



Florida Power & Light Company, 6501 South Ocean Drive, Jensen Beach, FL 34957

June 21, 2002

L-2002-119  
10 CFR 50.59

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

Re: St. Lucie Unit 2  
Docket No. 50-389  
Report of 10 CFR 50.59 Plant Changes

Pursuant to 10 CFR 50.59 (d)(2), the enclosed report contains a brief description and summary of the safety evaluations for changes, tests, and experiments which were approved for Unit 2 during the period of May 16, 2000 through December 21, 2001. This submittal correlates with the information included in Amendment 14 of the Updated Final Safety Analysis Report submitted under separate cover.

Please contact us should there be any questions regarding this information.

Very truly yours,

A handwritten signature in black ink, appearing to read 'DEJ', is written over the typed name of Donald E. Jernigan.

Donald E. Jernigan  
Vice President  
St. Lucie Plant

DEJ/spt

Enclosure

IE47-

ST. LUCIE UNIT 2  
DOCKET NUMBER 50-389  
CHANGES, TESTS AND EXPERIMENTS  
MADE AS ALLOWED BY 10 CFR 50.59  
FOR THE PERIOD OF  
MAY 16, 2000 THROUGH DECEMBER 21, 2001

## INTRODUCTION

This report is submitted in accordance with 10 CFR 50.59(d)(2), a report containing a brief description of:

- 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.

This report is intended to meet this requirement for the period of May 16, 2000 through December 21, 2001. Note that, where practical, summaries from more recent 10 CFR 50.59 evaluations have also been included in this report.

This report is divided into three (3) sections: the first, changes to the facility as described in the Updated Final Safety Analysis Report (UFSAR) performed by a Plant Change/Modification (PC/M); the second, changes to the facility or procedures as described in the UFSAR not performed by a PC/M and tests and experiments not described in the UFSAR; and the third, a summary of any fuel reload 10 CFR 50.59 evaluations.

Each of the documents summarized in Sections 1, 2 and 3 includes a 10 CFR 50.59 evaluation that evaluated the specific change(s). Each of these evaluations concluded that the change does not require a plant license amendment or NRC approval prior to implementation.

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SECTION 1

PLANT CHANGE / MODIFICATIONS

PLANT CHANGE/MODIFICATION 99031  
REVISIONS 0 & 1

REPLACEMENT OF UNIT 1 AND 2 FIRE PENETRATION SEALS

Summary:

This modification provides the engineering analysis and design information necessary to modify eight of the fifteen fire penetration seals documented in Condition Report 97-1474 and LER 335 97-008 and one fire penetration seal documented in Plant Management Action Item PM96-03-160. These fire penetration seals have been identified as having various items that are not bounded by testing or do not meet the requirements of the design drawings; therefore, they need to be modified to assure they will meet the three hour fire barrier requirements of the UFSAR. There are a total of six penetration seals in Unit 1 and three in Unit 2 to be modified.

Revision 1 modifies additional fire penetration seals that were found to be deficient based on a review performed by an independent contractor. Fourteen seals will be changed to an M-7 seal and thirty-nine seals will have a boot installed on the sleeve of the seal. This revision also modifies the penetration schedules for both units to show seal ratings for the penetration seals being modified.



PLANT CHANGE/MODIFICATION 99104  
REVISIONS 0, 1, 2, 3 & 4

APPENDIX "R" SSA CIRCUIT MODIFICATIONS

Summary:

As a part of the preparation for the 1998 NRC Fire Protection Functional Inspection, a revalidation of the SSA (Safe Shutdown Analysis) was initiated. The effort resulted in identification of a number of shortcomings of the original SSA or items where the original assumptions were no longer applicable in today's licensing environment. Specifically, the original FPL position that multiple hot shorts (resulting in a spurious energization of equipment) are not a credible cable failure mode for "high-low pressure" interface equipment in containment has been rejected in recent NRC practice. The reanalysis effort identified situations where multiple cable hot shorts could potentially result in an inadvertent positioning of valves, which could lead to a loss of RCS inventory (i.e., a fire induced LOCA).

This modification provides the design details for:

- a. PORV circuits will have isolation switches rewired to assure that hot shorts due to a control room fire will not spuriously open the valves.
- b. Control room A/C unit 2-HVA/ACC-3A will have its power and control cables rerouted to assure that it will be operable with a fire in Fire Area I.
- c. Power supply cables for the "A" dc equipment room air-conditioner will be rerouted to assure availability of room cooling for a Fire Area C/34 ("B" switchgear room) fire.
- d. To assure availability of HVAC for the hot shutdown control panel room, a Normal/Isolate switch will be added to the control circuit.
- e. TI-1101 will be repowered from "SA" ac bus to assure availability of indirect indication of pressurizer pressure in the intermediate range.
- f. Radiant energy shields will be added to six conduits containing essential cabling for pressurizer pressure instrumentation, pressurizer level instrumentation, auxiliary spray isolation valve power, and charging isolation valves power.
- g. Administrative updates will be provided to the SSA and EEL on the basis of this PC/M, Condition Reports 98-1627, 00-0386, 98-1609S1, and Unit 2 containment walkdowns.

h. Miscellaneous drawing corrections based on field walkdowns.

