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10 CFR 50.90

U. S. Nuclear Regulatory Commission  
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Subject: St. Lucie Units 1 and 2  
Docket Nos. 50-335 and 50-389  
License Amendment Request  
Radiation Monitor Changes

Pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) is submitting a request for an amendment to the Technical Specifications (TS) for St. Lucie Units 1 and 2. The proposed amendment would remove certain process radiation monitors from the TSs and relocate their requirements to the Offsite Dose Calculation Manual (ODCM) and change the range of the Unit 2 containment particulate radiation monitor.

The enclosure provides a description and assessment of the proposed changes, the existing TS pages marked up to show the proposed changes and the word-processed TS showing the implemented changes.

This license amendment proposed by FPL has been reviewed by the St. Lucie Plant Onsite Review Group. In accordance with 10 CFR 50.91(b)(1), a copy of the proposed license amendment is being forwarded to the State Designee for the State of Florida.

FPL is requesting that this be processed as a normal amendment request, with approval of the proposed amendment within one year of the submittal date. Once approved, the amendment shall be implemented within 90 days.

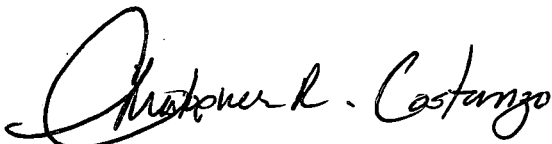
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NRR

If you should have any questions, please contact Mr. Ken Frehafer at (772) 467-7748.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on **SEP 16 2016**

Sincerely,

A handwritten signature in black ink that reads "Christopher R. Costanzo". The signature is written in a cursive style with a large initial 'C'.

Christopher R. Costanzo  
Site Vice President  
St. Lucie Plant

Enclosure

cc: NRC Region II Administrator  
St. Lucie Plant NRC Senior Resident Inspector  
Ms. Cynthia Becker, Florida Department of Health

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## Evaluation of the Proposed Change

### St. Lucie Units 1 and 2

#### 1. SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) requests to amend Facility Operating License DPR-67 for St. Lucie Unit 1 and NPF-16 for St. Lucie Unit 2.

The proposed change would remove and relocate certain process radiation monitors from TS 3.3.3.1 to the Offsite Dose Calculation Manual (ODCM). In addition, only the range of the Unit 2 containment particulate monitor will be changed.

#### 2. DETAILED DESCRIPTION

TS LCO 3.3.3.1 currently requires the radiation monitoring channels shown in Table 3.3-6 to be OPERABLE with their alarm/trip setpoints within the specified limits.

TS Table 3.3-6 lists the required radiation monitoring channels, along with the Minimum channels required to be operable, the applicable modes, the alarm/trip setpoints, the Action required for inoperability, and the instrument range.

The proposed change will remove and relocate the following radiation monitor channels from TS Table 3.3-6 to the ODCM:

- St. Lucie Unit 1 Fuel Storage Pool Area Ventilation System Gaseous Monitor (Table 3.3-6, Instrument 2.b.i.)
- St. Lucie Unit 1 Fuel Storage Pool Area Ventilation System Particulate Monitor (Table 3.3-6, Instrument 2.b.ii.)
- St. Lucie Unit 1 Radwaste Building Exhaust System (Plant Vent Exhaust) Noble Gas Effluent Monitor (Table 3.3-6, Instrument 2.c.i.)
- St. Lucie Unit 1 SGBTF Exhaust System Noble Gas Effluent Monitor (Table 3.3-6, Instrument 2.c.ii.)
- St. Lucie Unit 1 Steam Safety Valve Discharge Noble Gas Effluent Monitors (Table 3.3-6, Instrument 2.c.iii.)
- St. Lucie Unit 1 ECCS Exhaust Noble Gas Effluent Monitors (Table 3.3-6, Instrument 2.c.iv.)
- St. Lucie Unit 2 Fuel Storage Pool Area Ventilation System Gaseous Monitor (Table 3.3-6, Instrument 2.a.i.)
- St. Lucie Unit 2 Fuel Storage Pool Area Ventilation System Particulate Monitor (Table 3.3-6, Instrument 2.a.ii.)
- St. Lucie Unit 2 Reactor Auxiliary Building Exhaust System (Plant Vent Low Range) Noble Gas Effluent Monitor (Table 3.3-6, Instrument 2.c.i.)
- St. Lucie Unit 2 Reactor Auxiliary Building Exhaust System (Plant Vent High Range) Noble

Gas Effluent Monitor (Table 3.3-6, Instrument 2.c.ii.)

