



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005

December 29, 2006

Kevin T. Walsh, Vice President  
of Operations  
Waterford 3  
Entergy Operations, Inc.  
17265 River Road  
Killona, LA 70057-3093

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3, EXAMINATION  
REPORT 05000382/2006301

Dear Mr. Walsh:

On November 17, 2006, the US Nuclear Regulatory Commission (NRC) completed an examination at Waterford Steam Electric Station, Unit 3. The enclosed report documents the examination findings, which were discussed on November 16, 2006, with you and other members of your staff.

The examination included the evaluation of five applicants for reactor operator licenses and four applicants for senior operator licenses. The written and operating examinations were developed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9. The license examiners determined that six of the nine applicants satisfied the requirements of 10 CFR Part 55. Licenses have been issued to five of the six applicants. Due to a low passing grade for one applicant, the license is being withheld for this applicant for a period of 20 days as required by ES-501, paragraph E.2, of NUREG 1021. No findings of significance were identified during this examination.

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 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/

Rebecca Nease, Chief  
Operations Branch  
Division of Reactor Safety

Entergy Operations, Inc.

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Docket: 50-382  
License: NPF-38

Enclosure:  
NRC Examination Report 05000382/2006301  
w/Attachment: Supplemental Information

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**EXAMINATION REPORT  
U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

Docket: 50-382  
License: NPF-38  
Report : 05000382/2006301  
Licensee: Entergy Operations, Inc.  
Facility: Waterford Steam Electric Station, Unit 3  
Location: Hwy 18  
Killona, LA  
Dates: November 13-17, 2006  
Inspectors: T.F. Stetka, Chief Examiner, Operations Branch  
M.E. Murphy, Senior Operations Engineer  
R. Lantz, Senior Emergency Preparedness Inspector  
Approved By: Rebecca Nease, Chief  
Operations Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

ER 05000382/2006301; 11/13-17/2006; Waterford Steam Electric Station, Unit 3; Initial Operator Licensing Examination Report.

NRC examiners evaluated the competency of five applicants for reactor operator licenses and four applicants for senior reactor operator licenses at Waterford Steam Electric Station, Unit 3. The facility licensee developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9. The written examination was administered by the facility on November 17, 2006. NRC examiners administered the operating tests on November 13-16, 2006. The license examiners determined that six of the nine applicants satisfied the requirements of 10 CFR Part 55. Licenses have been issued to five of the six applicants. Due to a low passing grade for one applicant, the license is being withheld for this applicant for a period of 20 days as required by ES-501, paragraph E.2, of NUREG 1021.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

## REPORT DETAILS

### 4. OTHER ACTIVITIES (OA)

#### 4OA5 Other Activities (Initial Operator License Examination)

##### .1 License Applications

###### a. Scope

The examiners reviewed all nine license applications submitted by the licensee to ensure the applications reflected that each applicant satisfied relevant license eligibility requirements. The applications were submitted on NRC Form 398, "Personal Qualification Statement," and NRC Form 396, "Certification of Medical Examination by Facility Licensee." The 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 of significance were identified.

##### .2 Operator Knowledge and Performance

###### a. Examination Scope

On November 17, 2006, 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 November 27, 2006.

The NRC examination team administered the various portions of the operating examination to all nine applicants on November 13-16, 2006. The five applicants for reactor operator licenses participated in two dynamic simulator scenarios, in a control room and facilities walkthrough test consisting of 11 system tasks, and an administrative test consisting of 4 administrative tasks. The four applicants for upgrade senior operator licenses participated in two dynamic simulator scenarios, a control room and facilities walkthrough test consisting of 5 system tasks, and an administrative test consisting of 5 administrative tasks.

###### b. Findings

All nine of the applicants passed all parts of the operating test. Three reactor operator applicants failed the written examination. For the written examinations, the reactor operator applicants' average score was 80.2 percent and ranged from 77 to 89 percent, the senior operator applicants' average score was 90 percent and ranged from 86 to 95 percent. The overall written examination average was 85.1 percent. The text of the examination questions, the licensee's examination analysis, and the licensee's post-

examination comments may be accessed in the ADAMS system under the accession numbers noted in the attachment.

Chapter ES-403 and Form ES-403-1 of NUREG 1021 require the licensee to analyze the validity of any written examination questions that were missed by half or more of the applicants. The licensee conducted this performance analysis for 14 questions that met this criteria and submitted the analysis to the chief examiner on November 27, 2006. From this analysis, the licensee concluded that 9 of these questions were valid and that no changes to the questions were required. For the remaining 5 questions (Examination Questions 2, 3, 5, 17, and 64), the licensee recommended to the NRC that Questions 2, 3, 17, and 64 be deleted and that more than one answer be accepted as correct for Question 5.

The licensee's recommendations and the NRC responses follow:

#### Reactor/Senior Operator Question 2

The licensee recommended deleting this question because they considered the required knowledge to be too detailed. The licensee felt that this condition combined with the infrequent use of the procedure makes the question too difficult to be performed from memory. This question involved a decision as to whether a shutdown margin is procedurally required during a plant cool down.

**NRC Response:** The NRC does not agree with the licensee's recommendation to delete this question. Following review of this question, the NRC has determined that Distractor B, is an incorrect answer and that the only correct answer is Distractor A because under the given conditions, a shutdown margin determination is procedurally required whenever there is the potential for a positive reactivity excursion to occur. In fact, the NRC noted that Procedure OP-902-002, Loss of Coolant Accident, required the performance of a shutdown margin later in the procedure. Furthermore, the NRC notes that Answer A is consistent with the Knowledge and Abilities (K/A) Item 2.2.34 from NUREG-1122, Revision 2, (Knowledge and Abilities Catalog for Nuclear Power Plants Operators). This K/A requires that an operator be knowledgeable of the process (e.g., a shutdown margin calculation) used to determine the internal and external effects of events on core reactivity. Therefore, the NRC has concluded that this question will remain on the examination with Answer A as the only correct answer.

