UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E LAMAR BLVD
ARLINGTON, TX 76011-4511

January 12, 2015

Mr. Eric W. Olson, Site Vice President
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION - NRC EXAMINATION REPORT 05000458/2014302

Dear Mr. Olson:

On December 11, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an initial operator license examination at the River Bend Station. The enclosed report documents the examination results and licensing decisions. The preliminary examination results were discussed on December 11, 2014, with Mr. T. Schenk, Operations Manager, and other members of your staff. A telephonic meeting was conducted on December 18, 2014, with Mr. D. Bergstrom, Senior Operations Instructor, who was provided with the NRC licensing decisions. A telephonic exit meeting was conducted on January 8, 2015, with Mr. S. Durbin, Superintendent, Operations Training.

The examination included the evaluation of four applicants for reactor operator licenses, one applicant for an instant senior reactor operator license, and one applicant for an upgrade senior reactor operator license. The license examiners determined that five of the six applicants satisfied the requirements of 10 CFR Part 55 and the appropriate licenses have been issued. There were three post-examination comments submitted by your staff. Enclosure 1 contains details of this report and Enclosure 2 summarizes post-examination comment resolution.

Additionally, the NRC identified one finding with two examples involving procedure quality that was evaluated under the risk significance determination process as having very low safety significance (Green). Because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest the violation or the significance of the non-cited violation, 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, 1600 E. Lamar Blvd., Arlington, TX 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. In addition, if you disagree with the cross-cutting aspect assigned to 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 the River Bend Station.

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 (PARS) component of NRC's Agencywide Documents Access and Management 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
Operations Branch
Division of Reactor Safety

Docket: 50-458
License: NPF-47

Enclosures:
1. NRC Examination Report 05000458/2014302, w/Attachment
2. NRC Review of RBS Written Post-Examination Comments

cc w/enclosure: Electronic Distribution

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 (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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Letter to Eric Olson from Vincent Gaddy, dated January 12, 2015

SUBJECT: RIVER BEND STATION - NRC EXAMINATION REPORT 05000458/2014302

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000458
License:	NPF-47
Report:	05000458/2014302
Licensee:	Entergy Operations, Inc.
Facility:	River Bend Station
Location:	5485 US Highway 61N St. Francisville, LA 70775
Dates:	November 3, 2014, through January 8, 2015
Inspectors:	K. Clayton, Chief Examiner, Senior Operations Engineer C. Steely, Senior Operations Engineer C. Cowdrey, Operations Engineer M. Kennard, Operations Engineer M. Hayes, Operations Engineer (Under Instruction)
Approved By:	Vincent G. Gaddy Chief, Operations Branch Division of Reactor Safety

SUMMARY

ER 05000458/2014302; 11/03/2014 – 01/08/2015; River Bend Station; Initial Operator Licensing Examination Report.

NRC examiners evaluated the competency of four applicants for reactor operator licenses, one applicant for an instant senior reactor operator license, and one applicant for an upgrade senior reactor operator license at the River Bend Station.

The licensee and the NRC developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1. The written examination was administered by the NRC and the licensee on December 8, 2014. NRC examiners administered the operating tests on December 8-11, 2014.

The examiners determined that five of the six applicants satisfied the requirements of 10 CFR Part 55 and the appropriate licenses have been issued.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

Green. Title 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” states, in part, “Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.” Contrary to this,

- System Operating Procedure SOP-0049, “125 VDC SYSTEM (SYS # 305),” Revision 29, did not have the necessary qualitative acceptance criteria (procedure steps) to accomplish the required activity of transferring the 125 VDC standby switchgear ENB-SWG01A to the backup charger using Section 5.7 of this procedure. During in-plant job performance measure validation for the initial exam, licensed operators were unable to simulate the transfer using System Operating Procedure SOP-0049. This procedure directed the operators to use an operator aid that, according to the procedure, was located inside panel BYS-TRS4. The operator aid was not inside the panel and was never found. Because of this, the job performance measure had to be rejected and another developed. To correct this issue, the licensee added the appropriate steps to System Operating Procedure SOP-0049 that were originally located in the missing operator aid and released it for use as Revision 30 on December 11, 2014. This procedure deficiency was entered into the licensee’s corrective action program as Condition Report CR-RBS-2014-05684.