- St. Lucie Unit 2 SGBTF Building Exhaust System Noble Gas Effluent Monitor (Table 3.3-6, Instrument 2.c.iii.)
- St. Lucie Unit 2 Steam Safety Valve Discharge Noble Gas Effluent Monitors (Table 3.3-6, Instrument 2.c.iv.)
- St. Lucie Unit 2 Atmospheric Steam Dump Valve Discharge Noble Gas Effluent Monitors (Table 3.3-6, Instrument 2.c.v.)
- St. Lucie Unit 2 ECCS Exhaust Noble Gas Effluent Monitors (Table 3.3-6, Instrument 2.c.vi.)

In addition, the range for the Unit 2 containment particulate monitor will be changed from  $1 - 10^6$  cpm to  $10 - 10^7$  cpm. The subject radiation monitor channel was installed in St. Lucie Unit 2 during plant construction. The equipment was purchased using a specification from the architect/engineer, EBASCO Services. The EBASCO specification required a nominal instrument range of  $1 - 10^6$  cpm. The procurement of the radiation monitoring system equipment was coincident with the time frame for application of the Unit 2 Operating License, and the EBASCO specified range became part of the Technical Specifications attached to the original Operating License. General Atomics (then Sorrento Electronics) was chosen as the Unit 2 radiation monitoring system vendor, and delivered particulate monitors with a nominal range of  $10 - 10^7$  cpm. The discrepancy between the EBASCO specification and the delivered equipment was not identified at that time, primarily because the gross counting (cpm) range was not explicitly stated in the vendor's technical manuals that were delivered with the equipment. The proposed change will correct this long-standing legacy error in the TS.

Markups of the proposed TS changes are included as Attachment 1 and 2, for St. Lucie Unit 1 and 2, respectively. The word-processed TS pages are in Attachments 3 and 4.

### 3. TECHNICAL EVALUATION

#### 3.1 Relocation of Effluent Radiation Monitors from TS 3.3.3.1 to the ODCM

The purpose of the affected radioactive effluent monitors is to monitor routine radioactive releases and initiate alarm or control functions that will terminate the release prior to exceeding the limits of 10 CFR Part 20. Another purpose of the effluent monitors is to provide monitoring functions during, and following, a design basis accident (DBA), in order to provide plant operators and emergency planning agencies with information on releases of radioactive isotopes, as required by commitments to NUREG-0737 and Regulatory Guide 1.97.

##### 3.1.1 Generic Letter 89-01 evaluation

By letter dated January 22, 1993, FPL submitted a request to amend the Facility Operating Licenses, for St. Lucie Units 1 and 2. The proposed license amendments were developed using the guidance of Generic Letter (GL) 89-01, "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications" and NUREG-1301, "Offsite Dose Calculation Manual Guidance." Following the guidance of GL 89-01, FPL proposed to relocate the procedural details of the Radiological Effluent Technical Specifications (RETS) to the ODCM. The license amendment request was approved by the Nuclear Regulatory Commission (NRC) by letter dated October 27, 1993.

As a result of the license amendment, the St. Lucie Unit 1 and 2 TSs were revised to remove most procedural details of RETS, and add programmatic controls, for effluent radiation monitors. The controls for several effluent monitors in TS 3.3.3.1, however, were retained.

The intent of GL 89-01 is to fulfill the goal of the Commission's policy Statement for TS improvement, i.e., to prune technical specification of voluminous details that are relatively less significant and focus licensee and plant operator attention on the most significant issues (58 FR 39135). The license amendment allowed under GL 89-01 provides programmatic controls consistent with regulatory requirements, while allowing relocation of procedural details.

FPL proposes to relocate the certain effluent monitors listed from TS Table 3.3-6 to the ODCM. This change is consistent with the guidance given in GL 89-01.

### 3.1.2 10 CFR 50.36(c)(2)(ii) Criteria and STS Evaluation

In 1995, the NRC published a final rule revision to 10 CFR 50.36 which codified criteria for determining the required content of Technical Specifications, stating that "*Licensees covered by the rule may voluntarily use the criteria [specified in the rule change] to propose the relocation of existing technical specifications that do not meet any of the criteria from the facility license to licensee-controlled documents.*" The screening criteria to post accident monitoring instrumentation are incorporated in 10 CFR 50.36(c)(2)(ii).