Revision 1 provides details for the required containment fire barriers/radiant energy shields for conduits containing cables for redundant pressurizer instrumentation.

Revision 2 provides details for installing radiant energy shields on conduits containing cables for redundant pressurizer pressure instrumentation, pressurizer level instrumentation, auxiliary spray isolation valve power, and charging isolation valves power. This revision also resolves certain commitments made in LER 2000-001-00.

Revision 3 provides additional details for a reduced scope of work on installing containment radiant energy shields on conduits containing cables for the auxiliary spray isolation valve power, and charging isolation valves power. This revision also resolves a separation discrepancy identified by field walkdown during the refueling outage.

Revision 4 updates the SSA and associated design documents. This revision also provides for the final resolution to several condition reports.

PLANT CHANGE/MODIFICATION 99125  
REVISIONS 0, 1 & 2

FUEL HANDLING SYSTEM UPGRADES

Summary:

The purpose of this modification is to upgrade the fuel handling system to increase the speed of refueling operations and to automate the refueling operations to minimize the likelihood of errors during refueling. The upgrade will also address the issue of equipment obsolescence and component degradation due to aging.

Revision 1 provides some minor documentation changes and set point information.

Revision 2 provides hoist speed restrictions, a failure modes and effects analysis, revised implementation instructions, instrument scaling information and other minor changes.

PLANT CHANGE/MODIFICATION 99143  
REVISIONS 0, 1 & 2

TWO-SIDED CABLE TRAY FIRE STOP UPGRADE

Summary:

This modification provides the design upgrade requirements for two-sided cable tray fire stops. This will restore the fire stops to a 3-hour fire rating as required by plant design. Condition Report 97-1278 evaluated all two-sided cable tray fire stops with an indeterminate fire rating due to the lack of ceramic fiber being installed in-between cables in the fire stop assemblies. Subsequent testing substantiated the fire rating as less than 3 hours. As a result, upgrade designs were developed and evaluated for consideration to restore these fire stops to a 3-hour fire rating while optimizing the field effort. These designs were fire tested, evaluated, and form the basis for the upgrades provided in this modification.

Revision 1 adds cable tray fire stops 89, 90, 91, 92, 93, 94, 95, 100 and 101. Some design details were also added/revised.

Revision 2 provides an alternate elastomer seal design for sealing cable tray penetrations. Additionally, some of the design details were revised by expanding their application to vertical cable trays (topside of barrier only).

PLANT CHANGE/MODIFICATION 99170  
Revisions 0 & 1

REMOVAL OF UNIT 2 SPENT FUEL STORAGE CELL BLOCKING DEVICES

Summary:

This change modifies selected spent fuel pool (SFP) cell locations by removing their cell blocking devices. The number of cells to be modified via Revision 0 of this package will provide enough storage capacity in the SFP to perform a full core fuel off-load at the end of Cycle 11. Future revisions to this package will allow removal of additional blocking devices until the maximum number of storage cells allowed by the current Technical Specifications is available. Additionally, Revision 0 permitted the repositioning of irradiated fuel assemblies stored in the SFP. These assemblies required repositioning to conform to the requirements of license amendment 101 prior to the startup of Cycle 12. (Repositioning was completed prior to the start of the end-of-cycle 11 refueling outage.) The removal of blocking devices and the repositioning of irradiated fuel is in accordance with license amendment 101 approved by the NRC.

Revision 1 permits the removal of additional Region I and Region II cell blocking devices. Removal of these additional blocking devices and the subsequent storage of fuel in these locations is permitted by criticality safety analyses and by Technical Specifications. To reduce the potential for mis-positioning of fuel assemblies, blocking devices located in spent fuel rack locations where fuel storage is not permitted will not be removed.

PLANT CHANGE/MODIFICATION 00008  
REVISIONS 0, 1, 2 & 3

AUTOMATIC SPRINKLER SYSTEM ADDITIONS

Summary:

As a result of Condition Report 98-0195, which identified a potential fire resistance deficiency with the RAB Houdaille slab, it was determined that the existing RAB fire suppression system requires an extension in order to afford the necessary fire protection. The areas required to be covered are located at elevation 19.5' underneath the Houdaille slab. Areas above are already provided with an automatic sprinkler system with a dedicated detection actuation system. This modification installs additional fire detectors to allow quick actuation of the fire suppression system.

Revision 1 revises a drawing to clarify the scope of work.

Revision 2 provides for the installation of automatic sprinkler system extension piping and supports and it provides for connection of the new fire detectors into the existing system.

Revision 3 provides for the installation of drainage capability for the "A" cable loft.

PLANT CHANGE/MODIFICATION 00040  
Revisions 0 & 1

HVS-4A/B and HVS-5A/B REFURBISHMENT

Summary:

Portions of the air intake plenums for the RAB main ventilation system (HVS-4A/4B) and the electrical equipment room ventilation system (HVS-5A/5B) are severely degraded due to the corrosive environment and need to be refurbished. Interior systems, structures, and components located inside the plenums have become corroded due to coatings failures and the intrusion of chlorides. The degraded items need to be cleaned and coated, with the potential for some items requiring repair and/or replacement. This package provides for the potential modifications associated with refurbishment of the plenums.