- System Operating Procedure SOP-0071, “ROD CONTROL AND INFORMATION SYSTEM (SYS # 500),” Revision 29, did not have the necessary qualitative acceptance criteria (procedure steps) to accomplish the required activity of clearing a rod-block after pulling a control rod to raise reactor power during a start-up. During exam administration, an applicant for a senior reactor license could not get the rod block and associated alarm reset during a scenario using

"Method 1" as described in System Operating Procedure SOP-0071. This procedure had incorrect guidance in Section 5.13 using "Method 1" in that the “ROD SELECT CLEAR” push button must be pressed several times to clear the rod block and this method only directed a single push of this button to reset the rod block and its associated alarm. Because of this, the applicant struggled to get through the reactivity change for the reactor during the scenario. To correct this issue, the licensee is working through the procedure change process for this procedure and has informed the licensed operator crews of the issue with "Method 1" until the appropriate steps are corrected within the procedure and it is released as Revision 30. This procedure deficiency was entered into the licensee’s corrective action program as Condition Report CR-RBS-2014-06331.

The failure of these two procedures to have the appropriate qualitative criteria to complete these two activities was a performance deficiency. The finding was more than minor because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring availability, reliability, and capability of systems needed to respond to initiating events to prevent undesired consequences. Specifically, inadequate procedures could adversely affect the operating crew’s ability to take appropriate actions to ensure reactor safety is being maintained. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated June 19, 2012, the team determined that the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significance in accordance with the licensee’s maintenance rule program for greater than 24 hours. The finding has a cross-cutting aspect in the area of human performance associated with documentation because the organization did not ensure that the procedures were accurate and up to date for these activities [H.7]. (Section 4OA5)

B. Licensee-Identified Violations

None

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA5 Other Activities (Initial Operator License Examination)

.1 License Applications

a. Scope

NRC examiners reviewed all license applications submitted to ensure each applicant satisfied relevant license eligibility requirements. Examiners also audited two of the license applications in detail to confirm that they accurately reflected the subject applicant's qualifications. This audit focused on the applicant's experience and on-the-job training, including control manipulations that provided significant reactivity changes.

b. Findings

No findings were identified.

.2 Examination Development

a. Scope

NRC examiners reviewed integrated examination outlines and draft examinations submitted by the licensee against the requirements of NUREG-1021. The NRC examination team conducted an on-site validation of the operating tests.

b. Findings

One finding with two examples was identified.

Inadequate System Operating Procedures with Two Examples

Introduction. The team identified a finding of very low safety significance (Green) involving a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," with two examples.

Example 1: System Operating Procedure SOP-0049 is missing steps to transfer vital dc switchgear to the backup battery charger

Example 2: System Operating Procedure SOP-0071 has procedure steps that do not work when attempting to reset a rod block during reactor start-up

Description. System Operating Procedure SOP-0049, “125 VDC SYSTEM (SYS # 305),” Revision 29, Section 5.7, contains the guidance to transfer the 125 VDC standby switchgear ENB-SWG01A to the backup charger. On November 4, 2014, the NRC Region IV examiners were working with licensed operators to validate several Job Performance Measures (JPMs) for the initial exam scheduled for administration on December 11, 2014. During the in-plant JPM validations, licensed operators were unable to simulate the transfer of switchgear ENB-SWG01A to the backup charger using this procedure. The procedure directed the operators to use an operator aid that, according to the procedure, was located inside panel BYS-TRS4. The operator aid was not inside the panel and was never found. The licensed operators could not determine which electrical connection was the correct one to disconnect the motor nor could they recall the remaining steps to complete the transfer without the operator aid. Because of this, the JPM had to be removed from the exam and another developed and validated in its place. Examiners informed the licensee of their concern and the licensee initiated Condition Report CR-RBS-2014-05684. The licensee subsequently added the appropriate steps to System Operating Procedure SOP-0049 that were originally located in the missing operator aid and released it for use as Revision 30 on December 11, 2014.