As revised, 10 CFR 50.36 (c) (2) (ii) requires:

*"A technical specification limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of the following criteria:*

- (A) Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.*
- (B) Criterion 2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.*
- (C) Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.*
- (D) Criterion 4. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety."*

The published rule change also states that "*improved vendor-specific STS (Standard Technical Specifications) were developed and issued by the NRC*" The NRC approved Standard Technical Specifications (STS) for Combustion Engineering Plants, NUREG-1432, Revision 4.0. Table 3.3.11-1 of this NUREG, "Post Accident Monitoring Instrumentation," contains the following reviewer's note:

*"Table 3.3.11-1 shall be amended for each unit as necessary to list:*

- 1. All Regulatory Guide 1.97, Type A instruments and*
- 2. All Regulatory Guide 1.97, Category 1, non-Type A instruments specified in the unit's Regulatory Guide 1.97, Safety Evaluation Report."*

The NUREG-1432, Rev. 4.0, Section 3.3.11 Bases state:

*"The primary purpose of the PAM instrumentation is to display unit variables that provide information required by control room operators during accident situations. This information provides the necessary support for the operators to take the manual actions, for which no automatic control is provided, that are required for safety systems to accomplish their safety functions for Design Basis Accidents...These key variables are identified by plant specific Regulatory Guide 1.97 analyses. These analyses identified the plant specific type A and Category I variables..."*

NUREG-1432 does not contain any LCOs for any of the effluent monitors FPL is proposing to remove from the TSs and relocate to the ODCM.

A review of the St. Lucie Unit 1 and 2 Updated Final Safety Analysis Report (UFSAR), and NRC Regulatory Guide 1.97 correspondence, shows that the noble gas effluent monitors are listed as Regulatory Guide 1.97 Types C & E, Category 2 variables. The particulate monitors are not listed as Regulatory Guide 1.97 instruments. The proposed change does not remove any monitors that are Regulatory Guide Type A, or Category 1 variables.

### 3.1.3 Evaluating against the criteria of 10 CFR 50.36(c)(2)(ii)

- (A) The affected effluent monitors are not used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. These instruments do not satisfy Criterion 1.
- (B) The affected effluent monitors are not process variables, design features, or operating restrictions that are an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. These instruments do not satisfy Criterion 2.
- (C) The affected effluent monitors are not a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. These instruments do not satisfy Criterion 3.
- (D) The affected effluent monitors are not a structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. The effluent monitors are not Maintenance Rule risk-significant components, and are not credited in the Units' Probabilistic Risk Assessment (PRA). These instruments do not satisfy Criterion 4.

### 3.1.4 Summary of Technical Evaluation for TS Removal and Relocation to ODCM

For the effluent monitors listed, the 10 CFR 50.36(c)(2)(ii) criteria are not met for inclusion in the Technical Specifications as a LCO, and removal of the monitors from the TS table is consistent with the STS and GL 89-01. The monitors are not Regulatory Guide 1.97 Type A, or Category 1 variables, and there is no requirement to include these monitors in the TS LCO for Post-Accident Monitoring instrumentation. It is acceptable to relocate the effluent monitors from LCO 3.3.3.1 to the ODCM.

### 3.2 Unit 2 Containment Atmosphere Radiation Monitor Particulate Range

The containment atmosphere radiation monitor is designed for compliance with General Design Criterion 30:

*"Quality of reactor coolant pressure boundary: Components which are part of the reactor coolant pressure boundary shall be designed, fabricated, erected, and tested to the highest quality standards practical. Means shall be provided for detecting and, to the extent practical, identifying the location of the source of reactor coolant leakage."*

### 3.2.1 Containment Atmosphere Particulate Monitor – Normal Operation:

As stated in the Unit 2 FSAR, Section 5.2.5: *The RCPB [Reactor Coolant Pressure Boundary] leakage detection system meets the intent of Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973 (R0)...[TIA 96-019] documents NRC acceptance of the containment radiation monitoring system with respect to leak before-break and Regulatory Guide 1.45.*

Regulatory Guide 1.45 (Rev. 0) states that *"Instrument sensitivities of  $10^{-9}$  uCi/cc radioactivity for particulate monitoring... [are] practical for these leakage detection systems."* The primary calibration report from Sorrento Electronics, for the particulate monitor, calculates the minimum detectable concentration for the monitor as  $7.31 \times 10^{-12}$  uCi/cm<sup>3</sup> (Cs-137). Thus, the monitor sensitivity complies with this requirement from Regulatory Guide 1.45.

Regulatory Guide 1.45 further states that *"It is important to be able to associate a signal or indication of a change in the normal operating conditions with a quantitative leakage flow rate. Except for flow rate or level change measurements from tanks, sumps, or pumps, signals from other leakage detection systems do not provide information readily convertible to a common denominator. Approximate relationships converting these signals to units of water flow should be formulated to assist the operator in interpreting signals."* Calculation PSL-2FSN-96-003 determines the particulate monitor response to RCPB leakage, and addresses compliance with the Regulatory Guide 1.45 requirements.

