UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

December 13, 2017

Mr. G. T. Powell
Executive Vice President and CNO
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, TX 77483

SUBJECT: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION, UNIT 1 AND 2 - NRC INITIAL OPERATOR LICENSING EXAMINATION REPORT 05000498/2017301 AND 05000499/2017301

Dear Mr. Powell:

On September 28, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an initial operator license examination at South Texas Project. The enclosed report documents the examination results and licensing decisions. The preliminary examination results were discussed on September 28, 2017, with B. Jefferson, Operations Director, and other members of your staff. A telephonic meeting was conducted on October 16, 2017, with T. Hurley, Operations Training Supervisor, who was provided the NRC licensing decisions. A telephonic exit meeting was conducted on November 14, 2017, with R. Lane, Operations Manager, and other members of your staff.

The examination included the evaluation of one applicant for a reactor operator license, four applicants for instant senior reactor operator licenses, and four applicants for upgrade senior reactor operator licenses. The license examiners determined that all nine applicants satisfied the requirements of 10 CFR Part 55 and the appropriate licenses have been issued. There were no post examination comments submitted by your staff. The enclosure contains details of this report.

Additionally, the NRC identified one finding involving missing control room log entries that was evaluated under the risk significance determination process as having very low safety significance (Green). This finding involves a violation of NRC requirements. 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 76011-4511; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Senior Resident Inspector at the South Texas Project. In addition, if you disagree with the cross-cutting aspect assigned to the findings 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 Senior Resident

Inspector at the South Texas Project.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," 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 Nos. 50-498 and 50-499
License Nos. NPF-76 and NPF-80

Enclosure:
1. Examination Report 05000498/2017301; 05000499/2017301
   w/Attachment:
   Simulator Fidelity Form

cc w/encl: Electronic Distribution

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets:	50-498 and 50-499
Licenses:	NPF-76 and NPF-80
Report:	05000498/2017301; 05000499/2017301
Licensee:	STP Nuclear Operating Company
Facility:	South Texas Project Electric Generating Station, Units 1 and 2
Location:	FM 521 - 8 miles west of Wadsworth Wadsworth, Texas 77483
Dates:	August 14, 2017 - November 14, 2017
Inspectors:	K. Clayton, Chief Examiner, Senior Operations Engineer C. Osterholtz, Senior Operations Engineer M. Hayes, Operations Engineer
Approved By:	Vincent G. Gaddy Chief, Operations Branch Division of Reactor Safety

SUMMARY

ER 05000498/2017301 and 05000499/2017301; 08/14/2017 – 11/14/2017; South Texas Project; Initial Operator Licensing Examination Report.

NRC examiners evaluated the competency of one applicant for a reactor operator license, four applicants for instant senior reactor operator licenses, and four applicants for upgrade senior reactor operator licenses at South Texas Project.

The NRC developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 11. The written examination was administered by the licensee on October 9, 2017. NRC examiners administered the operating tests on September 25-28, 2017. The examiners determined that all nine of the applicants satisfied the requirements of 10 CFR Part 55 and the appropriate licenses have been issued.

One finding of very low safety significance (Green) was also documented in this report. This finding involves a violation of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, “Significance Determination Process.” Their cross-cutting aspects are determined using NRC Inspection Manual Chapter 0310, “Aspects within the Cross-Cutting Areas.” Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC’s program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process.”

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Barrier Integrity

Green. The team identified a non-cited violation of Technical Specification 6.8.1.a, due to the licensee’s failure to maintain the procedure for reactivity manipulation entries for the main control room logs. The “Conduct of Operations” Procedure, Revision 71, is missing guidance on logging reactivity control events, which led to missing entries in the main control room logs for reactivity events. Specifically, control room log entries were missing reactivity events such as dilutions, rod movements, and power changes that occurred on September 26 - 30, 2016, October 8, 2016, January 30-31, 2017, and February 8-9, 2017. The licensee is correcting the procedure issue and is currently evaluating the scope of the missing log entries. This issue was entered into the licensee’s corrective action program as Condition Report CR-2017-13155.