Secondly, System Operating Procedure SOP-0071, “ROD CONTROL AND INFORMATION SYSTEM (SYS # 500),” Revision 29, Section 5.13, contains the guidance to clear a rod-block after pulling a control rod to raise reactor power during a start-up. On December 10, 2014, the NRC Region IV examiners were administering an initial exam to several applicants. In this case, a scenario was being administered to a crew of three applicants in the simulator. During this scenario, the at-the-controls applicant was directed to raise reactor power by pulling control rods as briefed by the control room supervisor applicant. The applicant pulled the first control rod to the point where a control rod block and associated alarm were received (as expected). The applicant decided to use “Method 1” contained in Section 5.13 of this procedure to clear the rod-block and associated alarm (there are three acceptable methods within this procedure to clear the rod-block). The applicant could not get the rod block and associated alarm reset using this method as described in this procedure. The procedure was incorrect using “Method 1” in that the “ROD SELECT CLEAR” push button must be pressed several times to clear the rod block and this method only directed a single push of this button to reset the rod block and its associated alarm. Because of this, the applicant struggled to get through the reactivity change for the reactor during the scenario. To correct this issue, the licensee is working through the procedure change process for this procedure and has informed the licensed operator crews of the issue with "Method 1" until the appropriate steps are corrected within the procedure and it is released as Revision 30. This procedure deficiency was entered into the licensee’s corrective action program as Condition Report CR-RBS-2014-06331.

Analysis. The failure of these two procedures to have the appropriate qualitative criteria to complete these activities was a performance deficiency. The finding was more than minor because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring availability, reliability, and capability of systems needed to respond to initiating events to prevent undesired consequences. Specifically, inadequate procedures could adversely

affect the operating crew's ability to take appropriate actions to ensure reactor safety is being maintained.

Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, the team determined that the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significance in accordance with the licensee's maintenance rule program for greater than 24 hours. The finding has a cross-cutting aspect in the area of human performance associated with documentation because the organization did not ensure that the procedure was accurate and up to date for these activities [H.7].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, "Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

For example 1 of this violation , contrary to the above, on November 4, 2014, System Operating Procedure SOP-0049, "125 VDC SYSTEM (SYS # 305)," Revision 29, did not have the necessary qualitative acceptance criteria (procedure steps) to accomplish the required activity of transferring the 125 VDC standby switchgear ENB-SWG01A to the backup charger using Section 5.7 of this procedure. To correct this issue, the licensee added the appropriate steps to System Operating Procedure SOP-0049 that were originally located in the missing operator aid and released it for use as Revision 30 on December 11, 2014.

For example 2 of this violation, contrary to the above, on December 10, 2014, System Operating Procedure SOP-0071, "ROD CONTROL AND INFORMATION SYSTEM (SYS # 500)," Revision 29, did not have the necessary qualitative acceptance criteria (procedure steps) to accomplish the required activity of clearing a rod-block after pulling a control rod to raise reactor power during a start-up. To correct this issue, the licensee is working through the procedure change process for this procedure and has informed the licensed operator crews of the issue with "Method 1" until the appropriate steps are corrected within the procedure and it is released as Revision 30.

This violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Condition Reports CR-RBS-2014-05684 and CR-RBS-2014-06331. (NCV 05000458/2014302-01, "Inadequate System Operating Procedures with Two Examples.")

c. Other Observations

NRC examiners provided outline, draft examination, and post-validation comments to the licensee. The licensee satisfactorily completed comment resolution prior to examination administration.

NRC examiners determined the written examinations and operating tests initially submitted by the licensee were not within the range of acceptability expected for a proposed examination. The NUREG-1021 standard for an unsatisfactory submittal requires that 20 percent or more of the written examination questions must be classified as unsatisfactory based on criteria in Section ES-401, and this criterion applies for the reactor operator portion, the senior reactor operator portion, or both. The statistics for the written examination were as follows:

RO written exam (75 total questions)
1. Twenty-eight questions were unsatisfactory (37 percent)
2. Twenty-five questions required editorial changes (33 percent)

SRO written exam (25 total questions)
1. Fourteen questions were unsatisfactory (56 percent)
2. Nine questions required editorial changes (36 percent)

Total written exam (100 total questions)
1. Forty-two questions were unsatisfactory (42 percent)
2. Thirty-four questions required editorial changes (34 percent)