Regulatory Guide 1.45, Regulatory Position C.5 states that *"The sensitivity and response time of each leakage detection system...should be adequate to detect a leakage rate, or its equivalent, of one gpm in less than one hour."*

In September 1996, the NRC identified several concerns with the containment atmosphere monitors. These concerns were documented in CR 96-2228; the NRC Region II inspectors also generated a memorandum to NRR, requesting evaluation of the discrepancies. NRR documented their response in TIA 96-019: *"The containment radiation monitoring system described in the St. Lucie Unit 1 and 2 UFSAR is not consistent with the recommendations of Regulatory Position C.5 of RG 1.45. However, SPLB [Plant Systems Branch of NRR] discussed the discrepancies with the Materials and Chemical Engineering Branch and determined that the licensee's UFSAR values of 15.1 and 18.1 hours for detecting one gpm of leakage should be acceptable for utilization of 'leak-before-break' (LBB) technology at St. Lucie pending completion of generic activities..."*

The "generic activities" alluded to in TIA 96-019 surfaced, in part, as Information Notice 2005-24, and Regulatory Information Summary 2009-02. Both of these communications dealt with the ability of the containment gaseous radiation monitor to detect RCPB leakage in the absence of fuel defects.

Regulatory Information Summary 2009-02, Rev. 1, endorses TSTF-513 as an acceptable method of revising PWR operability requirements and actions for RCS leak detection



instrumentation under the TS Consolidated Line Item Improvement Process (CLIP). On March 11, 2011, via Licensing letter L-2011-073, PSL requested a License Amendment for adoption of TSTF-513. The License Amendment was approved via SER on March 30, 2012. This License Amendment adopted verbatim the language of the TSTF, including the Bases, which states that "the gaseous or particulate containment atmosphere radioactivity monitor is OPERABLE when it is capable of detecting a 1 gpm increase in unidentified LEAKAGE within 1 hour given an RCS activity equivalent to that assumed in the design calculations for the monitors."

FPL calculation PSL-2FSN-96-003 demonstrates that the monitor is capable of detecting a 1 gpm increase in unidentified leakage within 1 hour given an RCS activity equivalent to that assumed in the design calculation for the monitor. For this calculation, Assumption 4.5 states that a conservative value of 250 cpm is used for detector background count rate (with no sample flow, clean filter paper, and a purged detector chamber). Normal indication during plant operation varies between 375 cpm to 600 cpm. As such, changing the lower range of indication from 1 cpm to 10 cpm has no impact on the monitor to detect the 1 gpm leak increase in unidentified leakage within one hour.

### 3.2.2 Containment Atmosphere Particulate Monitor – Accident Operation:

The containment atmosphere particulate monitor has no specific function credited during or following an accident. As required by Regulatory Guide 1.45, the monitor is designed to perform its function of RCPB leak detection following a design basis earthquake.

### 3.2.3 Containment Atmosphere Particulate Monitor Operability and Acceptability of the Installed Instrument Range:

As stated in the Unit 2 FSAR, Section 5.2.5:

*The RCPB leakage detection system meets the intent of Regulatory Guide 1.45.*

As required by Technical Specification Surveillance Requirement 4.4.6.1:

*"The RCS leakage detection instrumentation shall be demonstrated OPERABLE by... performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor..."*

As described in the Technical Specification Bases (as revised as part of the License Amendment for TSTF-513):

*The "particulate containment atmosphere radioactivity monitor is OPERABLE when it is capable of detecting a 1 gpm increase in unidentified LEAKAGE within 1 hour given an RCS activity equivalent to that assumed in the design calculations for the monitors."*

The installed particulate monitor range is acceptable because:

- The monitor design meets the intent of Regulatory Guide 1.45
- Continued Operability is demonstrated by the performance of the Surveillance Requirements of Technical Specification 4.4.6.1 (Shiftly Channel Check, Monthly Channel Functional Test, and Refueling Channel Calibration).

- The monitor is capable of detecting a 1 gpm increase in unidentified leakage within 1 hour given an RCS activity equivalent to that assumed in the design calculation for the monitor.

#### 3.2.4. Summary of Unit 2 Particulate Range Change Technical Evaluation:

The Unit 2 containment particulate activity monitor instrument range of 10 to  $10^7$  cpm is acceptable because the monitor is capable of performing its design functions.

## 4. REGULATORY EVALUATION

### 4.1 Applicable Regulatory Requirements and Guidance

#### 4.1.1 Effluent Radiation Monitors

The gaseous effluent radiation monitors are designed for compliance with General Design Criteria 60 and 64:

##### CRITERION 60 - Control of Releases of Radioactive Materials to the Environment

The nuclear power unit design shall include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Sufficient holdup capacity shall be provided for retention of gaseous and liquid effluents containing radioactive materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment.

##### CRITERION 64 - Monitoring Radioactivity Releases

Means shall be provided for monitoring the reactor containment atmosphere, spaces containing components for recirculation of loss of coolant accident fluids, effluent discharge paths, and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences and from postulated accidents.