The failure of the licensee to maintain the procedure for logging the manipulation and status of plant equipment responsible for reactivity control in an official NRC record (main control room logs) was a performance deficiency. The performance deficiency is more than minor because it was associated with the configuration control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, failure to record the required data in the control room logs could adversely affect the operating crew’s ability to manage reactivity

control, power changes, mode changes, and equipment lineup changes. Shift logs are also material to the NRC, as the logs are used to provide information in the determination of operability, event chronologies, root and contributing causes, corrective actions for post-transient safety reviews, and investigations by the licensee and the NRC. 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 maintain complete, accurate, and up-to-date documentation (main control room logs) [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

Introduction. The team identified a finding of very low safety significance (Green) involving a non-cited violation of Technical Specification 6.8.1.a, due to the licensee's failure to have an adequate procedure for reactivity manipulation entries for the main control room logs. Specifically, control room log entries were missing reactivity events such as dilutions, rod movements, and power changes that occurred on September 26 - 30, 2016, on October 8, 2016, January 30-31, 2017, and February 8-9, 2017.

Description. During the draft application review process on August 17, 2017, the exam team asked for the control room logs to verify the reactivity credits for two applicants (a random sample of 10% of the qualification cards is required in order to verify that the credits were done and that they are valid credits for the initial applications). These credits were listed in their qualification cards and on the draft Form 398 applications submitted to the NRC. For each of these examples, there were no entries in the main control room logs for these events. The NRC Regional Operations branch chief informed NRR Initial Operator Licensing Branch of this issue and continued the discussion with the licensee. The licensee was using "Conduct of Operations" procedure, revision 71, at the time of these reactivity events. This procedure did not have adequate guidance for main control room log entries and their importance. The licensee reviewed the logs and agreed that these items were missing but assured the NRC that these credits took place. The licensee documented on the final applications that the corresponding on-shift Control Room Supervisor witnessed the credits for each applicant as a means to verify that it actually occurred as documented in the qualification cards. On a phone call on November 14, 2017 with the chief examiner, the licensee agreed that the "Conduct of Operations" procedure was not adequate for ensuring that the control room log entries were made.

Analysis. The failure of the licensee to maintain the "Conduct of Operations" procedure for logging the manipulation and status of plant equipment responsible for reactivity control in an official NRC record (main control room logs) was a performance deficiency. The performance deficiency is more than minor because it was associated with the

configuration control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, failure to record the required data in the control room logs could adversely affect the operating crew's ability to manage reactivity control, power changes, mode changes, and equipment lineup changes. Shift logs are also material to the NRC, as the logs are used to provide information in the determination of operability, event chronologies, root and contributing causes, corrective actions for post-transient safety reviews, and investigations by the licensee and the NRC. 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 maintain complete, accurate, and up-to-date documentation (main control room logs) [H.7].

Enforcement. Technical Specification 6.8.1.a, requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Section 1.h of Appendix A of Regulatory Guide 1.33, Revision 2, requires procedures for log entries. Furthermore, 10 CFR Part 50, Appendix B, Criterion 17 "Quality Assurance Records" states that "Sufficient records shall be maintained to furnish evidence of activities affecting quality. These records shall include at least the following: Operating logs…."

Contrary to the above, on September 26 - 30, 2016, October 8, 2016, January 30-31, 2017, and February 8-9, 2017, the "Conduct of Operations" procedure, which contains the guidance for the main control room logs, was not maintained to furnish evidence of activities affecting quality. The main control room logs were missing reactivity events that were used as reactivity credits on at least two of the initial applications for the 2017 licensed operator class. The licensee failed to maintain adequate procedure guidance for log entries in the main control room for quality equipment, including reactivity control equipment. As a result, the NRC had to get signed statements on the applications from the Control Room Supervisors on watch for each of the credits for each of the applicants to validate that the reactivity events were completed by the applicant on the date indicated on the applications. The licensee had already made some corrections to the Conduct of Operations procedure after these events occurred and will continue to make improvements through its corrective action process.

Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR-2017-61299, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy. (NCV 05000498;05000499/2017301-01, "Failure to Maintain the Plant Procedure for Control Room Logs.")

.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 onsite validation of the operating tests.

b. Findings

No findings were identified.

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 that the written examinations and operating tests initially submitted by the licensee were within the range of acceptability expected for a proposed examination.

.3 Operator Knowledge and Performance

a. Scope

On October 9, 2017, the licensee proctored the administration of the written examinations to all nine applicants. The licensee staff graded the written examinations, analyzed the results, and presented their analysis to the NRC on October 11, 2016.

The NRC examination team administered the various portions of the operating tests to all nine applicants the week of September 25, 2017.

b. Findings

No findings were identified.

All applicants passed the written examination and all parts of the operating test. The final written examinations and post-examination analysis and comments may be accessed in the ADAMS system under the accession numbers noted in the attachment.

