

Mr. J. A. Stall
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P.O. Box 14000
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September 24, 2008

SUBJECT: ST. LUCIE NUCLEAR PLANT, UNITS 1 AND 2 – GENERIC LETTER 2008-01,
“MANAGING GAS ACCUMULATION IN EMERGENCY CORE COOLING,
DECAY HEAT REMOVAL, AND CONTAINMENT SPRAY SYSTEMS,”
PROPOSED ALTERNATIVE COURSE OF ACTION (TAC NOS. MD7872 AND
MD7873)

Dear Mr. Stall:

On January 11, 2008, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems” (Agencywide Documents Access and Management System Accession No. ML072910759). The GL requested licensees to submit information to demonstrate that the emergency core cooling, decay heat removal, and containment spray systems (hereinafter referred to as the “subject systems”) are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance.

In accordance with Section 50.54(f) of Title 10 of the *Code of Federal Regulations*, GL 2008-01 required that each licensee submit the requested information within 9 months (hereinafter referred to as the “9-month submittal”) of the date of the GL. The GL also stated that if a licensee cannot meet the requested 9-month response date, the licensee is required to provide a response within 3 months (hereinafter referred to as the “3-month submittal”) of the date of the GL, describing the alternative course of action it proposes to take, including the basis for the acceptability of the proposed alternative course of action.

By letter dated May 12, 2008, Florida Power and Light Company (FPL), the licensee, submitted a 3-month response to GL 2008-01 for St. Lucie, Units 1 and 2. The NRC staff’s assessment of the licensee’s responses is enclosed.

The NRC staff reviewed the licensee’s proposed alternative course of action and the associated basis for acceptance. For St. Lucie, Unit 1, the NRC staff noted the licensee committed to completing the detailed walkdowns of readily accessible and inaccessible GL piping sections during the fall 2008 refueling outage. The licensee did not provide a reason or basis for the acceptability for why it cannot meet the requested 9-month response date for the detailed walkdowns of GL piping sections at Unit 1 that are readily accessible while at power. The NRC staff requests that the licensee submit a 3-month supplemental response to revise its proposed alternative course of action for St. Lucie, Unit 1, related to its 9-month initial response and its 9-month supplemental (post-outage) response as described in Enclosure 1.

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The NRC staff concluded that for St. Lucie, Unit 2, with the exception of the clarifications and associated requests discussed in Enclosure 2, the licensee's proposed alternative course of action is acceptable. This letter allows the licensee to implement its proposed alternative course of action, provided that, implementation is consistent with the clarifications and associated requests discussed in Enclosure 2.

If you have any questions regarding this letter, please feel free to contact Brenda Mozafari at (301) 415-2020.

Sincerely,

/RA/

Thomas H. Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos.: 50-335 and 50-389

Enclosures:

1. Assessment for St. Lucie Unit 1
2. Assessment for St. Lucie Unit 2

cc w/encls: See next page

J. Stall

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The NRC staff concluded that for St. Lucie, Unit 2, with the exception of the clarifications and associated requests discussed in Enclosure 2, the licensee's proposed alternative course of action is acceptable. This letter allows the licensee to implement its proposed alternative course of action, provided that, implementation is consistent with the clarifications and associated requests discussed in Enclosure 2.

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Thomas H. Boyce, Chief
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cc w/encls: See next page

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Florida Power & Light Company

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NRC STAFF ASSESSMENT OF 3-MONTH RESPONSE

TO GENERIC LETTER 2008-01

ST. LUCIE NUCLEAR PLANT, UNIT NO. 1

DOCKET NO. 50-335

1.0 Background

On January 11, 2008, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" (Agencywide Documents Access and Management System Accession No. ML072910759). The GL requested licensees to submit information to demonstrate that the emergency core cooling, decay heat removal, and containment spray systems (hereinafter referred to as the "subject systems") are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance. Specifically, the GL requested licensees to provide: (1) a description of the results of evaluations that were performed in response to the GL, (2) a description of all corrective actions that the licensee determined were necessary, and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