The relocation of the effluent monitors from TS to the ODCM does not change the function of the monitors, the required actions for monitors inoperable, or the surveillance requirements for the monitors. The monitors' design remains the same, and all applicable regulatory requirements and criteria continue to be met.

#### 4.1.2 Unit 2 Containment Atmosphere Particulate Radiation Monitor Range Change

The regulatory requirement for the containment atmosphere radiation monitor is to provide a means for detecting reactor coolant leakage [GDC 30].

As discussed in section 3.2, the monitor must be capable of detecting a 1 gpm increase in unidentified leakage within 1 hour, given an RCS activity equivalent to that assumed in the design calculation for the monitor (Regulatory Guide 1.45; TSTF-513).

### 4.2 No Significant Hazards Consideration Determination

The proposed amendment would relocate effluent monitors from TS Table 3.3-6 to the ODCM,

for St. Lucie Units 1 and 2. The amendment would also change the instrument range for the Unit 2 containment particulate activity monitor, to "10 – 10<sup>7</sup> cpm."

Florida Power and Light has evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

- 1) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The effluent radiation monitors are not event initiators, nor are they credited in the mitigation of any event or credited in the PRA. Relocating the monitors to the ODCM does not adversely impact the monitor function, and does not affect the accident analyses in any manner.

The Unit 2 containment atmosphere particulate radiation monitor is credited in the Leak-Before-Break analyses, where it states that "the leakage detection systems are capable of detecting the specified leak rate" and that the leakage detection systems "are consistent with Regulatory Guide 1.45." Correcting the TS instrument range for the monitor does not adversely impact the monitor function, i.e., its capability to detect leakage. This change does not affect the accident analyses in any manner.

Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

- 2) Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed changes correct a legacy error in the Unit 2 TS, and the TS removal of effluent monitors and their subsequent relocation to the ODCM do not change the function or capabilities of any equipment, and do not involve the addition or modification of any plant equipment. Also, the proposed change does not alter the design, configuration, or method of operation of the plant. The subject monitors remain capable of performing their design functions.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No

The proposed changes remove select effluent monitors from the TSs and relocate their requirements to the ODCM and correct a legacy error in the Unit 2 TSs, and do not involve the addition or modification of any plant equipment. The changes do not modify the plant or plant equipment, and do not change the manner in which structures, systems

or components are design or evaluated.

The proposed change does not involve a significant reduction in a margin of safety.

#### 4.3 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. Based on the above, Florida Power and Light concludes that the proposed amendments do not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92, and, accordingly, a finding of "no significant hazards consideration" is justified.

#### 5. ENVIRONMENTAL CONSIDERATION

10 CFR 51.22(c)(9) provides criteria for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment of an operating license for a facility requires no environmental assessment, if the operation of the facility in accordance with the proposed amendment does not: (1) involve a significant hazards consideration, (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and (3) result in a significant increase in individual or cumulative occupational radiation exposure.

FPL has reviewed this LAR and determined that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment. The basis for this determination follows.

##### Basis

This change meets the eligibility criteria for categorical exclusion set forth in

10CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in the 10 CFR 50.92 evaluation, the proposed amendment does not involve a significant hazards consideration.
2. The proposed amendment does not result in a significant change in the types or increase in the amounts of any effluents that may be released offsite.
3. The proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure.

6. REFERENCES

1. St. Lucie FSARs
2. 10 CFR 50, Appendix A, "General Design Criteria for Nuclear Power Plants"
3. Regulatory Guide 1.21, Rev. 1, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants"
4. Regulatory Guide 4.15, Rev. 1, "Quality Assurance for Radiological monitoring Programs (Normal Operations) – Effluent Streams and the Environment"
5. ANSI N42.18-1980 (Redesignation of ANSI N13.10-1974), American National Standard Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents"
6. Document 0360-8915 (proprietary to Sorrento Electronics), "Primary Calibration Report for Model RD-56B Detector Moving-Filter Particulate Detector"
7. Procedure C-200, Offsite Dose Calculation Manual (ODCM)
8. EBASCO Specification FLO-2998-029, Rev. 5, "Radiation Monitoring System"
9. NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations", July 1979
10. NUREG-0660, "NRC Action Plan Developed as a Result of the TMI-2 Accident", May 1980
11. NUREG-0737, "Clarification of TMI Action Plan Requirements", November 1980
12. Generic Letter 82-33, "Supplement 1 to NUREG-0737-Requirements for Emergency Response Capability", December 17, 1982
13. FPL letter L-83-573, "Regulatory Guide 1.97 Rev. 3 Evaluation Report", dated November 30, 1983
14. FPL letter L-85-417, "Conformance to Regulatory Guide 1.97", dated Nov. 18, 1985
15. TIA 96-019, "Safety Assessment of Region II Concerns Regarding Discrepancies of Containment Radiation Monitor Sensitivities at St. Lucie Units 1 and 2, and Turkey Point Units 3 and 4", dated July 30, 1998

