worksheet, the team determined the finding had very low safety significance because no actual loss of function of the residual heat removal system occurred and it did not screen as potentially risk significant for an internal flooding event. The cause of the finding was related to the crosscutting element of human performance work practices in that licensee management failed to communicate and enforce compliance with the site foreign material control program.

Enforcement. No violation of NRC requirements resulted because the floor drain system is not a safety related system. The corrective actions planned to restore compliance include further development of the site foreign material exclusion program and designation of vital area floor drain sumps as permanent foreign material exclusion areas. The licensee documented this finding in Condition Report 2007-00859 (FIN 05000458/2007009-01, Foreign material found in residual heat removal room sump pump discharge check valve).

f. Problem Identification and Resolution Crosscutting Issue Corrective Actions

(1) Inspection Scope

In the mid-cycle assessment letter dated August 31, 2006, the NRC concluded that a substantive crosscutting issue in the area of problem identification and resolution

existed at the River Bend Station. As stated in the letter, "there were nine Green inspection findings with crosscutting aspects in the area of problem identification and resolution. Seven of these findings involved the corrective action program component of problem identification and resolution. A crosscutting theme associated with four of the seven findings, all in the Mitigating Systems cornerstone, involved the aspect associated with the complete, accurate, and timely identification of issues." Further, NRC determined that the performance improvement plan developed at the end of 2005 had not proven effective in substantially mitigating the crosscutting theme.

The team reviewed the corrective actions, assessments, higher tier apparent cause analysis and other documentation related to Problem Identification and Resolution Crosscutting issue with the corrective action program staff.

(2) Assessment

The team determined that the licensee performed a thorough, detailed evaluation with qualified personnel representing appropriate disciplines. The 3-year period used to evaluate performance allowed for a representative sample across the entire organization. In addition to the four examples described in the cover letter, the licensee identified 11 other condition reports to include in their evaluation. For each of the 15 deficiencies, the licensee determined what barriers failed. The licensee binned the causes to determine the cause(s) that revealed themselves as most prevalent. The licensee attributed the apparent cause to ineffective evaluation (i.e., inaccurate, incomplete or untimely) of the problem that resulted from three prevalent contributing causes - (1) untimely response to known or repetitive problems; (2) inadequate job, work practices or decision making; and (3) insufficient awareness of the impact on safety and reliability, particularly on nonsafety-related or non technical specification equipment.

The team determined that the licensee initiated several immediate corrective actions related to self-identification of issues and communications among work groups and with the plant staff. Some corrective actions included: operations management shadowing to reinforce self-identification standards; develop a supervisor 6-minute briefing on the issue to share with their staffs; Condition Review Group alignment on initial actions; and establishing a standing item at the Condition Review Group meeting for evaluating issues in the last 24 hours for any immediate actions.

The team found that the licensee had established logical corrective actions to address the identified apparent causes. The licensee developed a causal linkage chart and developed corrective actions to address weak links, particularly those barriers and processes that are used to address an issue within the first 72 hours of identification. The licensee established barriers at various stages of the life of an identified deficiency. The team determined that the corrective actions established focused on: (1) identifying systems and programs considered in the emergent issues checklist that have the most potential impact, including non technical specification and nonsafety-related systems; (2) developing a list of equipment that is nonsafety-related but has risk impact; (3) developing a procedure/process to ensure that a controlled evaluation process occurs when the nonsafety-related equipment is out of service; (4) communicating the changes to the work groups/individuals who have the initial contact for these types of

issues (senior reactor operators, work week managers, system engineer supervisors, Condition Review Group members, and managers); and (5) providing training to the same key individuals involved with resolving site deficiencies.

