



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No. 50-302/81-05

Licensee: Florida Power Corporation
3201 34th Street, South
St. Petersburg, FL 33733

Facility Name: Crystal River Unit 3 Nuclear Generating Plant

Docket No. 50-302

License No. DPR-72

Inspection at Crystal River Nuclear Plant, near Crystal River, Florida

Inspectors: *Virgith Brunler* 5/14/81
T. F. Stetka, Senior Resident Inspector Date Signed

Virgith Brunler 5/14/81
B. W. Smith, Resident Inspector Date Signed

Approved by: *A C Damer / for* 5/15/81
P. J. Kellogg, Section Chief, Resident and Date Signed
Reactor Project Inspection Division

SUMMARY

Inspection on March 25 - April 28, 1981

Areas Inspected

Routine inspection by the resident inspectors of plant operations, security, radiological controls, new fuel receipt, Licensee Event Reports (LER's) and Non-conforming Operations Reports (NCOR's), non-routine events, licensee action on IE Bulletins, and licensee action on previous inspection items. Numerous facility tours were conducted and facility operations observed. Some of these tours and observations were conducted on back shifts. The inspectors observed the emergency plan drill conducted on April 22, which involved participation by State and local officials. The inspection involved 208 hours onsite by two resident inspectors.

Results

Three violations were identified (Failure to have adequate procedures to demonstrate operability of the Halon System, paragraph 5.b.(4); Failure to follow procedures RP-101 and RP-106 for the wearing of protective clothing and logging in on an RWP, paragraph 5.B.(4); Failure to have two Emergency Feedwater pumps operable when in Mode 3, paragraph 5.a).

DETAILS

1. Persons Contacted

Licensee Employees

- *C. Brown, Compliance Supervisor
- J. Buckner, Officer of the Guard
- *J. Bufe, Compliance Auditor
- M. Collins, Reactor Specialist
- *J. Cooper, QA/QC Compliance Manager
- W. Cross, Operations Engineer
- J. Hancock, Assistant Vice President - Nuclear Operations
- *W. Herbert, Nuclear Technical Specification Coordinator
- *V. Hernandez, Compliance Auditor
- *S. Johnson, Maintenance Staff Engineer
- W. Kemper, Plant Training Manager
- *K. Lancaster, Quality Assurance Auditor
- T. Lutkehaus, Technical Assistant to the Nuclear Plant Manager
- *P. McKee, Operations Superintendent
- *G. Patrissi, Nuclear Fire Protection Specialist
- G. Perkins, Health Physics Supervisor
- *D. Poole, Nuclear Plant Manager
- G. Ruszala, Chemistry/Radiation Protection Manager
- *D. Smith, Technical Support Engineering Supervisor
- J. Lander, Maintenance Superintendent
- L. Tittle, Performance Engineering Supervisor
- *R. Whittman, Plant Manager

Other personnel contacted included office, operations, engineering, maintenance, chem/rad, and corporate personnel.

*Present at the exit interviews

2. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on April 28, 1981. During this meeting, the inspectors summarized the scope and findings of the inspection as they are detailed in this report. During this meeting the violations, unresolved item and inspector followup items were discussed.

3. Licensee Action on Previous Inspection Items

(Open) Inspector Followup Item (302/81-02-14): The licensee has developed a listing of containment isolation valves (CIV's) in the reactor building that require lubrication and has completed lubricating these valves. These valves will be included in a preventive maintenance (PM) lubrication program and this item remains open pending development of this program.

(Closed) Inspector Followup Item (302/80-42-05): The licensee has conducted meetings with plant personnel to emphasize anti-contamination clothing dress out and listing of requirements on the Radiation Work Permit (RWP). These meetings were not effective as evidenced by the violation identified in paragraph 5.B.(4) of this report. Activities in this area will be tracked by the violation finding and this item is considered closed for record purposes.

(Open) Inspector Followup Item (302/81-02-17): The "Lessons Learned" task force report identified two items that required corrective actions. The first item required installation of hinged plexiglas covers on the CRD "Trip/Reset" buttons to minimize personnel error during testing. These covers are expected to be installed by May 31. The second item involved a revision to OP-703, Plant Distribution System, to require the unit 4160 volt buses to be powered from the startup transformer while operating at power. The revision of OP-703 has been completed. This item remains open pending completion of the hinged cover installation on the CRD "Trip/Reset" buttons.