16. Regulator Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems", May 1973
17. NRC Information Notice 2005-24, "Nonconservatism in Leakage Detection Sensitivity", dated August 3, 2005
18. NRC Regulatory Information Summary (RIS) 2009-02, "Use of Containment Atmosphere Gaseous Radioactivity Monitors as Reactor Coolant System Leakage Detection Equipment at Nuclear Power Plants", dated January 29, 2009
19. FPL letter L-2011-073, "License Amendment Request for Adoption of Technical Specification Task Force (TSTF)-513, Revision 3, 'Revise PWR Operability Requirements and Actions for RCS Leakage Instrumentation'", dated March 11, 2011
20. NRC letter (ADAMS Accession No. ML12052A221), "St. Lucie Plant, Unit Nos. 1 and 2 – Issuance of Amendments Regarding Technical Specification Task Force Change TSTF-513, Revision 3, 'Revise Pressurized Water Reactor Operability Requirements and Actions for Reactor Coolant System Leakage Instrumentation'", dated March 30, 2012
21. Calculation PSL-2FSN-96-003, Rev. 0, "Containment Atmosphere Particulate Monitor Response to RCS Leakage"
22. NRC letter, from J.A. Norris (NRC) to J.H. Goldberg (FPL), "St. Lucie Units 1 and 2 – Application of Leak-Before-Break Technology to Reactor Coolant System Piping – TAC Nos. M84560 and M84561", dated March 5, 1993
23. FPL letter L-92-329, "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications (Generic Letter 89-01)", dated January 22, 1993.
24. NRC letter Jan A. Norris (NRC) to J. H. Goldberg (FPL), "St. Lucie Units 1 and 2 – Issuance of Amendments Re: Relocation of the Radiological Effluent Technical Specifications", dated October 27, 1993 (NRC Accession Nos.: ML0135/ML013550288)
25. NRC Generic Letter 89-01, "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program", Dated January 31, 1989 [NRC Accession No. ML031140051]
26. Volume 60 of the Federal Register, page 36953 (60 FR 36953)
27. NUREG-1432, Volume 1, Revision 4.0, "Standard Technical Specifications - Combustion Engineering Plants"

28. NUREG-1432, Volume 2, Revision 4.0, "Bases – Standard Technical Specifications - Combustion Engineering Plants"
29. Calculation PSL-1LSN-09-002, Rev. 0, "Containment Atmosphere Particulate Monitor Response to Leakage During Normal Plant Operation"
30. Calculation PSL-1LSN-09-003, Rev. 0, "Containment Atmosphere Gaseous Monitor Response to Leakage During Normal Plant Operation"
31. Calculation PSL-2FSN-96-003, Rev. 0, "Containment Atmosphere Particulate Monitor Response to RCS Leakage"
32. Calculation PSL-2FJN-92-012, Rev. 0, "Response Time for the Containment Atmosphere Gaseous Monitor to Detect a 1.0 GPM Leak During Normal Plant Operation"

Unit 1 TS Markups



**TABLE 3.3-6**  
**RADIATION MONITORING INSTRUMENTATION**

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE</u>	<u>ACTION</u>
1. AREA MONITORS					
a. Fuel Storage Pool Area	1	*	≤ 15 mR/hr	10 <sup>-1</sup> – 10 <sup>4</sup> mR/hr	13
b. Containment (CIS)	3	****	≤ 90 mR/hr	1 – 10 <sup>5</sup> mR/hr	16
c. Containment Area – HI Range	1	1, 2, 3, & 4	≤ 10 R/hr	1 – 10 <sup>7</sup> R/hr	15
d. Control Room Isolation	1 per intake	ALL MODES	≤ 320 cpm	10 – 10 <sup>7</sup> cpm	17
2. PROCESS MONITORS					
a. Containment					
i. Gaseous Activity RCS Leakage Detection	1	1, 2, 3 & 4	Not Applicable	10 – 10 <sup>6</sup> cpm	14
ii. Particulate Activity RCS Leakage Detection	1	1, 2, 3 & 4	Not Applicable	10 – 10 <sup>6</sup> cpm	14
b. Fuel Storage Pool Area Ventilation System					
i. Gaseous Activity	1	**	***	10 <sup>-7</sup> – 10 <sup>5</sup> μCi/cc	12
ii. Particulate Activity	1	***	***	1 – 10 <sup>6</sup> cpm	12

\* With fuel in the storage pool or building.

\*\* With recently irradiated or irradiated fuel in the storage pool.

\*\*\* The Alarm Setpoints are determined and set in accordance with requirements of the Offsite Dose Calculation Manual.