In accordance with Section 50.54(f) of Title 10 of the *Code of Federal Regulations*, GL 2008-01 required that each licensee submit the requested information within 9 months (hereinafter referred to as the "9-month submittal") of the date of the GL. The GL also stated that if a licensee cannot meet the requested 9-month response date, the licensee is required to provide a response within 3 months (hereinafter referred to as the "3-month submittal") of the date of the GL, describing the alternative course of action it proposes to take, including the basis for the acceptability of the proposed alternative course of action.

2.0 Licensee's Proposed Alternative Course of Action

By letter dated May 12, 2008, Florida Power & Light Company (FPL), the licensee, submitted a 3-month response to GL 2008-01 for St. Lucie, Units 1 and 2. The licensee stated they cannot meet the requested 9-month schedule for submitting the requested information. Portions of the subject GL piping systems are inaccessible during power operation due to radiation environments, some are insulated, and some may require the erection of scaffolding to obtain adequate access for the requested detailed inspections and walkdowns. In addition, some piping sections are in close proximity to another system's piping or electrical distribution cabinets that would constitute a personnel safety hazard during power plant operation.

St. Lucie expects to complete a significant amount of the requested actions, in particular those involving reviews of plant design, licensing basis documentation, and system operating and testing procedures. The review of licensing and design basis will also consider past gas accumulation events documented in the corrective action system. The results of these evaluations will be provided in an initial response to GL 2008-01 by October 11, 2008. The design evaluations requested by the GL also require physical walkdowns of the subject GL

systems. The licensee stated it would complete the detailed walkdowns of readily accessible GL piping sections at Unit 1 during the fall 2008 outage.

The licensee's letter dated May 12, 2008, listed the following commitments:

- FPL will provide an initial GL 2008-01 submittal by October 11, 2008, that includes the evaluation results for the completed licensing and design basis reviews, the operating and test procedure reviews, and the Unit 2 readily accessible GL piping section walkdowns and design reviews as well as the schedule for any corrective actions that may be required based on these evaluations.
- FPL will provide a complete Unit 1 GL 2008-01 submittal 90 days after the end of the fall 2008 refueling outage. This submittal will complete the design evaluation review as well as provide the schedule and basis for any corrective actions that may be required based on the detailed readily accessible and inaccessible GL piping section walkdowns performed.
- FPL will provide a complete Unit 2 GL 2008-01 submittal 90 days after the end of the spring 2009 refueling outage. This submittal will complete the design evaluation review as well as provide the schedule and basis for any corrective actions that may be required based on the detailed inaccessible GL piping section walkdowns performed during the outage.

3.0 NRC Staff Assessment

The NRC staff reviewed the licensee's proposed alternative course of action and the associated basis for acceptance. For St. Lucie, Unit 1, the NRC staff noted the licensee committed to completing the detailed walkdowns of readily accessible and inaccessible GL piping sections during the fall 2008 refueling outage. The licensee did not discuss the reason or basis for the acceptability for why it cannot meet the requested 9-month response date for the detailed walkdowns of GL piping sections at Unit 1 that are readily accessible while at power. The NRC staff requests that the licensee submit a 3-month supplemental response for St. Lucie, Unit 1, to revise its proposed alternative course of action related to its 9-month initial and supplemental response.

The NRC staff requests the licensee to submit the information requested in GL 2008-01 as follows:

1. Nine-Month Initial Submittal - For the portions of the subject systems that are accessible prior to the St. Lucie, Unit 1, fall 2008 refueling outage, provide all GL requested information to the NRC by October 11, 2008.
2. Nine-Month Supplemental (Post-Outage) Submittal - Except for the long-term items described below, provide all remaining GL requested information for the subject systems to the NRC within 90 days after the end of the fall 2008 refueling outage at St. Lucie, Unit 1.