The team determined that the licensee had implemented additional corrective actions to change behaviors that the licensee considered enhancements. Some of the corrective actions included: (1) management cards provided to individuals who exhibit good behaviors, (2) Corrective Action and Assessment Bulletins on complete and accurate information to be included in condition reports and work orders, (3) Corrective Action and Assessment personnel meet monthly with the Department Performance Improvement Coordinators to receive input and reinforce expectations related to corrective action program processes, and (4) work management to evaluate and report monthly to the Condition Review Group on the status of outstanding work orders that are implementing corrective actions related to condition reports. In addition, the licensee had some independent assessments performed to evaluate the thoroughness of the common cause evaluation and implementation of the corrective actions.

The team determined that many of the licensee enhancements, particularly, related to behavior modification were, in fact, corrective actions since many of the errors occurring are not process but rather human performance related. Further, the team concluded that the licensee had not been totally effective at ensuring that they accurately and completely evaluated identified issues, as demonstrated by several findings discussed earlier.

4OA3 Event Followup

.1 (Closed) Licensee Event Report 05000458/2006-007-00: Automatic Reactor Scram Due to Inadvertent Isolation of Main Feedwater Headers

This licensee event report documented the automatic reactor scram that resulted when a dropped chart recorder hit the control switches for the main feedwater isolation valves. When the motor-operated valves closed, reactor water vessel lowered until the high pressure core spray actuated on Level 2. In addition, three minutes after the scram the main steam isolation valves automatically closed on low main steam line pressure since operators failed to reposition the reactor mode switch. NRC had performed a special inspection in response to this event and issued several findings in NRC Inspection Report 05000458/2006-013. This licensee event report is closed.

.2 (Closed) Licensee Event Report 05000458/2006-006-00: Plant Mode Change with One Offsite Power Supply Inoperable Due to 4.16 kV Breaker Alignment

On May 27, 2006, the resident inspectors determined that one of the required offsite power supplies to the Division III standby switchgear had been inoperable during a recent plant startup. This condition did not meet the requirements of Technical Specification 3.0.4. The inspectors determined the test procedure that implements Surveillance Requirement 3.8.1.1 did not include the verification of the alignment of the offsite power supplies to Division III. NRC had documented the performance deficiencies related to this event as Noncited Violations 05000458/2006003-01 and 05000458/2006003-03. This licensee event report is closed.

.3 (Closed) Licensee Event Report 05000458/2006-005-01 and -00: Automatic Start of Standby Service Water During Realignment of Reactor Plant Cooling Water

This licensee event report documented an unplanned automatic actuation of the Division I standby service water system while operators realigned the reactor plant component cooling water system. The actuation resulted from low pressure in the system caused by a partial drainage of a section of the system during testing and maintenance. The manual valves that leaked have been tentatively scheduled for repair in the next refueling outage. There was no loss of cooling water to any safety-related components, and the standby service water system responded to the actuation signal as designed. This licensee event report is closed.

.4 (Closed) Licensee Event Report 05000458/2006-004-00: Automatic Reactor Scram Following Recirculation Pump Downshift Due to Failed Optical Isolator Card

This licensee event report documented the plant response to a failed optical isolator card in the reactor protection system. This failure caused both reactor recirculation pumps to shift from high to slow speed and, with the reactor control rod pattern set for full power, the decreased flow caused the average power range monitors to trip on a simulated high thermal power signal. The team determined that the licensee performed an appropriated cause analysis. Further, the licensee had implemented corrective actions in response to industry information that these cards were subject to failures. Although the licensee had installed suppression diodes in June 2005, the licensee was aware that this did not totally eliminate the circuits to spurious failures. Consequently, the licensee had initiated a modification to install interposing relays to correct the problem during the next refueling outage. The licensee replaced both optical isolator cards during the forced shutdown and installed suppression diodes and interposing relays in the actuation circuits during Refueling Outage 13 in May 2006. This licensee event report is closed.