\*\*\*\* During movement of recently irradiated fuel assemblies within containment.

DELETED

**TABLE 3.3-6 (Continued)**  
**RADIATION MONITORING INSTRUMENTATION**

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE</u>	<u>ACTION</u>
2. PROCESS MONITORS (Continued)					
c. Noble Gas Effluent Monitors					
i. Radwaste Building Exhaust System (Plant Vent Exhaust Monitor)	1	1, 2, 3 & 4	***	$10^{-7} - 10^5$ $\mu\text{Ci/cc}$	15
ii. Steam Generator Blowdown Treatment Facility Building Exhaust System	1	1, 2, 3 & 4	***	$10^{-7} - 10^{-2}$ $\mu\text{Ci/cc}$	15
iii. Steam Safety Valve Discharge	1/Header	1, 2, 3 & 4	***	$10^{-1} - 10^3$ $\mu\text{Ci/cc}$	15
iv. ECCS Exhaust	1/Train	1, 2, 3 & 4	***	$10^{-7} - 10^5$ $\mu\text{Ci/cc}$	15

\*\*\* The Alarm Setpoints are determined and set in accordance with requirements of the Offsite Dose Calculation Manual.

DELETED

**TABLE 3.3-6 (Continued)**

DELETED

**TABLE NOTATION**

~~ACTION 12 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.12.~~

ACTION 13 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 14 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 15 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:

- 1) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and
- 2) Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

ACTION 16 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, comply with the ACTION requirements of Specification 3.9.9.

ACTION 17 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.

Unit 2 TS Markups

Attachment 2

**TABLE 3.3-6**  
**RADIATION MONITORING INSTRUMENTATION**

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE</u>	<u>ACTION</u>
<b>1. AREA MONITORS</b>					
a. Fuel Storage Pool Area					
i. Criticality and Ventilation System Isolation Monitor	4	*	≤ 20 mR/hr	10 <sup>-1</sup> – 10 <sup>4</sup> mR/hr	22
b. Containment Isolation	3	****	≤ 90 mR/hr	1 – 10 <sup>7</sup> mR/hr	25
c. Containment Area – Hi Range	1	1, 2, 3 & 4	Not Applicable	1 – 10 <sup>7</sup> R/hr	27
d. Control Room Isolation	1 per intake	ALL MODES	≤ 320 cpm	10 <sup>-7</sup> – 10 <sup>-2</sup> μCi/cc	26
<b>2. PROCESS MONITORS</b>					
a. Fuel Storage Pool Area Ventilation System					
i. Gaseous Activity	1	**	***	10 <sup>-7</sup> – 10 <sup>-2</sup> μCi/cc	24
ii. Particulate Activity	1	**	***	1 – 10 <sup>6</sup> cpm	24
b. Containment					
i. Gaseous Activity RCS Leakage Detection	1	1, 2, 3 & 4	Not Applicable	10 <sup>-7</sup> – 10 <sup>-2</sup> μCi/cc	23
ii. Particulate Activity RCS Leakage Detection	1	1, 2, 3 & 4	Not Applicable	1 – 10 <sup>6</sup> cpm	23

\* With fuel in the storage pool or building.  
 \*\* With irradiated fuel in the storage pool and during movement of recently irradiated fuel assemblies or during crane operations with loads over recently irradiated fuel assemblies in the spent fuel storage pool.  
 \*\*\* The Alarm/Trip Setpoints are determined and set in accordance with requirements of the Offsite Dose Calculation Manual.  
 \*\*\*\* During movement of recently irradiated fuel assemblies within containment.

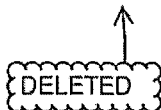
**TABLE 3.3-6 (Continued)**

**RADIATION MONITORING INSTRUMENTATION**

<b>INSTRUMENT</b>	<b>MINIMUM CHANNELS OPERABLE</b>	<b>APPLICABLE MODES</b>	<b>ALARM/TRIP SETPOINT</b>	<b>MEASUREMENT RANGE</b>	<b>ACTION</b>
<b>PROCESS MONITORS (Continued)</b>					
<b>c. Noble Gas Effluent Monitors</b>					
i. Reactor Auxiliary Building Exhaust System (Plant Vent Low Range Monitor)	1	1, 2, 3 & 4	***	$10^{-7} - 10^{-2}$ $\mu\text{Ci/cc}$	27
ii. Reactor Auxiliary Building Exhaust System (Plant Vent High Range Monitor)	1	1, 2, 3 & 4	***	$10^{-2} - 10^5$ $\mu\text{Ci/cc}$	27
iii. Steam Generator Blowdown Treatment Facility Building Exhaust System	1	1, 2, 3 & 4	***	$10^{-7} - 10^{-2}$ $\mu\text{Ci/cc}$	27
iv. Steam Safety Valve Discharge <sup>#</sup>	1/steam header	1, 2, 3 & 4	***	$10^{-1} - 10^3$ $\mu\text{Ci/cc}$	27
v. Atmospheric Steam Dump Valve Discharge <sup>#</sup>	1/steam header	1, 2, 3 & 4	***	$10^{-1} - 10^3$ $\mu\text{Ci/cc}$	27
vi. ECCS Exhaust	1/train	1, 2, 3 & 4	***	$10^{-7} - 10^5$ $\mu\text{Ci/cc}$	27