Due to the length of time required to implement the required maintenance and the operational restrictions that limit the time these fans can be out of service (or prohibited from starting), the maintenance activities will be performed with the ventilation system in service, provided required compensatory actions are taken. As such, this package also addresses the effects on safety associated with the performance of the maintenance activities while the ventilation system is in operation.

Revision 1 clarifies the wording of the evaluation to specifically address temporary system configurations.

PLANT CHANGE/MODIFICATION 00057  
REVISIONS 0 & 1

ALTERNATE SJAE SAMPLE POINT

Summary:

This modification provides an alternate sample point for the condenser air ejector (CAE) radiation monitor. The original sample point is from a common discharge header receiving non-condensable gases from the steam jet air ejector (SJAE) and the gland steam condenser. An alternate sample point on the discharge of the SJAE will allow samples to be taken from the low volume SJAE without the dilution from the gland steam condenser.

Revision 1 provides additional evaluation of UFSAR changes and adds a reference to the UFSAR changes.



PLANT CHANGE/MODIFICATION 00111  
REVISION 0

NFPA CODE COMPLIANCE SUPPRESSION SYSTEM MODS

Summary:

This modification provides for the resolution of code non-conformances associated with the fire suppression system. These non-conformances are identified in Condition Reports 98-0405 and 98-0429. The following fire suppression systems will be modified:

- A) Turbine Lube Oil Piping Pre-action Sprinkler System
- B) Turbine Lube Oil Reservoir Deluge System
- C) Main Transformers 2A/2B Deluge System
- D) Auxiliary Transformers 2A/2B Deluge System
- E) Startup Transformers 1B/2B Deluge System
- F) Diesel Generator Building 2A/2B Pre-action System
- G) Reactor Auxiliary Building Fan Room Pre-action System
- H) Reactor Auxiliary Building Hallway Pre-action System

System modifications include: the addition of hangers to properly support the fire protection piping, the replacement of sprinkler heads to prevent cold soldering, modification of existing suppression systems to provide additional protection to system components and structures, and the installation of new fire detectors and associated conduits/supports in the turbine lube oil reservoir area.

PLANT CHANGE/MODIFICATION 01028  
REVISION 0

APPENDIX "R" CONTAINMENT CABLE SEPARATION MOD

Summary:

As a part of the preparation for the 1998 NRC Fire Protection Functional Inspection, a revalidation of the existing SSA (Safe Shutdown Analysis) was initiated. That effort resulted in identification of items where the original assumptions were no longer applicable in today's licensing environment. Specifically, the original FPL position that multiple hot shorts (resulting in a spurious energization of equipment) are not a credible cable failure mode for "high-low pressure" interface equipment has been rejected in recent NRC practice. The reanalysis effort identified a number of situations where multiple cable hot shorts could have resulted in an inadvertent positioning of valves which could lead to a loss of RCS inventory beyond make-up capability of available equipment, thereby resulting in a fire-induced LOCA.

This modification provides the design details for:

- a. PORV power circuits in containment will be re-pulled using armored cables to assure that hot shorts due to a containment fire will not spuriously open the valves.
- b. PORV light indicating circuits will be provided with 0.5 A fuses. This will assure that power to a PORV will be interrupted should a hot short occur in the conduit where both power and indicating circuits are routed together.
- c. Outboard Reactor Head Gas Vent System valve circuits in containment will be re-pulled using armored cables to assure that hot shorts due to containment fire may not spuriously open the valves.
- d. Radiant energy shields will be added to cable trays at elevation 45' to comply with UFSAR commitments.
- e. Shutdown cooling system valve V3652 power cable in containment will be enclosed in a flexible conduit in box B2D31 to eliminate the potential for hot shorts for both train "A" RCS suction source valves.

**SECTION 2**

**EVALUATIONS**

EVALUATION JPN-PSL-SEMS-90-052  
REVISION 2

GENERIC USE OF SEALANT INJECTION

Summary:

The purpose of this evaluation is to provide a vehicle to allow temporary repairs of thread, gasket and packing leaks on safety related and quality related systems or components through the use of sealant injection and/or peening. The use of these methods to repair the subject components will have no impact on plant safety or operation.

Revision 2 is written to identify that peening may be used as part of a seal injection repair or as a stand-alone procedure, and to provide guidelines on when it can be used.

EVALUATION JPN-PSL-SENP-94-029  
REVISION 4

SHUTDOWN OPERATIONS CRITERIA FOR REDUCED INVENTORY AND  
DRAINING THE REACTOR COOLANT SYSTEM

Summary:

The purpose of this evaluation is to identify the plant changes required to safely operate during Modes 5 and 6 with the reactor coolant system (RCS) partially drained of water and with a full core of irradiated fuel present in the reactor vessel.