4OA5 Other Activities

.1 (Closed) Unresolved Item 05000458/2005008-05: Noted Design Discrepancies with the Diesel Generators

The inspector initiated this unresolved item so that a final evaluation of potential design discrepancies with the emergency diesel generators could be performed. The team reviewed Condition Report 2005-03968 and applicable 10 CFR 50.59 screening documentation. In response to an inspector-identified failure to account for design limitations (VIO 1998013-01), the licensee modified the diesel generator pneumatic control systems and provided a safety-related power supply to the starting air compressors. Although initially the licensee failed to update design information, the team confirmed that the licensee had revised all necessary documentation and provided training to engineering personnel on the proper closure of design change packages. The team determined that the licensee appropriately reclassified the mechanical components of the Division I and II emergency diesel generator air start compressors and dryers as nonsafety-related. This unresolved item is closed.

.2 (Closed) Unresolved Item 05000458/2006004-01: Corrective Actions to Prevent Repetitive Failures of Safety-Related Service Water Motor-Operated Valves to Close

The inspector initiated this unresolved item so that the safety implications and corrective actions related to galvanic corrosion between a carbon steel packing gland follower connected to a stainless steel stem could be thoroughly evaluated.

In March 2005, the licensee initiated Condition Report 2005-01238 because Valve SWP-MOV96B (safety-related to nonsafety-related service water isolation) did not indicate fully closed, had stroked less than the required 90 degrees and exhibited substantial flow noise. The inspector verified that additional testing demonstrated that the similar valves installed at the same time had the onset of corrosion (increased resistance on the signature test charts) but had gone to their safety position. In addition, the inspector determined Condition Report 2006-02815 described a failure of Valve SWP-MOV68A (service water outlet from the residual heat removal heat exchanger) to go fully closed during routine operations. The inspector questioned whether this valve failed to close because of carbon steel to stainless steel binding or because of a problem with the torque switch. Consequently, the licensee initiated Condition Report 2006-04479 to ensure they addressed the concern and scheduled troubleshooting in September 2006 to identify the apparent cause and identify any additional corrective actions required.

During this inspection, the team evaluated: (1) actions to determine the extent of condition of the corrosion and planned corrective actions; (2) test data for each of the valves; (3) operability evaluations; and (4) cancellation of the diagnostic valve test. The licensee had determined that this galvanic corrosion mechanism had been experienced at another facility in their fleet (internal operating experience) on the same model and in a similar cooling water system. The licensee had installed the 14 torque-seated butterfly valves in three different outages. The licensee installed four valves in 1997 and installed the other sets of five valves in 2001 and 2003. Based upon the internal operating experience and from the failure of one of the valves installed the longest, the licensee believed that the corrosion mechanism affected the valves installed in the system the longest.

The team determined that the licensee had implemented appropriate corrective actions for the valves installed in 1997. The licensee refurbished Valve SWP-MOV96B and performed testing to demonstrate operability. In addition, the licensee ensured sufficient flow to safety loads based upon the bypass flow through this valve. Although the other valves had traveled to their safety position, the licensee increased the torque switch cutoff setpoint for Valves SWP-MOV96A and SWP-MOV57A and B as added insurance to ensure they would go closed, as designed. The licensee had tested one valve from each set of five valves installed in 2001 and 2003 and determined that the signature test revealed no resistance to valve travel (i.e., no corrosion). The licensee considered repair of these valves a long term corrective action based upon: the valves remained operable, would remain so for a couple of years and planned to perform diagnostic testing of the valves during Refueling Outage 14 to ensure the valves remained operable. The team determined that the licensee made an appropriate evaluation and decision.

The team determined that the licensee took appropriate actions in response to Condition Report CR-ANO-1999-00294 (internal operating experience) to confirm their valves remained operable. Specifically, they consulted with Arkansas Nuclear One based upon internal operating experience to ensure that their time line to replace the carbon steel gland followers would result in no adverse conditions. The licensee documented in Condition Reports 2006-02773 and 2006-04479 that they would install stainless steel packing gland followers in Refueling Outage 14 for the valves installed in 1997 and 2001. The licensee indicated that the five valves installed in 2003 would be modified in Refueling Outage 15.