For each of these two submittals (the 9-month initial and supplemental submittals), and consistent with the information requested in the GL, the licensees should provide: (1) a description of the results of evaluations that were performed in response to the GL; (2) a description of all corrective actions that the licensee determined were necessary; and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

The NRC staff noted that the licensee's submittal dated May 12, 2008, did not mention other potential long-term actions that are identified in the GL. For instance, the industry is assessing whether it is necessary to perform pump testing to determine the allowable limits on ingested gas volume in pump suctions, as well as the need to develop an analysis capability to adequately predict void movement (entrapped gas) from piping on the suction side of the pumps into the pumps. It is unlikely this industry effort will be complete for the 9-month initial or supplemental submittals. Further, technical specification changes may be necessary to reflect the improved understanding achieved during response to the GL, but these cannot be fully developed for the 9-month initial or supplemental submittals. A Technical Specifications Task Force traveler may provide a generic example that can be adopted by licensees. The NRC staff requests that the licensee address in its 9-month submittal how it plans to track such long-term actions (e.g., Corrective Action Program and/or commitment tracking). The NRC plans to perform follow up inspections of licensee responses to GL 2008-01 at all plants using a Temporary Instruction inspection procedure.

NRC STAFF ASSESSMENT OF 3-MONTH RESPONSE

TO GENERIC LETTER 2008-01

ST. LUCIE NUCLEAR PLANT, UNIT NO. 2

DOCKET NO. 50-389

10. Background

On January 11, 2008, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" (Agencywide Documents Access and Management System Accession No. ML072910759). The GL requested licensees to submit information to demonstrate that the emergency core cooling, decay heat removal, and containment spray systems (hereinafter referred to as the "subject systems") are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance. Specifically, the GL requested licensees to provide: (1) a description of the results of evaluations that were performed in response to the GL, (2) a description of all corrective actions that the licensee determined were necessary, and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

In accordance with Section 50.54(f) of Title 10 of the *Code of Federal Regulations*, GL 2008-01 required that each licensee submit the requested information within 9 months (hereinafter referred to as the "9-month submittal") of the date of the GL. The GL also stated that if a licensee cannot meet the requested 9-month response date, the licensee is required to provide a response within 3 months (hereinafter referred to as the "3-month submittal") of the date of the GL, describing the alternative course of action it proposes to take, including the basis for the acceptability of the proposed alternative course of action.

2.0 Licensee's Proposed Alternative Course of Action

By letter dated May 12, 2008, Florida Power & Light Company (FPL), the licensee, submitted a 3-month response to GL 2008-01 for St. Lucie, Units 1 and 2. The licensee stated they cannot meet the requested 9-month schedule for submitting the requested information. Portions of the subject GL piping systems are inaccessible during power operation due to radiation environments, some are insulated, and some may require the erection of scaffolding to obtain adequate access for the requested detailed inspections and walkdowns. In addition, some piping sections are in close proximity to another system's piping or electrical distribution cabinets that would constitute a personnel safety hazard during power plant operation.

St. Lucie expects to complete a significant amount of the requested actions, in particular those involving reviews of plant design, licensing basis documentation, and system operating and testing procedures. The review of licensing and design basis will also consider past gas accumulation events documented in the corrective action system. The results of these evaluations will be provided in an initial response to GL 2008-01 by October 11, 2008. The design evaluations requested by the GL also require physical walkdowns of the subject GL

systems and that the October 11, 2008, initial GL 2008-01 response will also include the evaluation for the Unit 2 accessible piping design.

