



October 16, 2015

L-2015-221  
10 CFR 50.59(d)

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

Re: St. Lucie Unit 1  
Docket No. 50-335  
Report of 10 CFR 50.59 Plant Changes

Pursuant to 10 CFR 50.59(d)(2), the attached report contains a brief description of any changes, tests and experiments, including a summary evaluation of each, which were made on Unit 1 during the period of November 10, 2013 through April 24, 2015. This submittal correlates with the information included in Amendment 27 of the Updated Final Safety Analysis Report to be submitted under separate cover.

Please contact us if there are any questions on this information.

Sincerely,

A handwritten signature in black ink that reads "ES Katzman". The signature is written in a cursive, somewhat stylized font.

Eric S. Katzman  
Licensing Manager  
St. Lucie Plant

ESK/lrb

Enclosure

IE 47  
A053  
NRR

St. Lucie Unit 1  
Docket No. 50-335

L-2015-221  
Enclosure

ST. LUCIE UNIT 1  
DOCKET NUMBER 50-335  
CHANGES, TESTS AND EXPERIMENTS  
MADE AS ALLOWED BY 10 CFR 50.59  
FOR THE PERIOD OF  
NOVEMBER 10, 2013 THROUGH APRIL 24, 2015  
(11 PAGES INCLUDING COVER)

## INTRODUCTION

This report is submitted in accordance with 10 CFR 50.59 (d)(2), which requires that:

- i) changes in the facility as described in the SAR;
- ii) changes in procedures as described in the SAR; and
- iii) tests and experiments not described in the SAR

that are conducted without prior Commission approval be reported to the Commission in accordance with 10 CFR 50.90 and 50.4. This report is intended to meet these requirements for the period of November 10, 2013 through April 24, 2015.

This report is typically divided into three (3) sections. First, changes to the facility as described in the Updated Final Safety Analysis Report (UFSAR) performed by a Permanent Modification. Second, changes to the facility/procedures as described in the UFSAR, or tests/experiments not described in the UFSAR, which are not performed by a Permanent Modification. And third, a summary of any Fuel Reload 10 CFR 50.59 evaluation.

Sections 1, 2 and 3 summarize specific 10 CFR 50.59 evaluations that evaluated the specific change(s). Each of these 10 CFR 50.59 evaluations concluded that the change does not require a change to the plant technical specifications, and prior NRC approval is not required.

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**SECTION 1**

**PLANT CHANGE / MODIFICATIONS**

EC 279190, REVISION 10  
REMOVAL OF INTERNALS FROM CHECK  
VALVE V12174

SUMMARY

EC 279190 removed the internals from check valve V12174, Check Valve for Unit 1 Condensate Storage Tank (CST) Outlet to Auxiliary Feedwater Pump (AFW) 1C Suction. The UFSAR described purpose of this check valve is to prevent inadvertent draining of the Unit 2 CST to the Unit 1 CST when the inter-tie line between the two CSTs is in-service. Removal of the check valve internals removes the capability of the valve to perform the UFSAR described design function. Manual isolation valves that were installed as part of the original plant design are closed by procedure prior to placing the inter-tie in service. Thus the check valve V12174 is not required to perform the noted isolation function (note that the sister check valve (V12176) for the 1A/B motor driven AFW pumps had a similar modification performed).

Check valve V12174 is not an initiator of any of the accidents evaluated in the UFSAR and the removal of the internals of check valve V12174 does not result in any new failure modes that could result in an UFSAR evaluated accident. Therefore the removal of the internals from check valve V12174 will not result in an increase in the frequency of an occurrence of an accident previously evaluated in the UFSAR.

Removal of the internals from check valve V12174 will not result in an increase in the occurrence of a vertical tornado missile nor will it introduce any other mechanism that results in a malfunction of the CST. Therefore this change will not result in a more than minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety previously evaluated in the UFSAR.