Because the 20 percent threshold was exceeded for both sections of the written examination, it was classified as an unsatisfactory submittal. Also, based on the number of unsatisfactory questions, the written examinations required substantial work by the NRC examiners and additional staff at River Bend Station. Most of the written exam questions either required significant repair or complete re-writes to meet the requirements in NUREG-1021. To meet the required dates of administration, the NRC Region IV Operations Branch Chief took control of the examination process and directed his staff to make all necessary corrections to the written examinations and operating tests so that it would meet the requirements of NUREG-1021. The NRC Region IV examiners completely rewrote 17 of the 25 senior reactor operator questions. The licensee was also asked to get more of their exam writers on the exam security agreement to help with the reactor operator question corrections and re-writes. The chief examiner traveled to River Bend Station prior to the validation week to work with the licensee's staff to complete the corrections to the reactor operator written exam, revalidate the entire written exam with licensed operators, then make all final changes necessary for submittal to the Region IV Operations Branch Chief. This activity took an additional week of on-site time with the chief examiner and three exam writers provided by the licensee. Additionally, each licensee is offered the opportunity to submit ten reactor operator and ten senior reactor operator draft written questions for a "free-review" by the chief examiner per guidance in NUREG-1021 and the frequently asked questions on the NRC's public website. This is encouraged early in the process so that any misconceptions, question challenges, or other discussions can take place and the

resulting corrections/changes are not counted as part of the draft submittal for the unsatisfactory statistics. The licensee submitted a few questions early, but submitted most of the questions for the "free-review" two weeks prior to the draft exam due date, which defeated the purpose of a free review because most of the corrections could not be completed prior to the draft submittal. This further contributed to the number of unsatisfactory questions on the draft written exam submittal.

The operating test required substantial work by the examination team during validation to fix such items as critical tasks on scenarios, appropriate events for the scenarios, two step Job Performance Measures (JPMs), and JPM critical steps. One of the scenarios had too many events for one board station (the Balance-of-Plant Operator position) and there were several events that were not safety-significant and, therefore, were removed from the operating test. Furthermore, the critical task list the station uses for both initial examinations and requalification examinations does not meet the NRC standards in NUREG-1021 for proper bounding conditions. As an example, one critical task in the proposed draft operating test submittal was "restore and maintain RPV water level to greater than -186 inches." This critical task example and a few others in other scenarios did not have a parameter or bounding condition for the critical tasks. This allows the task to be accomplished at any time once -186 inches is met and it should be done before any design bases are exceeded or equipment is damaged, as defined in NUREG-1021. A critical task for this action that meets the standard would be to "restore and maintain RPV water level to greater than -186 inches prior to an emergency depressurization requirement (when reactor vessel pressure level reaches -186 inches)." The licensee wrote Condition Report CR-RBS-2014-06466 to address this issue.

The NUREG-1021 standard for an unsatisfactory operating test submittal requires that 20 percent or more of the operating test elements must be classified as unsatisfactory based on criteria in section ES-501 (page 9), and this criteria applies to the entire operating test. The statistics for the operating test were as follows:

1. Four job performance measures were unsatisfactory (A6, A7, S3, and P3).

2. Several of the critical tasks in the four scenarios were not bounded and therefore were unsatisfactory.

3. There were many events in the four scenarios that had no verifiable actions by control room operators and therefore were unsatisfactory.

4. Most of the events in the scenarios had no details as to what actions were required to be taken other than things like "complete actions of AOP-0032," which is unsatisfactory because all verifiable actions necessary for success in a given procedure are required to be documented in the D-2 form for each scenario.

5. Major alarms and associated alarm response procedures were not documented on the D-2 forms for each event. This is required not only for

initial exam development but also for scenario-based testing of the simulator at River Bend Station.

6. Each scenario must have two technical specification entries to ensure that an applicant can demonstrate proficiency in using the technical specifications.

There were also formatting issues on this submittal and the previous submittal for the March 2014 initial exam at River Bend Station. Because of the March submittal issues, the chief examiner sent copies of good scenario D-1 and D-2 forms from previous exams at two other Entergy facilities to the River Bend staff. These items were sent prior to the draft outline submittal in order to prevent the same content issues that plagued the March 2014 exam submittal from impacting this exam submittal. These items were not used to correct any of the submittals by the River Bend staff for this exam. Based on the numerous changes that did not meet the requirements in NUREG-1021 for the submitted draft scenarios, the 20 percent limit was exceeded based on four unsatisfactory scenarios and four unsatisfactory JPMs. The complete list of items found during the draft operating test review can be found in ADAMS using Accession Number ML15007A110. The licensee wrote Condition Report CR-RBS-2014-06442 to address the generic weaknesses and exam development issues. Also, during the draft examination and post-examination comment resolution reviews, the NRC examiners had to request additional resources to review examination materials that were not provided as part of the reference material submittal as required by Attachment 3 of ES-201 of NUREG-1021. This attachment provides specific guidance on the references required for this submittal and should be a standard submittal each time the licensee submits initial exam materials for review. The licensee also did not submit an index for the procedures as required by the same attachment. The licensee wrote Condition Report CR-RBS-2014-06442 to address these issues.