Following reactor shutdown, irradiated fuel continues to produce substantial quantities of heat due to the decay of fission products. Most of this decay heat is deposited in the RCS and is subsequently removed by the shutdown cooling heat exchangers. The water inventory present in the RCS to absorb decay heat will fluctuate during Mode 5 and 6 activities, but will always be less than the normal operating level. During this evolution, the RCS will be drained to approximately the mid-plane of the hot leg piping; this condition is referred to as "mid-loop."

Calculations have shown that the boil-off of RCS inventory at low pressures is a relatively slow evolution that requires two hours or more to reduce RCS water level below the top of the active fuel. However, if the steam generated by the boil-off process is not effectively vented from the system, pressure within the reactor vessel upper plenum may increase, depressing the reactor vessel water level such that active fuel is exposed. This scenario, which also requires the presence of an opening in the RCS cold leg, leads to a more rapid core uncover than does the low pressure boil-off scenario.

To preclude rapid core uncover following a loss of shutdown cooling, the criteria for draining the RCS after shutdown will now be constrained by both the time to core uncover and by vent path area requirements. As a result, an important requirement from this evaluation is that a vent pathway connecting the fluid in the RCS hot leg and the containment atmosphere must exist when the RCS coolant inventory level is below the top of the hot leg piping. Evaluation of this condition effectively bounds other scenarios initiated at higher RCS levels.

Revision 4 to this evaluation incorporates results from a calculation that developed a revised value for an elevation of the steam generator manway opening that is approximately 7.1 inches higher than the value previously presented in plant procedures. No credit is taken for the presence of a vent path through the open steam generator manway.

EVALUATION PSL-ENG-SENS-97-006  
REVISIONS 3 & 4

PERFORMANCE OF FULL CORE REFUELING OFFLOADS

Summary:

This evaluation was originally prepared to justify the routine performance of full core fuel offloads. With the conditions imposed by license amendment #101, each full core offload requires a cycle-specific calculation documenting that the maximum bulk water temperature remains below 150°F.

The purpose of Revisions 1 and 2 to this evaluation was to document that during performance of a full core fuel offload at the end of Cycle 11 (EOC11) operation, 10 CFR 50.59 criteria are met. Additionally, this evaluation documents that a full core fuel offload can be performed at EOC11 conditions and simultaneously comply with the license condition imposed by the NRC during the issuance of amendment #101 concerning maximum fuel pool bulk water temperature.

Revision 3 of this evaluation was prepared to address improvement opportunities identified by Quality Assurance. Quality Assurance concluded that the evaluation's requirements for fuel pool water level should be revised to more clearly distinguish between level requirements applicable prior to initiation of the full core offload evolution and those level requirements applicable during the offload evolution.

Revision 4 of this evaluation has been prepared to define the conditions under which a full core fuel offload may be performed during refueling outages subsequent to Cycle 11. To do so, Revision 4 specifies a limit on decay heat loads for future cycles. By crediting calculations performed as part of the reload engineering process, Revision 4 is intended to obviate the need for subsequent modification of this evaluation so long as the requirements are met. Revision 4 also reformats this evaluation to comply with the revised requirements of 10 CFR 50.59.

EVALUATION PSL-ENG-SEMS-98-101  
REVISION 2

STEAM GENERATOR SECONDARY SIDE FOREIGN OBJECTS

Summary:

This evaluation addresses the safety significance of operating with foreign objects in the steam generators.

The objects currently in the steam generators include:

Steam Generator A

- A 4-inch long weld rod approximately 1/8-inch diameter at row 109/110, line 33-34;
- A metal shaving 1/16-inch diameter by 1/2-inch helix at row 37, line 163-164;
- A ball bearing approximately 1/8-inch diameter at line 62-63;
- A weld rod located approximately 13 inches above the tubesheet, between lines 129 and 130, and extending from Row 103 to 117;
- A weld rod located on the tubesheet between lines 133 and 134; and
- An object approximately 0.032" diameter of undetermined length on the tubesheet at line 166 and row 13-14 and protruding from the bundle approximately 0.250".

Steam Generator B

- A 2-inch long weld rod in the cold leg tube lane between the blowdown pipe and the dome;
- An uncharacterized object located at the top edge of eggcrate 03C adjacent to tubes R16/L106 and R18/L106; and
- A tube lane spray cart nozzle 1-5/8" long x 3/16" diameter, location unknown.

The foreign objects discussed above do not affect plant safety and operation.

Revision 1 of this evaluation incorporated information on foreign objects observed during foreign object search and retrieval (FOSAR) in steam generator "A" during the SL2-12 outage.

Revision 2 of the evaluation incorporates information on foreign objects observed during foreign object search and retrieval in the steam generators during the SL2-13 outage. This revision also documents actions required by this evaluation to be performed during the SL2-13 outage, updates the evaluation to meet the new 10 CFR 50.59 requirements and reformats the attachments.

EVALUATION PSL-ENG-SEFJ-99-012  
REVISION 1

SAFETY ANALYSIS REQUIREMENT FOR POWER CALIBRATION DURING POWER  
ASCENSION DUE TO POWER DEPENDENT POWER MEASUREMENT UNCERTAINTY

Summary:

The purpose of this evaluation is to address ABB-Combustion Engineering Infobulletin 94-01 related to secondary calorimetric power measurement uncertainties that may exceed 2% of rated power at reduced power levels. The increased uncertainties are associated with feedwater flow transmitter drift and calibration temperature effects. Conservative power calibration requirements were imposed at that time to satisfy safety analysis acceptance criteria.