The team reviewed inservice test data for all of the valves and the available motor-operated valve signature test data from the tests discussed previously. The team determined that increasing the torque switch cutoff setpoint for Valves SWP-MOV96A and SWP-MOV57A and B did not render the valves inoperable. Additionally, the team verified that the signature testing performed on Valves SWP-MOV55A and SWP-MOV68B (representative of valves installed in 2001 and 2003, respectively) demonstrated that they had not experienced any binding. The team determined this data supported the conclusion that the valves could remain installed for the next few years before experiencing the binding phenomenon. Further, the team agreed that the quarterly inservice valve tests and routine (bimonthly) cycling of Valve SWP-MOV68A would provide indication of valve degradation.

The team found the operability evaluations appropriate except for one item. The original operability evaluation stated that the valve had an open function and the routine cycling and inservice testing demonstrated the valve could perform its design function. In addition, the system had sufficient capability to provide flow to all loads simultaneously. The licensee had revised the operability determination after becoming aware of the corrosion mechanism. In the revised operability, the licensee concluded that, if the remote-manual function of the valve failed, the licensee could manipulate the valve locally. The team challenged the licensee regarding addressing the environmental conditions. The licensee had not addressed the environmental conditions; however, the team concluded that this additional action although not completely evaluated did not have a significant impact on valve operability. During a subsequent review of Quality Assurance audits, the team determined that Quality Assurance auditors had initiated Condition Reports 2006-03262 and 2006-03615 identifying the failure to account for the local environmental conditions.

The team evaluated the failure to perform the diagnostic test for Valve SWP-MOV68A as originally scheduled and to determine if the licensee made an appropriate assessment to delay the test until Refuel Outage 14. The team interviewed operations, maintenance, engineering and planning and scheduling personnel familiar with the issue. Following all of the interviews, the team determined that operations had cancelled the diagnostic test because: (1) the valve remained operable in the present condition and only one valve was affected and (2) this corrective maintenance was not needed to restore operability, consequently, they did not want to take a chance on discovering a problem that could require a forced shutdown because the allowed outage time had been exceeded. The team determined from discussions with the component engineer that a simple nonintrusive test (no components opened on the actuator) would have likely identified whether it was a torque switch (this was suspected) or corrosion.

During a discussion with all disciplines identified, the team determined that safety-related valves had been evaluated on-line without a resulting forced shutdown and had the system engineer raised the concern that the valve needed a signature test (actuator opened) for the evaluation on a work week scope change request that he would still have been denied.

The team determined that the concern from a corrective action viewpoint indicated: (1) it was not communicated that a nonintrusive test could have been conducted, (2) the point was not made that this was a theory and a test would identify that whether the most recently installed valves were experiencing corrosion, which would invalidate the system engineer's theory regarding future valve operability, and (3) it was not stressed that this potentially impacted 10 valves not one valve. After this meeting, the team requested inservice valve stroke data for all 14 valves to determine whether any of the valves had experienced degradation. From review of the data, the team determined that the valves remained operable and degradation would likely be noticed during the valve stroke data. The team determined the error resulted from poor communications among the engineers and the engineering representative for scheduling the work. The team determined that on April 30, 2007, the expectations would change for system engineering representation at the T-15 scheduling meeting from those engineers who have red or yellow system indicators to any system engineer with a system being worked that week being planned. This unresolved item is closed.

4OA6 Exit Meeting

On May 10, and May 21, 2007, the team presented their inspection results to Mr. J. Roberts, Director, Nuclear Safety Assurance, and other members of the licensee staff who acknowledged the findings. The team returned all proprietary and confidential information provided during the inspection.

4OA7 Licensee Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and was a violation of NRC requirements that met the criteria of Section IV of the NRC Enforcement Policy for being dispositioned as noncited violations.