During exam validation week, the licensed operators and examiners had challenges while trying to validate a JPM (P-3) submitted by the licensee to transfer the 125 VDC standby switchgear ENB-SWG01A to the backup charger. Because the activity could not be completed due to missing procedure steps, the examiners had to remove this JPM from the exam, it was marked as unsatisfactory, and a non-cited violation was incorporated into this report for the inadequate procedure.

The licensee satisfactorily completed comment resolution of all draft materials prior to examination administration. Because of the two most recent initial exam submittals and in order to provide an opportunity for training of the licensee staff, the NRC Region IV Operations Branch Chief communicated to the licensee that the Region IV NRC staff will author the next initial exam at River Bend Station, currently scheduled for September 12, 2016. This will require at least one additional week of on-site time (and therefore more simulator time) to complete the development of scenarios and JPMs for this exam.

.3 Operator Knowledge and Performance

a. Scope

On December 8, 2014, the NRC and licensee proctored the administration of the written examinations to all six applicants. The licensee staff graded the written examinations, analyzed the results, and presented their analysis to the NRC on December 16, 2014.

The NRC examination team administered the various portions of the operating tests to all applicants on December 8-11, 2014.

b. Findings

No findings were identified.

Five of the six applicants passed the written examination and all six applicants passed all parts of the operating test. The final written examinations, the operating test, and post-examination analysis and comments may be accessed in the ADAMS system under the accession numbers noted in Enclosure 2. The licensee requested and received approval by the NRC during the initial facility contact discussions to withhold the written examinations from the public document room for two years after the administration date.

The examination team noted the following generic weaknesses during the operating tests:

1. Several applicants demonstrated a weakness in knowing which switch is the bypass switch for bypassing a control rod for an in-plant JPM.

2. Most of the applicants who were in the reactor operator or at-the-controls position for scenarios were weak performing and communicating turbine status on SCRAM and use of the associated procedure (AOP-2).

3. There were several examples during JPM and scenario administration where applicants failed to follow procedures.

4. Several applicants demonstrated a weakness in locating plant equipment for the in-plant JPM that required venting the SCRAM air header.

5. During scenarios and some JPMs, the crews did not always use the Alarm Response Procedures first to assist with diagnosis.

6. Several applicants demonstrated a weakness in diagnosing condensate valve CDV-200 failure with the given plant conditions and alarms during a scenario.

The licensee will be addressing all generic weaknesses with Condition Report CR-RBS-2014-06442.

Additionally, the licensee submitted three post-examination comments (Q25, Q30, and Q73) that required review and disposition by the chief examiner. The Region IV Operations Branch Chief assigned a panel of examiners that were not part of the examination team effort at River Bend Station to review the three question challenges and provide a response back to him and the chief examiner. The panel reviewed the three questions, recommended deleting question 30, and recommended denying the two proposed changes for question 25 and question 73. The chief examiner and the Region IV Operations Branch Chief agreed with all of the panel recommendations. As a result of the panel recommendations, the question 30 key deletion did not change the outcome of the pass/fail grades on the written examination and, therefore, one out of six applicants failed the written examination. More details are included in Enclosure 2 of this report and the entire licensee's post-examination comments and analysis can be found in ADAMS using Accession Number ML15007A108. Copies of all individual examination reports were sent to the facility training manager for evaluation and determination of appropriate remedial training.

.4 Simulation Facility Performance

a. Scope

The NRC examiners observed simulator performance with regard to plant fidelity during examination validation and administration.

b. Findings

No findings were identified.

.5 Examination Security

a. Scope

The NRC examiners reviewed examination security for examination development during both the on-site preparation week and examination administration week for compliance with 10 CFR 55.49 and NUREG-1021. Plans for simulator security and applicant control were reviewed and discussed with licensee personnel.

b. Findings/Observations

During this examination, there were four near-miss cases involving examination security. These near-miss issues included sequestration for the in-plant JPMs, staff reviewing exam materials prior to signing onto the exam security agreement, use of internet-capable laptops during administrative JPMs, and proper simulator security restrictions during simulator scenario administration. Because all of these issues were identified and stopped by NRC examiners prior to an actual exam security event, they are considered minor violations of the exam security rule. The licensee captured all four of these issues in Condition Reports CR-RBS-2014-06353 and CR-RBS-2014-06442.