Revision 1 to this evaluation adds guidelines for power escalation calibration requirements for the case where venturi in combination with leading edge flow meter (LEFM) is used for feedwater flow measurement in the calorimetric power determination procedure. Revision 0 of this evaluation addressed the calibration requirements separately for the case of venturi and LEFM, but not the combination of the two for feedwater flow indication.



EVALUATION PSL-ENG-SEMS-99-027  
REVISIONS 1 & 2

HYDRANTS, HOSE HOUSES, HOSE STATIONS & FIRE EXTINGUISHERS - COMPARISON  
OF THE FSAR vs. FIRE FIGHTING STRATEGIES

Summary:

This evaluation compares the assumptions made in the UFSAR for the use of fire protection suppression equipment (e.g., fire hydrants, hose houses, hose stations and fire extinguishers) to the fire fighting strategies provided in plant procedures, evaluates the differences and identifies changes to ensure consistency between the documents.

Revision 1 was issued to expand the scope of the evaluation to include fire extinguishers.

Revision 2 was issued to add a discussion regarding compliance with NFPA 10.

EVALUATION PSL-ENG-SEMS-99-034  
REVISION 0

UFSAR AND DBD UPDATE OF FLOW CAPABILITIES OF  
STEAM DUMP AND BYPASS VALVES PCV-8801 THROUGH PCV-8805

Summary:

This evaluation addresses the flow capabilities of the non-safety steam dump and bypass valves and provides for revision of the UFSAR and Design Basis Document (DBD). The UFSAR and DBD currently state that the steam dump and bypass valves are capable of a load rejection of 45%. Calculation PSL-2FSM-95-015 has determined that the valves are capable of a load rejection of 29% (stretch power). The effective stroke length of the valves was reduced by previous actuator modifications, which resulted in a lower flow coefficient. Based on the flow coefficient change, and using stretch power steam flow rates, the percentage of full flow through the valves is decreased.

EVALUATION PSL-ENG-SEMS-99-051  
REVISION 1

CHANGE TO CREDIT A TURBINE TRIP FOR MEETING  
TURBINE VALVE TEST REQUIREMENTS

Summary:

This evaluation justifies allowing credit for a turbine trip and subsequent turbine start-up to meet the surveillance requirements for proper operation of the turbine valves for overspeed protection. Specifically, the surveillance and acceptance criteria for direct operator observation is removed in the case of an unplanned turbine trip. This evaluation is based upon NRC approval of Westinghouse WCAP-11525. Westinghouse provided the following discussion related to observation of turbine valve testing in Section 3.2, Surrogate Valve Testing:

For unplanned trips, the only significant difference from a planned trip or a typical valve test is the absence of an observer at the valves. In this case, sufficient evidence of proper valve operation can be obtained if an operator looks at each turbine valve not too long after the trip and verifies that all valves are in the closed position and that conditions with respect to the valves appear normal. This operator activity would then qualify as a surrogate valve test.

This evaluation finds WCAP-11525 applicable to St. Lucie Unit 2.

Revision 1 provides clarification and understanding to the UFSAR Change Package based on Facility Review Group comments of Revision 0.

EVALUATION PSL-ENG-SENS-00-012  
REVISION 0

TS BASES CHANGE TO CLARIFY SURVEILLANCE REQUIREMENTS  
FOR 48" CONTAINMENT PURGE VALVES

Summary:

Technical specifications (TS) require the containment purge supply and exhaust system to be operable in Modes 1,2,3 and 4. The associated TS surveillance requires "each sealed closed 48-inch containment purge supply and exhaust isolation valve" to be leak-rate tested to the containment leakage acceptance criteria. The intent of this "Containment Systems" specification is to verify that any leakage through these containment penetrations is within allowable limits. There are six 48-inch purge supply and exhaust isolation valves in the system; however, of the six valves, only four provide the containment isolation function. As such, the isolation valves located on either side of the containment vessel are the credited containment isolation valves. The other two valves are not considered containment isolation valves since they do not constitute a part of the containment penetration boundary and are not required by the design to satisfy GDC-56 criteria for containment penetration isolation.

This evaluation revises the TS bases to clarify the applicability of the TS surveillance requirements.

EVALUATION PSL-ENG-SENS-00-013  
REVISION 2

USE OF PRC-01 RESIN IN THE CVCS LETDOWN STREAM  
TO REMOVE Co-58 CONTAMINANTS

Summary:

This evaluation has been prepared to examine the use of an additional resin material in the chemical and volume control system (CVCS) ion exchangers during the plant cooldown and refueling evolution. The material to be utilized is an acrylic substrate weak acid resin identified as PRC-01 that will increase the decontamination factor (DF) of the CVCS cleanup system for sub-micron sized particulates of Cobalt 58.