Technical Specification 5.2.2.e specifies, in part, "Adequate shift coverage shall be maintained without routine heavy use of overtime." Procedure OM-123, "Working Hour Limits," Revision 2, Step 5.2.1, specifies, "Use of substantial amounts (i.e., consistently greater than established work schedules) of overtime is limited to supporting very unusual circumstances or extended shutdowns." Contrary to the above, since 2005 the licensee routinely used overtime to ensure that shift manning could be performed. For example, during February and March 2007, the licensee used substantial amounts of overtime to meet the Technical Specification minimum manning requirements; specifically, the licensee used overtime to fill 71 required minimum positions sometimes two positions each shift. Quality Assurance had documented this issue, identified during audits, in Condition Reports 2004-02704 and 2005-03145. Corrective actions included establishing a licensed operator class who should receive their licenses in June 2007.

Attachment: Supplemental Information

## SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

Licensee

J. Alfultus, Electrical Maintenance Superintendent
L. Ballard, Manager, Quality Assurance
R. Barnes, Supervisor, Engineering
R. Biggs, Coordinator, Safety & Regulatory Affairs
C. Forpahl, Manager, Corrective Action & Assessment
B. Houston, Maintenance Manager
K. Huffstatler, Technical Specialist IV, Licensing
K. Jenks, Engineering Supervisor
N. Johnson, Manager, Programs & Components Engineering
D. Lorfing, Manager, Licensing
B. Matherne, Manager, Planning, Scheduling and Outage
J. Miller, Manager, Operations
J. Roberts, Director, Nuclear Safety Assurance
P. Russell, Manager, System Engineering
D. Wiles, Director, Engineering

NRC

P. Alter ,Senior Resident Inspector, Project Branch C,
L. Smith, Chief, Engineering Branch 2, Division of Reactor Safety

## LIST OF ITEMS OPENED AND CLOSED

Opened and Closed

| | | |
|---|---|---|
| 05000458/2007009-01 | FIN | Foreign Material Found in Residual Heat Removal Room Sump Pump Discharge Check Valve (Section 4OA2.e) |

Closed

| | | |
|---|---|---|
| 05000458/2006-007-00 | LER | Automatic Reactor Scram Due to Inadvertent Isolation of Main Feedwater Headers (Section 4OA3.1) |
| 05000458/2006-006-00 | LER | Plant Mode Change with One Offsite Power Supply Inoperable Due to 4.16 kV Breaker Alignment (Section 4OA3.2) |
| 05000458/2006-005-01 and -00 | LER | Automatic Start of Standby Service Water During Realignment of Reactor Plant Cooling Water (Section 4OA3.3) |

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|---|---|---|
| 05000458/2006-004-00 | LER | Automatic Reactor Scram Following Recirculation Pump Downshift Due to Failed Optical Isolator Card (Section 4OA3.4) |
| 05000458/2005008-05 | URI | Noted Design Discrepancies with the Diesel Generators (Section 4OA5.1) |
| 05000458/2006004-01 | URI | Corrective Actions to Prevent Repetitive Failures of Safety-related Service Water Motor-operated Valves to Close (Section 4OA5.2) |