4OA6 Meetings, Including Exit

The chief examiner presented the preliminary examination results to Mr. T. Schenk, Operations Manager, and other members of the staff on December 11, 2014. A telephonic exit was conducted on January 8, 2015, between Mr. K. Clayton, Chief Examiner, and Mr. S. Durbin, Superintendent, Operations Training.

The licensee did not identify any information or materials used during the examination as proprietary.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

T. Schenk, Manager, Operations
G. Krause, Assistant Manager, Operations
G. Degraw, Manager, Training (Acting)
S. Carter, Manager, Shift Operations
S. Durbin, Superintendent, Operations Training
D. Yoes, Manager, Nuclear Oversight
D. Bergstrom, Senior Operations Instructor
M. Browning, Senior Operations Instructor
T. Laporte, Senior Staff Operations Instructor
G. Dempsey, Senior Operations Instructor
D. Williamson, Senior Licensing Specialist

NRC Personnel

J. Sowa, Senior Resident Inspector
A. Barrett, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000458/2014302-01	NCV	Inadequate System Operating Procedures with Two Examples (Section 4OA5)

ADAMS DOCUMENTS REFERENCED

Accession No. ML15007A038 - FINAL WRITTEN EXAMS (Delayed Release Dec. 16, 2016)
Accession No. ML15007A105 - FINAL OPERATING TEST
Accession No. ML15007A108 - POST EXAM ANALYSIS (AND COMMENTS)

Enclosure 2: NRC Review of RBS Written Post-Examination Comments

Note: A complete text of the licensee's post-examination analysis and comments can be found in ADAMS under Accession Number ML15007A108.

The NRC Region IV Operations Branch Chief established a panel of three examiners that had no involvement in any part of the exam process for this exam at River Bend Station to prevent the appearance of any bias during the review and conclusions. The NRC resolution section below is a summary of the panel conclusions. The Region IV Operations Branch Chief and the chief examiner accepted all three panel recommendations for the three questions challenged and listed below.

Question 25

A safety relief valve has opened and AOP-0035, SAFETY RELIEF VALVE STUCK OPEN has been entered. Following reduction in reactor power to 89%, the CRS has directed you to place RHR A in suppression pool cooling mode.

Why is suppression pool cooling initiated?

A. to obtain localized suppression pool temperature

B. to minimize heat input to the suppression pool

C. to immediately reject suppression pool level

D. to establish bulk mixing of the suppression pool

Answer:
D. to establish bulk mixing of the suppression pool

Licensee Comments for Question 25:

River Bend recommends that both B & D are acceptable answers. The question and the basis for these answers are as follows:

Establishing suppression pool cooling will have two different effects. First, it will establish bulk mixing of the suppression pool. The other function of suppression pool cooling is obviously to remove heat from the suppression pool.

The Abnormal Operating Procedure for a stuck open safety relief valve directs operation of RHR in the Suppression Pool Cooling mode of operation in in order to accomplish both of the above reasons. It does provide bulk mixing of the water in the suppression pool and it simultaneously removes heat. This reduces the net heat addition to the suppression pool, and it will increase the time until Emergency Operating Procedure/Tech Spec limitations are met.

This very differentiation was questioned by a student during the administration of the written exam. The student that received clarification during the exam got the question correct. This clarification was not given to the rest of the class. Had this been

communicated to the rest of the class, then there would be only one answer. As it is written, we contend that both B and D are correct.

NRC Resolution of Question 25

This question asks why Abnormal Operating Procedure AOP-0035, "Safety Relief Valve Stuck Open", directs the operators to place the Residual Heat Removal (RHR) system in the suppression pool cooling mode of operation with a stuck open Safety Relief Valve (SRV). The licensee argues that distractor 'B', "to minimize the heat input to the suppression pool", is also correct in addition to distractor 'D', "to establish bulk mixing of the suppression pool". The basis of this argument is that a stuck open SRV would cause suppression pool temperatures to rise and suppression pool cooling would minimize the net heat addition to the pool.