Particulates are not efficiently removed by resins in the current mixed bed ion exchanger and, depending on particle size, may not be removed by installed CVCS purification filters. The PRC-01 resin proposed for use has a demonstrated high affinity for corrosion products in the particulate form. Use of this resin material will assist in reducing the occupational dose incurred during refueling outages.

Revision 1 has been prepared to make minor modifications to the plant restrictions provided previously, to add and more precisely paraphrase UFSAR text and to include an additional required action related to calibration of the CVCS ion exchanger bypass valve.

Revision 2 has been prepared to provide a basis for extending use of PRC-01 resin to any condition where the effective neutron multiplication factor is less than 1.0, consistent with the plant restrictions identified herein. Revision 2 also incorporates format and content changes necessary to comply with recent changes to 10 CFR 50.59.

EVALUATION PSL-ENG-SEMS-00-022  
REVISIONS 0 & 1

ICW PERFORMANCE CURVES

Summary:

This evaluation provides revised intake cooling water (ICW) system performance curves and UFSAR clarifications. The curves limit the ICW inlet temperature based on the performance of the component cooling water (CCW) heat exchanger and the ability to remove design basis accident heat loads without exceeding the allowable CCW supply temperature.

Revision 1 extends the ICW performance curves for the 85% and 90% ICW pump capacity, which effectively provides performance parameters for higher differential pressures across the CCW heat exchanger and strainer to use during abnormal fouling conditions (e.g., sea grass or jelly fish).

EVALUATION PSL-ENG-SEMS-00-106  
REVISIONS 0 & 1

UNIT 2 FSAR APPENDIX 9.5A CONSISTENCY REVIEW FSAR CHANGES

Summary:

Appendix 9.5A of the UFSAR was reviewed for internal inconsistencies within the appendix. Changes were recommended to correct those inconsistencies as well as editorial enhancements, which improve the usability of the document. Also, the combustible loading information in selected fire zones was updated due to the identification of unaccounted-for combustibles in these fire zones. The combustible material is portable equipment normally staged in the area.

Revision 1 of this document provides a revised combustible loading for the control room ventilation system charcoal filters to correct a discrepancy identified in Condition Report 00-0535. These charcoal filter volumes had been previously recorded differently and, as a result of the changes in volume reflected in this document, no changes in the fire severity (low, moderate, high) resulted.

EVALUATION PSL-ENG-SENS-00-108  
REVISION 0

2000 FSAR REVIEW FINDINGS REQUIRING CHANGES OR  
CLARIFICATIONS TO THE FSARS IN ACCORDANCE WITH 10 CFR 50.59

Summary:

The purpose of this evaluation is to provide a method to update, correct, or add clarifications to the UFSAR following the 2000 UFSAR Review Project reviews of non-risk significant systems. This evaluation contains a description of each change and its impact on plant safety.

The subject matter of these changes involve the following:

- Heavy Loads
- Missile Protection
- Radiation Waste

FPL implemented a UFSAR review project to review selected safety systems to assure that the UFSAR is correct, up to date, and consistent. The findings from this review were then processed in accordance with Engineering procedures to update the UFSAR. Evaluations PSL-ENG-SENS-98-075 and PSL-ENG-SENS-98-062 were issued to update the UFSAR based on reviews performed in 1998. Evaluations PSL-ENG-SENS-99-059 and PSL-ENG-SENS-99-040 were issued to update the UFSAR based on reviews performed in 1999.

There are no physical or operational plant changes required by this evaluation.



EVALUATION PSL-ENG-SEIS-00-123  
REVISION 0

DECLASSIFICATION OF MT-25-1 AND MT-25-2

Summary:

This evaluation addresses the moisture transmitters for the shield building ventilation system (SBVS), MT-25-1 and -2, which are currently classified as Safety Related, Seismic Class I, electrical 1E. Engineering procedures provide requirements and guidance relating to the determination of safety classifications for design outputs, structures, systems, components, piece-parts, computer software, procedures, and activities. A safety classification evaluation may lower a safety classification for a piece or part of a component from that which is assigned to the component as a whole.

This evaluation demonstrates that the moisture transmitters for the SBVS can be re-classified as components of a lower safety classification.

EVALUATION PSL-FPER-00-125  
REVISION 0

FIRE PROTECTION SURVEILLANCE REDUCTION TASK

Summary:

This evaluation develops the basis for fire protection surveillance changes that would reduce maintenance costs. The reliability and availability of these fire protection features is maintained and enhanced by the performance of inspection and testing to ensure continued operability and readiness. The potential exists to justify extending surveillance intervals where equipment reliability can be proven. Where such evaluations are performed and successful, cost savings can be realized. A selected set of plant procedures was reviewed to determine if surveillance frequency extensions could be adopted without affecting the reliability or availability of the equipment. The decision to extend surveillance frequencies was based on the current National Fire Protection Association (NFPA) codes, Nuclear Mutual Limited/Nuclear Electric Insurance Limited (NEIL) requirements, past performance data and experienced engineering judgment by a Fire Protection Engineer meeting the requirements of Membership Grade to the Society of Fire Protection Engineers.