## LIST OF DOCUMENTS REVIEWED

Procedures

ADM-0092, "Foreign Material Exclusion," Revision 2
AOP-0016, "Loss of Standby Service Water," Revision 14
CEP-IST-1, "Inservice Testing Bases Document," Revision 32
EN-DC-153, "Preventive Maintenance Component Classification," Revision 1
EN-DC-312,"Motor Operated Valve (MOV) Test Data Review Standard," Revision 1
EN-DC-324, "Preventive Maintenance Program," Revision 2
EN-HU-101, "Human Performance Program," Revision 3
EN-LI-102, "Corrective Action Process," Revision 7
EN-LI-104, "Self-Assessment and Benchmark Process," Revision 2
EN-LI-118, "Root Cause Analysis Process," Revision 4
EN-LI-119, "Apparent Cause Evaluation (ACE) Process," Revision 3
EN-MA-118, "Foreign Material Exclusion," Revision 2
EN-MA-132, "Housekeeping/Facility and grounds Maintenance," Revision 0
EN-OE-100, "Operating Experience Program," Revision 2
EN-OP-104, "Operability Determinations," Revision 1 and Revision 2
EN-OP-111, "Operational Decision-Making Issue (ODMI) Process," Revisions 1 and 2
EN-WM-100, "Work Request (WR) Screening, Generation and Classification," Revision 2
EN-WM-101, "On-Line Work Management Process," Revision 1
EN-WM-102, "Work Implementation and Closeout," Revision 0
EN-WM-105, "Planning," Revision 2
EN-WM-109, "Scheduling," Revision 1
EOP-3, "Secondary Containment and Radioactive Release Control," Revision 11
G12.1.15, "Div II Service Water Two Year position Indication Surveillance Test," May 6, 2005
G12.1.14, "Limitorque SMB-000 and SMB/SB-00 Overhaul," Revision 14
GMP-0066, "Soldering," Revision 5
OM-123, "Working Hour Limits," Revision 2
STP-205-6301, "LPCI Quarterly Pump and Valve Operability Test," Revisions 11 and 12
WM-001, "Work Management Expectations," Revision 7

Calculations

ER00-0345 ERCN 01, "Weak Link Analysis for 18 inch Tricentric Valves," dated June 5, 2001

ER00-0345 ERCN 01, "Design/Seismic Report for 18 inch Tricentric Valves," dated August 20, 2001

G13.18.2.3*300, "GL 89-10 Design Basis Review for SWP-MOV96A/B," Revision 1

G13.18.2.3*167, "GL 89-10 Design Basis Review for E12-MOVF068A," Revision 2A

Engineering Requests

ER-RA-93-0001-M, "Probabilistic Risk Assessment," Revision 0

ER-RB-2000-0345-000, ERCN 5, "Equivalency Evaluation for Packing Gland Followers"

ER-RB-2006-0294-000, "Evaluate Use of Ultra-Low-Sulfur Diesel Fuels (ASTM-D975 designation S15, up to 15 ppm) in RBS EDGs"

ER-RB-2005-0084-000, "Reinstalled Internals of E51-VF040 Check Valve"

ER-RB-2006-0129-000, "Include E51-VF040 function in SDC and Design Spec Data Sheet"

Work Orders

| | | | | |
|---|---|---|---|---|
| 00100023 01 | 00100869 01 | 00102823 01 | 00102049 01 | 00104607 01 |
| 00098244 01 | 00098245 01 | 00098246 01 | 00098247 01 | 00098253 01 |
| 50573898 01 | 50688360 01 | 50870331 01 | 50995224 01 | 51022620 01 |
| 51005892 01 | 50966254 01 | 51045839-01 | | |

Audits and Surveillances

QA-3-2005-ENS-1, "Quality Assurance Multi-Site Audit of the Corrective Action Program"
QA-12-2005-RBS-1, "Quality Assurance Audit of Operations"
QA-14-2005-RBS-1, "Quality Assurance Audit of Radiation Protection"
QA-18-2006-RBS-1, "Quality Assurance Audit of Technical Specifications Program"
QA-9-2007-RBS-1, "Quality Assurance Audit of Fire Protection"
QA-14-2007-RBS-1, "Quality Assurance Audit of Radiation Protection Program"
QS-2006-EN-1, "Entergy Nuclear Fleet Safety Culture Program"
QS-2005-RBS-015, "Followup to Operations Audit QA-12-2005-RBS-1"
QS-2006-RBS-001, "PIP Effectiveness"
QS-2006-RBS-012, "Followup of the 2006 QA Audit of Technical Specifications"