The panel reviewed the technical references for this question and determined the immediate concern with a stuck open SRV is localized heating in the suppression pool. This condition could result in localized boiling and even exceeding the Heat Capacity Temperature Limit in that area of the suppression pool. Therefore, the reason for placing RHR in suppression pool cooling with a stuck open SRV is for bulk mixing of the suppression pool, thereby preventing localized heating of the pool. In fact, AOP-0035 explicitly states in step 5.9, "Initiate Suppression Pool Cooling the establish bulk mixing of the Suppression Pool at the direction of the OSM/CRS…". The panel recognizes the suppression pool cooling mode of RHR would also have the side benefit of minimizing the overall heat input to the suppression pool, however, that is not the reason for the procedurally directed initiation of suppression pool cooling.

Therefore, the panel concludes selection "D - to establish bulk mixing of the suppression pool," is the only correct answer for Question 25.

Additionally, the NRC assisted in the administration of the written exam and the answer provided to the applicant by licensee staff as stated in the challenge above to this question did not provide clarification to the question beyond what was already provided in the stem and, therefore, was not communicated to the remainder of the class and would not have affected the outcome of this question's performance. The complete list of questions asked and answers provided is located in ADAMS under the accession number listed at the top of this enclosure.

Question 30

In accordance with SOP-0032, the Low Pressure Core Spray (LPCS) pump should not be run with suction from the suppression pool if level is ___.

A. Less than 10 feet because of NPSH limits

B. Less than 13 feet 3 inches because of NPSH limits

C. Less than 10 feet because of vortexing limits

D. Less than 13 feet 3 inches because of vortexing limits

Answer:
B. Less than 13 feet 3 inches because of NPSH limits

Licensee Comments for Question 30:

River Bend recommends that both B & C are acceptable answers. The basis for [accepting] these [two] answers are as follows:

From SOP-0032 , Precaution and Limitation 2.1: "To assure adequate NPSH, the LPCS Pump should not be run with suction from the Suppression Pool if level is less than 13ft 3 in, except in accordance with the EOPs." EOP Caution #5 states: "Pump NPSH or Vortex limits for RCIC, HPCS, LPCS, or LPCI when taking suction from the SP could be exceeded with SP level below 10 ft or SP temperature above 160 [degrees F] resulting in equipment damage." The EOP basis for Caution #5 states that for NPSH considerations, SP temperature is limiting (160 degrees F). In accordance with the EOP basis for Caution #5, SP level is limiting for vortex considerations. The basis for Caution #5 further explains that the vortex limit for LPCS specifically is 10 ft SP level. The question stem references SOP-0032 to determine if the test taker is familiar with the Precaution and Limitation (P&L) contained therein. However, the applicable P&L from the SOP references the EOP requirements as well. Based on the wording in the question combined with the wording in the applicable SOP (which also references the EOP limitations), we contend that there are two correct answers to this question (answers B and C). Answer A is incorrect because the 10 feet limitation is based on vortexing concerns, not NPSH concerns. Answer D is incorrect because the 13' 3" limitation is based on NPSH concerns, not vortexing.

This differentiation was also questioned by a student during the administration of the written exam. The student that received clarification during the exam got the question correct. The clarification was not given to the rest of the class. The System Operating Procedure refers the Emergency Operating Procedure, making both B and C correct.

NRC Resolution of Question 30

This question asks the applicant the lower suppression pool level limit for operating the Low Pressure Core Spray (LPCS) system in accordance with System Operating Procedure SOP-0032, "Low Pressure Core Sprays." In addition to distractor "B-Less than 13 feet 3 inches because of NPSH limits," the licensee argues distractor "C-Less than 10 feet because of vortexing limits," is also correct. This argument is based on the Emergency Operating Procedure (EOPs) containing a caution for RCIC, HPCS, HPCI, and LPCS that states a suppression pool level of 10 feet, or less, may result in exceeding the vortexing limit for these pumps.