NFPA Standards were also reviewed to determine the requirements for inspections and testing. Information from the various NFPA codes as well as the methodology utilized by NEIL were applied, as appropriate, to assess and justify the extension of each surveillance frequency. The proposed extensions in surveillance frequency for inspection and testing have been justified based on a comparison of system and component failure rates with maximum allowable failure rates.

The proposed changes pertain only to the extension of certain fire protection surveillance activities. They do not introduce any new fire hazards or add combustibles to any plant area nor do they change any existing circuits or equipment. There are no changes to safe shutdown circuits or equipment. The ability to detect and suppress a fire in the plant within a reasonable time frame remains unchanged. All fire protection and safe shutdown systems and equipment will operate as previously analyzed for safe shutdown in the event of a fire.

EVALUATION JPN-PSL-SENS-00-132  
REVISION 0

OPERATION OF A MAIN FEEDWATER REGULATING VALVE  
WITH THE LOCKING PIN INSTALLED

Summary:

The purpose of this evaluation is to assess the impact associated with operating at power with a pinned main feedwater regulating valve. Pinning a main feedwater regulating valve (MFRV) may be necessary in order to support maintenance activities associated with the MFRV control system. Successful troubleshooting and maintenance of the control system will help prevent plant transients due to control system failures. The installed pin will couple the valve stem to the manual gear drive and prevent the control system from moving the valve stem. While pinned, steam generator level will be maintained by throttling back MFRV flow and remote manually operating the low power feedwater control valve for level adjustments. Establishment of communications with the control room is a procedural requirement. The installed pin will prevent the MFRV from automatically closing upon a reactor or turbine trip, but the valve will be closed by manual operation providing the required protection from steam generator overfill.

EVALUATION PSL-ENG-SEES-00-138  
REVISION 0

CHANGES TO THE FIRE PROTECTION PLAN FOR EMERGENCY  
HAND HELD BATTERY OPERATED LANTERNS

Summary:

This evaluation reviews the changes to the Fire Protection Plan to address emergency hand held battery operated lanterns. The lanterns are required as shown by a review documented in evaluation PSL-ENG-SEES-98-039, Evaluation of the St. Lucie Plant 10 CFR Part 50 Appendix R 8-Hour Battery Pack Emergency Lighting Requirements. The lanterns were installed as part of the continuing resolution of fire protection issues identified during the NRC's fire protection functional inspection.

The change to the Fire Protection Plan to include these lanterns and the requirements associated with them provides additional confidence that adequate portable emergency lighting will be maintained.

EVALUATION PSL-ENG-SEMS-01-001  
REVISION 0

USE OF CARBOHYDRAZIDE IN STEAM GENERATOR SECONDARY SIDE

Summary:

Dissolved oxygen controls and secondary chemistry requirements applicable to the steam generators are outlined in the UFSAR and defined in greater detail within plant chemistry procedures. Those requirements are generally based on the PWR Secondary Water Chemistry Guidelines published by EPRI. An INPO assist visit at Florida Power and Light's Turkey Point plant identified that carbonylhydrazide should be evaluated as an alternate control method for dissolved oxygen in the plant's steam generators during wet lay-up. This evaluation is performed to evaluate the same issue for St. Lucie plant.

The application of carbonylhydrazide has been reviewed for compatibility with existing secondary chemistry controls, fabrication materials, OSHA and environmental impacts and system operating requirements. Carbonylhydrazide was found to be compatible with all existing chemicals and fabrication materials and to have no significant impact on either OSHA or environmental requirements. The use of carbonylhydrazide will not impact wet lay-up system operation and will permit a smooth transition into the operating chemistry regime for the steam generator secondary side.

EVALUATION PSL-ENG-SENS-01-009  
REVISION 0

OPERATION OF THE CONTROL ROOM HVAC SYSTEM  
INCLUDING ALIGNING THE OUTSIDE AIR INTAKE

Summary:

This evaluation provides for updating the UFSAR to correct discrepancies identified during research to determine the time requirements for aligning the control room HVAC system outside air intake (CROAI) valves. A Condition Report was initiated to address alignment of the CROAI valves to the control room HVAC system because a surveillance performed on the system indicated that the differential pressure indicator had a bias that prevented the indication from going below the 1/8" w.g. lower acceptance limit. This biased condition would have indicated that the control room was already pressurized when operating in the recirculation mode. As such, the CROAI valves may not have been opened as assumed in existing analyses.

Subsequent investigations have determined that there is no instrument bias, but that there is a pressurization of air volumes adjacent to the control room envelope resulting in the observed readings. This issue is being addressed via the plant's corrective action program.

EVALUATION PSL-ENG-SEJS-01-015  
REVISION 0

REMOVAL OF A RCS HOT LEG TEMPERATURE INPUT SIGNAL FROM THE  
QSPDS RCS SATURATION MARGIN CALCULATION

Summary:

This evaluation justifies the temporary removal of one of the two reactor coolant system (RCS) hot leg resistance temperature detector (RTD) input signals to the qualified safety parameter display system (QSPDS). This temporary configuration is necessary due to a component failure. Only one RCS hot leg temperature input is required to calculate the saturation margin.

Note - The system was returned to its normal configuration during the subsequent plant refueling outage.