The examination team noted one generic weakness associated with applicant performance on the operating tests:

1. Scenario 2 had an event that included Low-Low Steam generator water levels and 3 out of 4 crews had trouble getting the cross-connect valves for AFW flow open because they forgot that they could reset/override the low-low condition and open them from the control room. They completed the critical tasks by having a local operator open the valves, but this takes longer and is not necessary. The licensee wrote Condition Report CR-2017-21564 to address this issue.

The licensee identified five generic weaknesses associated with applicant performance on the written examinations:

1. Main generator hydrogen – 5/9 missed Question 17 due to knowledge weaknesses for this topic

2. ESF diesel generator governor control – 5/9 missed Question 24 due to knowledge weaknesses for this topic

3. Component cooling water temperature controls - 6/9 missed Question 32 due to knowledge weaknesses for this topic

4. Fuel handling accidents - 5/9 missed Question 53 due to knowledge weaknesses for this topic

5. Offsite power technical Specifications – 7/8 missed Question 93 due to knowledge weaknesses for this topic

Copies of all individual examination reports were sent to the facility training manager for evaluation and determination of appropriate remedial training prior to going on shift. The licensee wrote Condition Report CR-2017-23377 to address the written examination generic weaknesses.

.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.

c. Other Observations

Although there were no simulator fidelity violations, there was an issue with exam administration that was tied to simulator performance and led to a simulator job performance measure (JPM) being removed from the operating test during the administration week. During administration of this JPM, the emergency diesel generator was being paralleled with offsite power and it reverse power tripped on several of the

applicants unexpectedly. The licensee admitted that the JPM was not administered correctly from the booth for the ENGINE START MODE switch (which is a local switch at the diesel generator in the plant) and considered it an anomaly that the EDG reverse powered. The chief examiner called the regional branch chief and a decision was made to replace the JPM to ensure that all of the applicants received a JPM that was administered the same way each time. The licensee wrote Condition Report CR-2017-21561 to address the administration issues and Simulator Discrepancy Report DR-17-2950 to address any potential simulator modeling issues.

.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

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

The preliminary examination results were discussed on September 28, 2017, with B. Jefferson, Operations Director, and other members of your staff. A telephonic meeting was conducted on October 16, 2017, with Mr. T. Hurley, Operations Training Supervisor, who was provided the NRC licensing decisions. A telephonic exit meeting was conducted on November 14, 2017, with R. Lane, Operations Manager, and other members of your staff.

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

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Jefferson, Operations Director
R. Lane, Operations Manager
G. Janak, Operations Training Manager
A. Culver, Operations Training Supervisor
T. Hurley, Regulatory Exam Supervisor
W. Brost, Licensing Engineer
M. Ripple, Regulatory Exam Author
S. Mason, Regulatory Exam Author

NRC Personnel

A. Sanchez, Senior Resident Inspector
N. Hernandez, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000498;05000499 2017301-01	NCV	Failure to Maintain the Plant Procedure for Control Room Logs (Section 4OA5)

ADAMS DOCUMENTS REFERENCED

Accession No. ML17319A653- FINAL WRITTEN EXAMS (Do not release until 10/09/2019)
Accession No. ML17319A652 - FINAL OPERATING TEST (Do not release until 10/09/2019)
Accession No. ML17319A654 - POST EXAM ANALYSIS (Do not release until 10/09/2019)

ES-501 **Simulator Fidelity Report**

Facility Licensee: South Texas
Facility Docket No.: 50-498 and 50-499
Op.Test Administered on: 09/25/2017

While conducting the simulator portion of the operating tests, examiners observed the following item:

Item	Description
Sim JPM S-4: "Transfer 4.16KV bus from Emergency Diesel Generator (EDG) to offsite supply" The EDG reverse power tripped when in parallel with offsite power WITHOUT the ENGINE START MODE switch in "IDLE"	During administration of the JPM, the booth operator failed to put the switch in the IDLE position for the first several applicants and the EDG tripped on reverse power. There were no trips during validation week (the switch was properly placed in IDLE during validation week). After this was recognized, the booth operator started putting the switch in IDLE and the JPM was completed successfully for the remaining four applicants. The licensee wrote Simulator Discrepancy Report DR 17-2950 and Condition Report CR-2017-21561 to address this issue.

Attachment

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION, UNIT 1 AND 2 - NRC INITIAL OPERATOR LICENSING EXAMINATION REPORT 05000498/2017301
AND 05000499/2017301 DATED DECEMBER 13, 2017

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ADAMS ACCESSION NUMBER: ML17347A421

☒ SUNSI Review By: VGG		ADAMS ☒ Yes ☐ No	☒ Publicly Available ☐ Non-Publicly Available		☒ Non-Sensitive ☐ Sensitive		Keyword: RGN-002
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