The panel reviewed this question including SOP-0032 and the EOPs. The question asks for the lower suppression pool limit for operating LPCS in accordance with SOP-0032 which implies under normal operating conditions. From this perspective, the normal operating limit as defined by SOP-0032, Precaution and Limitation 2.10, is "To assure adequate NPSH, the LPCS Pump should not be run with suction from the Suppression Pool if level is less than 13ft 3in, except in accordance with the EOPs." Therefore, from a normal operating context, the only correct answer is distractor 'B.' However, Precaution 2.10 also references the limits contained in the EOPs. Caution 5 of EOP-1, "RPV Control", states, "Pump NPSH or Vortex Limits for RCIC, HPCS, LPCS or LPCI

when taking suction from the SP could be exceeded with SP level below 10 ft…" Considering this caution, LPCS should not be operated with suppression pool level less than 10 feet due to concerns with vortexing and/or NPSH. Based on these considerations, distractors "A - Less than 10 feet because of NPSH limits," "B-Less than 13 feet 3 inches because of NPSH limits," and "C - Less than 10 feet because of vortexing limits," could all be argued as being correct.

Therefore, the panel concludes that there are three potentially correct answers and the question should be deleted from the examination.

Additionally, the NRC assisted in the administration of the written exam and the answer provided to the applicant by licensee staff as stated in the challenge above to this question did not provide clarification to the question beyond what was already provided in the stem and, therefore, was not communicated to the remainder of the class and would not have affected the outcome of this question's performance. The complete list of questions asked and answers provided is located in ADAMS under the accession number listed at the top of this enclosure.

Question 73

For which of the following evolutions is the licensed operator in the control room procedurally required to notify Radiation Protection prior to performance?

A. Suppression Pool reject to Radwaste with Residual Heat Removal (RHR)

B. Placing Heater Drain pumps in the PUMP FORWARD mode

C. Startup of Circulating Water Blowdown

D. Reactor Core Isolation Cooling (RCIC) slow roll startup

Answer:
D. Reactor Core Isolation Cooling (RCIC) slow roll startup

Licensee Comments for Question 73:

River Bend recommends that both A & D are acceptable answers. The basis for [accepting] these [two] answers are as follows:

The System Operating Procedure for performing a slow roll of RCIC does state that Radiation Protection should be notified of the impending slow roll of RCIC. However, that is not the only place in which Operators are directed to notify RP of impending activities.

The Operations General Administrative Guidelines procedure (OSP-0022) directs that Radiation Protection be informed of activities that could affect radiological conditions.

When rejecting water from the Suppression Pool to Radwaste using Residual Heat Removal system, this water is transferred from one side of the plant to the other. The evolution could be started from the Main Control Room without any interaction with

Radiation Protection. This water would then cross the plant in areas through which personnel routinely travel.

This matter of ensuring that the operators are aware of activities that impact radiological conditions in the plant is regularly reinforced in simulator training. In fact, when this specific activity takes place in the simulator, Instructors intervene if a crew commences rejecting suppression pool water to Radwaste without notifying Radiation Protection personnel.

Answers B and C are incorrect, as neither of these evolutions would affect radiological conditions in an area normally accessed by station personnel.

NRC Resolution of Question 73

This question lists four operational evolutions and asks the applicant which of the four procedurally requires [emphasis added] the control room to notify Radiation Protection of the evolution. The licensee argues distractor "A - Suppression Pool reject to Radwaste with Residual Heat Removal (RHR)," is correct in addition to distractor "D-Reactor Core Isolation Cooling (RCIC) slow roll startup." This argument is based on guidance contained in procedure OSP-0022, "Operations General Administrative Guidelines," that states in step 3.1.1.2, "They should ensure Radiation Protection is aware of changes to the plant and/or plant systems that could affect Radiological Conditions.

The panel reviewed all the applicable procedures for this question.
Procedure SOP-0035, Reactor Core Isolation Cooling System, clearly states in step 4.3.1, "Notify Radiation Protection prior to running RCIC." making distractor 'D' correct. This notification is due to the RCIC steam lines would affect radiological conditions in the station. A review of Procedure SOP-0031, "Residual Heat Removal", determined it does not contain a similar requirement to notify RP when rejecting suppression pool inventory to radwaste. With regard to the guidance in the Operations General Administrative Guidelines, the panel concluded that under normal operating conditions there would be little concern with inducing a new radiological hazard by moving suppression pool water around the station. While it may be a good practice to notify RP of any upcoming plant evolution, in this particular instance there is no radiological concern with rejecting suppression pool water to radwaste that would warrant RP involvement. Hence, there is no procedural requirement for the control room to notify RP when rejecting suppression pool water to radwaste.

Therefore, the panel concludes selection "D - Reactor Core Isolation Cooling (RCIC) slow roll startup," is the only evolution of those listed that procedurally requires RP be notified.