#### Reactor/Senior Operator Question 3

The licensee recommended deleting this question because the question was tested at the memorization level that was not required by the learning objective. The licensee also stated that since no reference was provided to the applicant, the applicant would be required to memorize Technical Specification 3.6.1.5.

**NRC Response:** The NRC does not agree with the licensee's recommendation to delete this question. The NRC notes that even though the question was not a learning objective, the question is consistent with K/A Item 4.1- EK3.16, which requires the applicants to have a knowledge of the bases for the containment temperature limit as it

applies to a small break loss-of-coolant accident. The Basis for Technical Specification 3.6.1.5 explicitly describes the power based temperature limit in containment. Therefore, the NRC has concluded that this question will remain on the examination. The NRC also noted that the question was technically correct as given and that the keyed answer was the only correct answer.

#### Reactor/Senior Operator Question 5

The licensee recommended accepting two correct answers for this question because a recent procedure change to Off-Normal Procedure OP-901-130, "Reactor Coolant Pump Malfunction," resulted in two correct answers - C, the original answer and, because of the procedure change, Answer D.

**NRC Response:** The NRC does not agree with the licensee's recommendation to accept two correct answers for Question 5. The question requires the applicant to select the ". . . ONE action required by OP-901-130. . ." Due to this requirement, the NRC concludes that any of the distractors could be selected, and, as a result, there is no correct answer. Because there is no correct answer, NUREG 1021, Section ES-403, Paragraph D.1.b, requires that the question be deleted. Furthermore, the NRC decided that the validity of the question was potentially compromised due to the recent procedure change and a strong potential that the answer had been recently reviewed in operations training. Based on these reasons, the NRC is deleting Question 5.

#### Reactor/Senior Operator Question 17

The licensee recommended deleting this question because they considered the required knowledge to be too detailed. The licensee felt that this condition combined with the infrequent use of the procedure makes the question too difficult to be performed from memory. The licensee also stated that their learning objective required the interpretation of procedural steps and not memorization of these steps.

**NRC Response:** The NRC does not agree with the licensee's recommendation to delete this question. While we do agree that the operators do not need to know all of the loads on the buses, they need to know the major loads. This position is consistent with K/A Item 4.2-AA1.03, which requires that the operators have the ability to monitor the vital and battery bus components as they apply to a loss of dc power. To meet this requirement, the operators must have knowledge of the major bus loads. Therefore, the NRC has concluded that this question will remain on the examination. The NRC also noted that the question was technically correct as given and that the keyed answer was the only correct answer.

#### Reactor/Senior Operator Question 64

The licensee recommended deleting this question because the question was tested at the memorization level that was not required by the learning objective. The licensee also stated that since no reference was provided to the applicant, the applicant would be required to memorize Technical Specification 3.11.2.5.

**NRC Response:** The NRC does not agree with the licensee's recommendation to delete this question. The NRC notes that even though the question was not a learning objective, the question is consistent with K/A Item 3.9-K5.04, which requires the operators to know the operational implications involved with hydrogen/oxygen flammability concentrations in the waste gas disposal system. Therefore, the NRC has concluded that this question will remain on the examination. The NRC also noted that the question was technically correct as given and that the keyed answer was the only correct answer.

Examination Standard ES-501, paragraph C.2.c, states that if the licensee recommends deleting or changing the answers to four or more of the questions on the reactor operator written examination, the licensee should explain why so many post-examination changes were necessary and what action would be taken to improve future examinations. To evaluate this condition and to identify necessary corrective actions, the licensee has written Condition Report WF3-2006-3510.

.3 Initial Licensing Examination Development

a. Examination Scope

The licensee developed the examinations in accordance with NUREG-1021, Revision 9. All licensee facility training and operations staff involved in examination preparation and validation were on a security agreement. The facility licensee submitted both the written and operating examination outlines on August 15, 2006. The chief examiner reviewed the outlines against the requirements of NUREG-1021, Revision 9, and provided comments to the licensee. The facility licensee submitted the draft examination package on September 11, 2006. The chief examiner reviewed the draft examination package against the requirements of NUREG-1021, Revision 9, and provided comments to the licensee on the examination on October 6, 2006. The NRC conducted an onsite validation of the operating examinations and provided further comments during the week of October 16, 2006. The licensee satisfactorily completed comment resolution on November 6, 2006.

b. Findings

The NRC approved the initial examination outline and advised the licensee to proceed with the operating examination development.

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

No findings of significance were identified.

.4 Simulation Facility Performance

a. Examination Scope

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

b. Findings

No findings of significance were identified.

.5 Examination Security

a. Examination Scope

The examiners reviewed examination security for examination development and during both the onsite validation week and examination administration week for compliance with NUREG-1021 requirements. Plans for simulator security and applicant control were reviewed and discussed with licensee personnel.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

The chief examiner presented the examination results to Messrs. K. Walsh, Site Vice President; K. Cook, General Manager, Plant Operations; and R. Fletcher, Training Manager, and other members of the licensee's management staff on November 16, 2006. The licensee acknowledged the findings presented.

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

Attachment: Supplemental Information

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

R. Fletcher, Training Manager  
A. Hall, Operations Training Supervisor  
K. Kirkpatrick, Operations Training Instructor  
K. Vines, Operations Training Instructor  
R. Dodds, Operations Manager

### **ADAMS DOCUMENTS REFERENCED**

Accession No. ML063530162 - Written examination for reactor operators  
Accession No. ML063530166 - Written examination for senior reactor operators  
Accession No. ML063530149 - Licensee post-examination comments/analysis