This modification will reduce the hydraulic resistance of check valve V12174 and will not have an adverse impact on the delivery of flow from the Unit 1 CST to the AFW pumps. The Unit 1 AFW pumps will continue to provide RCS cooling by delivering to the steam generators water at the flow rate assumed in the UFSAR safety analyses. Therefore the existing radiological analyses are not impacted and this modification will not result in more than a minimal increase in the radiological consequences of an accident previously evaluated in the UFSAR.

Since the flow rate delivered to the AFW pumps following the implementation of this modification is not reduced and no new failure modes that could result in an UFSAR evaluated accident have been identified, this modification will not result in a more than minimal increase in the radiological consequences of a malfunction of an SSC important to safety previously evaluated in the UFSAR.

Check valve V12174 is not an initiator of any accidents and the removal of the internals from check valve V12174 does not result in any new failure modes that not previously evaluated in the UFSAR. The procedural requirements to close the CST outlet isolation valve already exist. Therefore the removal of the internals from check valve V12174 will not create the possibility of an accident of a different type than any previously evaluated in the UFSAR.

The removal of the internals from check valve V12174 does not introduce the possibility for a malfunction of an SSC with a different result because existing procedural requirements and not check valve V12174 are credited in the analyses that require the delivery of cooling water to the steam generators.

It was determined that the removal of the internals from check valve V12174 will not adversely affect the ability of the AFW pumps to provide RCS cooling by delivering to the steam generators the flow rate assumed in the UFSAR safety analyses. Therefore, removal of the internals from check valve V12174 will not result in a design basis limit for a fission product barrier as described in the UFSAR being exceeded or altered.

Hydraulic analyses have been performed to demonstrate that the CST can supply the required flow rate to the AFW pump suction. The specific methodology used for the hydraulic analysis is not described or identified in the UFSAR. Therefore, the removal of the check valve does not result in a departure from a method of evaluation described in the UFSAR.

No Technical Specifications are adversely impacted or require an update. Unit 1 TS 3/4.7.1.2: Removal of the V12174 check valve internals will provide less flow resistance in the flow path from the CST to the Auxiliary Feed Pump 1C suction. Therefore, this change does not adversely affect the Auxiliary Feed Pump 1C normal flow path from the CST or its operable steam supply, as described in Unit 1 TS 3/4.1.7.2. Unit 2 TS 3/4.7.1.3: After the internals have been removed from check valve V12174 this valve will not prevent back flow. However, in the event the Unit 2 CST is being used to supply the Unit 1 AFW 1C pump, manual valve V12506 (Unit 1 CST outlet isolation to IC AFW pump) is currently procedurally controlled to be manually isolated prior to opening Unit 2 CST intertie valve V12175, thus preventing flow from the Unit 2 CST to the Unit 1 CST and diverting flow from the Auxiliary Feed Pump 1C. Since manual isolation valve V12506 is also subject to exercising as part of periodic surveillance, there is a less than minimal increase in the likelihood of occurrence of malfunction (failure of V12506 to manually isolate) of an SSC important to safety. Therefore, this change does not adversely affect the backup flow path from the Unit 2 CST to the Auxiliary Feed Pump 1C suction, as described in Unit 2 TS basis 3/4.7.1.3.

Based upon the evaluation under 10CFR 50.59, a 10CFR50.90 a License Amendment Request is not required.

## **SECTION 2**

### **50.59 EVALUATIONS**

For the time period of this report, there were no changes to the facility (outside of the plant design modifications discussed in Section 1) as described in the Updated Final Safety Analysis Report (UFSAR) performed by a 10 CFR 50.59 Evaluation.



**SECTION 3**

**CORE RELOAD EVALUATION**

EC 282127, Revision 5  
ST. LUCIE UNIT 1 CYCLE 26 RELOAD -  
EVALUATION OF LINEAR HEAT RATE LIMIT  
INCREASE IN COLR

SUMMARY

The change from the Cycle 26 Reload Engineering Change which was addressed in this 50.59 Evaluation was the increase in Linear Heat Rate (LHR) upper limit for the fuel in COLR Figure 3.1-2 from 14.7 kW/ft to 15.0 kW/ft in the SBLOCA re-analysis as a result of the M5 fuel cladding implementation, and associated UFSAR changes. The LHR limit increase was only applied to the UFSAR Chapter 15 SBLOCA analysis, as the limit has already been applied to all other events in the analysis of record, including non-LOCA and LBLOCA analyses.