EVALUATION PSL-ENG-SEMS-01-020  
REVISION 0

ADDITION OF CARBOHYDRAZIDE TO THE SECONDARY SYSTEM

Summary:

This evaluation justifies the addition of carbohydrazide for the enhanced control of dissolved oxygen and passivation of metal surfaces in the secondary system during all modes of plant operation. Carbohydrazide was previously approved for use in the steam generators during wet lay-up. Carbohydrazide, which serves a similar function as hydrazine, can be a direct replacement for hydrazine or it may be added as an enhancement to the current chemistry program. The application of Carbohydrazide during all modes of plant operation has been reviewed for compatibility with the existing chemistry controls, fabrication materials, OSHA and environmental impacts and system operating requirements.



EVALUATION PSL-ENG-SENS-01-050  
REVISION 0

SIT TEST LINE CONTAINMENT ISOLATION  
CLOSURE TIME UFSAR REVISION

Summary:

Containment isolation valves for the safety injection tank (SIT) test line have in the past exceeded their limiting allowable stroke times when tested. These valves are solenoid operated, fail close, isolation valves that receive a safeguards signal to close. These valves are credited containment isolation valves.

Condition reports have documented slow stroke conditions. The history of these condition reports have concluded that system conditions, particularly the difference between the valve stroking in an air or water medium, were influencing valve stroke times. It is determined that these valves are located at high points in the system piping with no provisions for venting air from the internals of the valves or associated piping. Corrective actions have been implemented that revise the test methodology for these valves. The changes in system lineup establish a test condition that is consistent with what the system would be exposed to during power operations. The alignment change effectively reduces the volume of any air entrapped internal to the valves and associated piping and permits the valves to stroke in a mostly water-solid condition. Stroking in a water-solid condition results in a slower stroke time than stroking in air.

Per the Unit 2 UFSAR Table 6.2-53, Containment Isolation Analysis, the subject isolation valves are referenced as having a maximum allowable closure time of 5 seconds. ASME Code testing also requires evaluation of any valve degradation associated with the containment isolation function. As such, the previously established stroke times developed in accordance with ANSI/ASME OM-10 would no longer be representative due to the valve configuration and normal system condition (water solid) for which containment isolation is expected to function. Based on testing performance, the changes implemented are expected to slow the valve stroke by compressing any air bubble and stroking the valve under a mostly water filled condition. Given the new slower stroke time value, the UFSAR Table 6.2-53 "time to close" value requires a change from 5 seconds to 10 seconds. This evaluation provides the justification for the UFSAR change.

SECTION 3

RELOAD EVALUATIONS

PLANT CHANGE/MODIFICATION 00075  
REVISIONS 0 & 1

UNIT 2 CYCLE 13 FUEL RELOAD

Summary:

This package provides the reload core design for St. Lucie Unit 2 Cycle 13 developed by Florida Power & Light Company (FPL) and Westinghouse Electric - Combustion Engineering (W-CE). The Cycle 13 core is designed for a cycle length of 11,540 EFPH, based on a nominal Cycle 12 length of 12,890 EFPH. The Cycle 13 reload design supports an additional end-of-cycle coastdown length of 400 EFPH at full power with a maximum reduction in primary coolant inlet temperature to 535°F. Cycle 12 is expected to achieve an end-of-cycle exposure of approximately 13,200 EFPH.

The primary design change to the core for Cycle 13 is the replacement of 77 irradiated fuel assemblies with 68 fresh fuel (Region R) assemblies and 9 irradiated fuel assemblies currently residing in the spent fuel pool. The fuel in the Cycle 13 core is arranged in a low leakage pattern similar to the design of the Cycle 12 core. The mechanical design of Region R fuel is essentially the same as that of Region P fuel, and consists of "value-added" fuel pellets and "guardian grid" design, first introduced in Cycle 11. Region R fuel includes some changes necessitated primarily by the transition of the fabrication of fuel rod assemblies from Hematite to the Columbia, S.C. manufacturing facility. The fuel rod design changes include elimination of alumina spacer disc located between the bottom of the fuel stack and the pedestal portion of the lower end cap, changes to the lengths of the end caps, and modifications to the plenum spring.

The implementation instructions provided in this modification support both a full core off-load and a partial core off-load resulting from incore fuel shuffle. The safety analysis of this design was performed by W-CE and by FPL using NRC approved methodologies.

The analyses for Cycle 13 support a change to the Core Operating Limits Report (COLR) Shutdown Margin Limit for Modes 1, 2, 3 and 4 from 4500 pcm to 3600 pcm. All analyses in support of this reload support a maximum steam generator tube plugging level of 1250 tubes per steam generator with a maximum asymmetry of 400 tubes. The reload analyses for Cycle 13 are based on a revised fuel failure acceptance criterion (~2%) for post-trip steam line break event. This change was approved by the NRC in license amendment #116.

Revision 1 justifies extending the Cycle 12 long window exposure from 13,200 EFPH to 13,237 EFPH. It is concluded that the extension will not invalidate the physics data used in support of the Cycle 13 reload analysis. This revision also includes some administrative changes.