\*\*\* The Alarm/Trip Setpoints are determined and set in accordance with requirements of the Offsite Dose Calculation Manual.

# The steam safety valve discharge monitor and the atmospheric steam dump valve discharge monitor are the same monitor.



**TABLE 3.3-6 (Continued)**

**ACTION STATEMENTS**

DELETED

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 23 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 24 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, suspend all operations involving movement of recently irradiated fuel within the spent fuel storage pool or crane operations with loads over recently irradiated fuel assemblies in the spent fuel storage pool.

ACTION 25 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.

ACTION 26 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.

ACTION 27 - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:

- 1) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and
- 2) Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

Unit 1 Word Processed TS



**TABLE 3.3-6**  
**RADIATION MONITORING INSTRUMENTATION**

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE</u>	<u>ACTION</u>
<b>1. AREA MONITORS</b>					
a. Fuel Storage Pool Area	1	*	≤ 15 mR/hr	10 <sup>-1</sup> – 10 <sup>4</sup> mR/hr	13
b. Containment (CIS)	3	****	≤ 90 mR/hr	1 – 10 <sup>5</sup> mR/hr	16
c. Containment Area – Hi Range	1	1, 2, 3, & 4	≤ 10 R/hr	1 – 10 <sup>7</sup> R/hr	15
d. Control Room Isolation	1 per intake	ALL MODES	≤ 320 cpm	10 – 10 <sup>7</sup> cpm	17
<b>2. PROCESS MONITORS</b>					
a. Containment					
i. Gaseous Activity RCS Leakage Detection	1	1, 2, 3 & 4	Not Applicable	10 – 10 <sup>6</sup> cpm	14
ii. Particulate Activity RCS Leakage Detection	1	1, 2, 3 & 4	Not Applicable	10 – 10 <sup>6</sup> cpm	14

\* With fuel in the storage pool or building.

\*\*\*\* During movement of recently irradiated fuel assemblies within containment.

DELETED

ST. LUCIE - UNIT 1

3/4 3-22a

Amendment No. 59, 423, 206

Attachment 3

**TABLE 3.3-6 (Continued)**

**TABLE NOTATION**

ACTION 12 - DELETED

ACTION 13 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 14 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 15 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:

- 1) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and
- 2) Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

ACTION 16 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, comply with the ACTION requirements of Specification 3.9.9.

ACTION 17 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.

Unit 2 Word Processed TS

**TABLE 3.3-6**

**RADIATION MONITORING INSTRUMENTATION**

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE</u>	<u>ACTION</u>
1. AREA MONITORS					
a. Fuel Storage Pool Area					
i. Criticality and Ventilation System Isolation Monitor	4	*	≤ 20 mR/hr	10 <sup>-1</sup> – 10 <sup>4</sup> mR/hr	22
b. Containment Isolation	3	****	≤ 90 mR/hr	1 – 10 <sup>7</sup> mR/hr	25
c. Containment Area – Hi Range	1	1, 2, 3 & 4	Not Applicable	1 - 10 <sup>7</sup> R/hr	27
d. Control Room Isolation	1 per intake	ALL MODES	≤ 320 cpm	10 <sup>-7</sup> – 10 <sup>-2</sup> μCi/cc	26
2. PROCESS MONITORS					
a. Containment					
i. Gaseous Activity RCS Leakage Detection	1	1, 2, 3 & 4	Not Applicable	10 <sup>-7</sup> – 10 <sup>-2</sup> μCi/cc	23
ii. Particulate Activity RCS Leakage Detection	1	1, 2, 3 & 4	Not Applicable	10 – 10 <sup>7</sup> cpm	23

\* With fuel in the storage pool or building.

\*\*\*\* During movement of recently irradiated fuel assemblies within containment.

DELETED

ST. LUCIE - UNIT 2

3/4 3-26

Amendment No. 25, 64, 89

Attachment 4

**TABLE 3.3-6 (Continued)**

**ACTION STATEMENTS**

- ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.
- ACTION 23 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.
- ACTION 24 - DELETED
- ACTION 25 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.
- ACTION 26 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.
- ACTION 27 - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:
- 1) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and
  - 2) Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.