Condition Reports CR-RBS-

| | | | | | |
|---|---|---|---|---|---|
| 1996-01587 | 2004-00011 | 2005-02772 | 2006-00973 | 2006-03139 | 2007-00438 |
| 1997-00320 | 2004-00126 | 2005-02897 | 2006-01002 | 2006-03141 | 2007-00528 |
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| 2001-01435 | 2004-00671 | 2005-02975 | 2006-01045 | 2006-03168 | 2007-00597 |
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Self-Assessments

LO-ELO-2005-00011, "Fleet Safety Culture"
LO-ELO-2005-00138, "Fuel Reliability Action Plan"
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LO-RLO-2006-00003, "Effectiveness Reviews"
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LO-RLO-2006-00113, "Work Planning Action Plan for River Bend Station"
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Safety Conscious Work Environment

NRC Regulatory Issue Summary 2005-18, "Guidance for Establishing and Maintaining a Safety Conscious Work Environment," dated August 25, 2005

NRC Regulatory Issue Summary 2006-13, "Information on the Changes Made to the Reactor Oversight Process to More Fully Address Safety Culture," dated July 31, 2006

Understanding SCWE - A Handbook on Safety Conscious Work Environment

2006 Safety Culture Survey

LO-RLO-2006-00048, "2006 RBS Performance Improvement Plan: People"

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LO-RLO-2006-00054, "2006 RBS Performance Improvement Plan: Equipment Reliability

LO-RLO-2006-00055, "2006 RBS Performance Improvement Plan: Work Management Program"

LO-RLO-2006-00147, "2006 Nuclear Safety Culture Assessment Action Plan"

Employee Concerns Program Update Training for employees and supervisors

Employee Concerns Program Newsletter, dated December 2006

Procedure EN-EC-100, "Guidelines for Implementation of the Employee Concerns Program," Revision 1

Policy EN-PL-100, "Nuclear Safety and Management Expectations," Revision 0

Policy EN-PL-187, "Safety Conscious Work Environment (SCWE) Policy," Revision 0

Policy EN-PL-190, "Maintaining a Strong Safety Culture," Revision 0

Miscellaneous

ANSI N18.7/ANS 3.2-1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"

NRC Information Notice 2005-019, "Effect of Plant Configuration Changes on the Emergency Plan"

NRC Information Notice 2005-025, "Inadvertent Reactor Trip And Partial Safety Injection Safety Actuation Due To Tin Whisker"

NRC Information Notice 2006-022, "New Ultra-Low-Sulfur Diesel Fuel Oil Could Adversely Impact Diesel Engine Performance"

Calendar Year 2005 and 2006 condition report performance trend graphs

4th Quarter 2005 through 4th Quarter 2006 River Bend Quarterly Trend Reports

Various Condition Review Group meetings while onsite

Operations work hours for CY 2006 and Engineering work hours for 4th Quarter 2006

Various CA&A Information Bulletins for Calendar Years 2005, 2006 and 2007

Solenoid Operated Valve PM Basis Template

Condition Report ECH-2005-00278

Condition Report ECH-2006-00208

Condition Report ECH-2006-00498

Lesson Plan RLP-ESP-IRPD07, "Initial Response and Problem Diagnosis," Revision 0

Standing Order 196, "Interim Actions for Sensitivity to Systems with Risk Impact & Diagnostic Actions"

WT-RBS-2005-00000, "Present the resolution status of the RCIC issues to OSRC"

R-STM-0118, "Service Water Systems," Revision 11

USAR Section 6.3.2.2.5, "ECCS Discharge Line Fill System," Revision 10

USAR Section 3.9.6A, "Inservice Testing of Pumps and Valves," Revision 14

GE 22A3125, "Low Pressure Core Spray Design Specification," dated October 9, 1992