The licensee's letter dated May 12, 2008, listed the following commitments:

- FPL will provide an initial GL 2008-01 submittal by October 11, 2008, that includes the evaluation results for the completed licensing and design basis reviews, the operating and test procedure reviews, and the Unit 2 readily accessible GL piping section walkdowns and design reviews as well as the schedule for any corrective actions that may be required based on these evaluations.
- FPL will provide a complete Unit 1 GL 2008-01 submittal 90 days after the end of the fall 2008 refueling outage. This submittal will complete the design evaluation review as well as provide the schedule and basis for any corrective actions that may be required based on the detailed readily accessible and inaccessible GL piping section walkdowns performed.
- FPL will provide a complete Unit 2 GL 2008-01 submittal 90 days after the end of the spring 2009 refueling outage. This submittal will complete the design evaluation review as well as provide the schedule and basis for any corrective actions that may be required based on the detailed inaccessible GL piping section walkdowns performed during the outage.

The licensee stated that delaying the completion of the inaccessible GL piping section walkdowns is acceptable for the following reasons. Inaccessible GL piping sections constitute only a portion of the overall scope of the GL. As the suction piping for the emergency core cooling and containment spray systems is considered accessible, the inaccessible portions are limited to the pump discharge piping sections (particularly those within containment) and portions of the shutdown cooling system (particularly those within containment). These systems are routinely tested in accordance with Technical Specification and In-service Testing programs. Full flow is achieved within the delays assumed by the accident analyses, and obvious equipment issues associated with accumulated gas voiding (insufficient pump head or flow, etc.) have not been noted during these tests. These online tests and routine evolutions during plant shutdowns (decay heat removal) and refuel outages (shutdown cooling system injection to the vessel for refuel cavity flood-up) cover most of the design basis alignments of these systems for the discharge piping and consistently demonstrate their operability. St. Lucie routinely vents these lines to ensure pump operability with respect to void formation and gas binding. Therefore, there is reasonable assurance that the inaccessible portions of the systems are free from significant gas accumulations.

3.0 NRC Staff Assessment

The NRC staff finds that, with the exception of the clarifications and associated requests discussed below, that the licensee's proposed alternative course of action is acceptable based on the above-described operating experience, testing, procedures and corrective actions associated with managing gas accumulation at St. Lucie, Unit 2.

The NRC staff notes examples where the licensee's 3-month submittal dated May 12, 2008, does not clearly describe the content and/or schedule for the 9-month submittals for St. Lucie,

Unit 2. The NRC staff requests the licensee to submit the information requested in GL 2008-01 as follows:

1. 9-Month Initial Submittal - For the portions of the subject systems that are accessible prior to the St. Lucie, Unit 2, spring 2009 refueling outage, provide all GL requested information to the NRC by October 11, 2008.
2. 9-Month Supplemental (Post-Outage) Submittal - Except for the long-term items described below, provide all remaining GL requested information for the subject systems to the NRC within 90 days after the end of the spring 2009 refueling outage at St. Lucie, Unit 2.

For each of these two submittals (the 9-month initial and supplemental submittals), and consistent with the information requested in the GL, the licensees should provide: (1) a description of the results of evaluations that were performed in response to the GL; (2) a description of all corrective actions that the licensee determined were necessary; and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

The NRC staff noted that the licensee's submittal dated May 12, 2008, did not mention other potential long-term actions that are identified in the GL. For instance, the industry is assessing whether it is necessary to perform pump testing to determine the allowable limits on ingested gas volume in pump suctions, as well as the need to develop an analysis capability to adequately predict void movement (entrapped gas) from piping on the suction side of the pumps into the pumps. It is unlikely this industry effort will be complete for the 9-month initial or supplemental submittals. Further, technical specification changes may be necessary to reflect the improved understanding achieved during response to the GL, but these cannot be fully developed for the 9-month initial or supplemental submittals. A Technical Specifications Task Force traveler may provide a generic example that can be adopted by licensees. The NRC staff requests that the licensee address in its 9-month submittal how it plans to track such long-term actions (e.g., Corrective Action Program and/or commitment tracking). The NRC plans to perform follow up inspections of licensee responses to GL 2008-01 at all plants using a Temporary Instruction inspection procedure.