The increase in LHR upper limit for the fuel in COLR Figure 3.1-2 from 14.7 kW/ft to 15.0 kW/ft does not introduce the possibility of a change in the frequency of occurrence of an accident because this analysis parameter is not a new initiator of any accident and no new failure modes are introduced. The results of the new SBLOCA analysis (Reference 83 of main EC document) demonstrate that the new analysis results still meet the applicable acceptance criterion. The new LHR value remains consistent with the value used in all other analyses.

The increase in LHR upper limit for the fuel in COLR Figure 3.1-2 from 14.7 kW/ft to 15.0 kW/ft does not introduce the possibility of a change in the likelihood of a malfunction of an SSC important to safety previously evaluated in the UFSAR because no malfunctions of SSC are affected by the increased LHR in safety analysis. The impact of increased LHR is addressed in Reference 83 of the main EC document and all safety analysis acceptance criteria are met.

The increase in LHR upper limit for the fuel in COLR Figure 3.1-2 from 14.7 kW/ft to 15.0 kW/ft does not introduce the possibility of a change in the consequences of an accident previously evaluated in the UFSAR. The change impacts only the SBLOCA analysis, and it is already applied to all other applicable UFSAR Chapter 15 events. In the LOCA event, the radiological consequences remain the same as the assumptions used in the dose analyses remain unchanged.

The increase in LHR upper limit for the fuel in COLR Figure 3.1-2 from 14.7 kW/ft to 15.0 kW/ft in the SBLOCA re-analysis does not introduce the possibility of a change in the consequences of a malfunction of an SSC important to safety previously evaluated in the UFSAR because this analysis parameter is not an initiator of any new malfunctions and no new failure modes are introduced.

The increase in LHR upper limit for the fuel in COLR Figure 3.1-2 from 14.7 kW/ft to 15.0 kW/ft does not introduce the possibility for an accident of a different type than any previously evaluated in the UFSAR. The new SBLOCA analysis, performed for the implementation of M5, addresses the increase in LHR. The LHR was increased to be consistent with other current

licensing basis analysis. Increasing LHR in safety analysis, which is already a part of the current licensing analysis for other events, does not introduce new failure modes or effects.

The increase in LHR upper limit for the fuel in COLR Figure 3.1-2 from 14.7 kW/ft to 15.0 kW/ft does not introduce the possibility of a malfunction of an SSC important to safety with a different result than any previously evaluated in the UFSAR because the increased LHR demonstrates that the results of all analyses, including the revised SBLOCA analysis, meet the applicable acceptance criteria. Increasing LHR in safety analysis, which is already a part of the current licensing analysis for other events, does not introduce new failure modes or effects.

The new SBLOCA analysis used the same modeling assumptions and methodology, which are consistent with approved existing licensing basis analysis and NRC approved methodology (see Reference 83 of the main EC document). All analyses, including the SBLOCA analysis, continue to meet the same design basis limits as in the current licensing basis.

As a result, the increase in LHR upper limit does not result in a design basis limit for a fission product barrier as described in the UFSAR being exceeded or altered.

The new SBLOCA analysis is performed using NRC approved methodology (see Reference 83 of main EC document) consistent with the methodology used in current Technical Specification and COLR methodologies. The design bases and the safety analyses methods used for the new SBLOCA analyses as approved by the NRC, are the same as those used for the EPU in the UFSAR described safety analyses. The increase of LHR is an input to the methodology, not part of the methodology. These methods remain the same as those described in the Technical Specifications/COLR and the UFSAR. Therefore, the proposed activity does not result in a departure from a method of evaluation described in the UFSAR used in establishing the design bases or in the safety analyses.

No Technical Specifications are impacted from the activity described above. Based upon the evaluation under 10CFR 50.59, a 10CFR50.90 a License Amendment Request is not required.