SDC-203, "High Pressure Core Spray System Design Criteria," dated March 13, 2006

SDC-204, "Residual Heat Removal System Design Criteria," dated December 18, 2006

SDC-205, "Low Pressure core Spray System Design Criteria," dated June 19, 2003

ASME/ANSI OM-1987, Part 10, "Inservice Testing of Valves in Light-Water reactor Power Plants"

Part 9900 Technical Guidance, "Maintenance - Preconditioning of Structures, Systems, and Components Before Determining Operability," dated September 28, 1998

NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," dated April 1995

**Information Request**
**January 31, 2007**
**RBS Problem Identification and Resolution Inspection**
**(IP 71152B; Inspection Report 05000458/2007-09)**

The inspection will cover the period of October 1 2005 to March 31, 2007. All requested information should be limited to this period unless otherwise specified. As agreed when announcing the inspection, please provide the information on as discussed on the Certrec website by **March 19, 2007**.

The agency's text editing software is Corel WordPerfect 10, Presentations, and Quattro Pro; however, we have document viewing capability for MS Word, Excel, Power Point, and Adobe Acrobat (.pdf) text files.

The team will get updated lists et cetera during the first day onsite (April 9, 2007).

Note: On **summary lists** please include a description of problem, status, initiating date, and owner organization.

1. **Summary list** of all Condition Reports (CR) of significant conditions adverse to quality opened or closed since 10/1/2005. Please provide on the website a copy of all Sig Level A CR completed.

2. **Summary list** of all CRs that were generated since 10/1/2005. Please subdivide the list by Category B, C, and D.

3. A **summary list** of all corrective action documents that trend or aggregate one or more smaller issues since 10/1/2005. A, B, C, D

4. **Summary list** of all condition reports that were down-graded or up-graded in significance since 10/1/2005

5. **Summary List** of all root cause analyses completed since 10/1/2005

6. List of root cause analyses planned, but not complete at end of the period

7. List of all apparent cause analyses completed since 10/1/2005

8. List of plant safety issues raised or addressed by the employee concerns program since 10/1/2005

9. Copies of any completed safety culture assessments, including tracking corrective action or **learning organization** documents since 10/1/2005.

10. List of action items generated or addressed by the plant safety review committees since 1/1/2005

11. All quality assurance audits and surveillances and/or assessments of corrective action activities completed since 1/1/2005

12. A **summary list** of all quality assurance audits and surveillances completed since **1/1/2005**, include any audits or surveillances scheduled but which were not completed

13. All corrective action activity reports, functional area self-assessments, and non-NRC third party assessments completed since **6/1/2005**

14. Corrective action performance trending/tracking information generated since 10/1/2005 and broken down by functional organization

15. Current revisions of corrective action program procedures for: Condition Reporting, Corrective Action Program, Root Cause Evaluation/Determination, Operator Work Arounds, Work Requests, Requests for Engineering Assistance, Temporary Modifications, Procedure Change Requests, Deficiency Reporting and Resolution, Operating Experience Evaluation, Safety Culture Policy/Procedures, Employee Concerns Program, Quality Assurance Audits and Surveillance guidance/procedures, human performance evaluation

16. A listing of all external events (OE) evaluated for applicability at River Bend Station since **6/1/2005**

17. Condition reports or other actions generated since **6/1/2005** for each of the items below:

    (1) Part 21 Reports:
    (2) [Applicable] NRC Information Notices, Reg Info Summaries, Bulletins and Generic Letters:
    (3) All LERs issued by River Bend
    (4) Noncited violations issued to River Bend (including licensee identified)

(18) Safeguards event logs for the period

(19) Radiation protection event logs

(20) Current system health reports or similar information for the reactor core isolation cooling and the standby service water systems

(21) Current predictive performance summary reports or similar information

(22) Corrective action effectiveness review reports generated since 10/1/2005

(23) Summary list of condition reports going back 5 years separated by systems for the standby service water and reactor core isolation cooling systems (risk significant system selection)

(24) Information relative to any efforts related to a plant improvement program or human performance improvement program since the last PIR inspection