(Closed) Inspector Followup Item (302/81-02-02): Procedure SP-112, Calibration of the Reactor Protection System, has been revised to assure that the Reactor Coolant System (RCS) low pressure trip setpoint tolerance does not exceed the Technical Specification (TS) limits. The licensee has determined that the RCS variable low pressure trip setpoint tolerances are sufficiently conservative to prevent exceeding TS limits. The inspector reviewed the licensee's findings and concurs with the results.

(Closed) Inspector Followup Item (302/80-23-06): The licensee has completely revised their Emergency Plan to be consistent with the revised requirements of 10 CFR Part 50, Appendix E and various NUREG and Regulatory Guides. An Emergency Plan Drill was conducted on April 22 (see details in paragraph 10 of this report) to verify effectiveness of the new plan. The inspector's review of the new plan and observation of the drill indicate that the applicable items identified in the critique of the May 29 drill have been resolved.

(Closed) Violation (302/81-01-13): The inspector reviewed the licensee's actions as delineated in the response letter to Region II dated March 26, 1981. Discussions with the Nuclear Plant Manager and the permanently assigned Technical Specification Coordinator indicate that these personnel have reviewed the Technical Specifications (TS) and have adopted the policy that all items are reportable until proven otherwise. The inspector's review of Non-Conforming Operations Reports (NCOR's) indicate that this policy has been implemented. The inspector also verified that a TS change to clarify specification 4.8.1.1.1.a.2 has been initiated.

(Closed) Inspector Followup Item (302/80-39-01): The licensee has revised procedure OP-407, Liquid Waste Disposal System, to include cautions and additional instructions to prevent complete draindown of waste tanks. In addition the licensee has re-issued a Short Term Instruction (STI) to assure that all operators are familiar with the latest waste tank draindown directive.

(Closed) Inspector Followup Item (302/81-02-01): The licensee has issued a memorandum dated March 27, 1981 to inform personnel of the new practice for checking equipment exiting the Radiation Control Area as delineated in revised radiation protection procedures RP-101 and RP-102.

(Closed) Inspector Followup Item (302/80-42-11): Procedure SP-179, Containment Leakage Test - Types "B" and "C", has been revised on February 2, 1981 to include delineated steps for the performance of a pressure decay test. This procedure revision was reviewed by the inspector.

(Closed) Unresolved Item (302/80-39-03): The licensee has written and issued procedure PM-133, Equipment Lubrication Schedule, that replaces all previous lubrication charts.

(Open) Inspector Followup Item (302/80-39-06): In LER 80-12, the licensee reported problems with containment isolation valves (CIV) MUV-260 and MUV-261. The licensee is including these valves as part of their maintenance activities for the repairs of CIV's. In addition, the licensee is conducting an engineering investigation of the Limitorque operated CIV's. This item remains open pending NRC review of the licensee's actions.

(Closed) Violation (81-01-04): The inspector reviewed the licensee's actions as delineated in the response letter to Region II dated March 26, 1981. The inspector performed a radiation survey of the areas addressed in the finding and found radiation levels to be acceptable.

(Closed) Violation (81-01-07): The inspector reviewed the licensee's actions as delineated in the response letter to Region II dated March 26, 1981. The inspector reviewed numerous work request associated with safety-related maintenance to verify quality control concurrence was obtained prior to release the work request. Discussions with plant personnel indicate an increased awareness of safety-related issues in regards to maintenance activities.

(Closed) Unresolved Item (302/81-01-03): A review of the clearance orders indicate that the complete component system description is being entered on the clearance forms. The inspector has no further questions on this issue.

4. Unresolved Items

Unresolved items are matters which more information is required to determine whether they are acceptable or may result in violations. A new unresolved item identified during this inspection is discussed in paragraph 5.B.(10)a. of this report.

5. Review of Plant Operations

The plant continued with power operations (Mode 1) until March 26, 1981, at which time a loose parts monitor alarm in "B" Once-Through-Steam-Generator (OTSG) necessitated plant shutdown. (See section 9.a of this report for details). During this shutdown period, the "C" Reactor Coolant Pump seal

was also replaced. The plant returned to Mode 1 power operations on April 7, 1981 and continued in this mode until April 11, 1981 at which time a reactor trip occurred due to loss of "D" inverter. Two additional Reactor trips occurred during restart (see section 9.b of this report for details on the three reactor trips). The plant proceeded to Mode 4 (Hot Shutdown) in order to facilitate repairs to Main Steam Isolation Valve (MSV)-414 which was damaged subsequent to the Reactor trips. In addition, Mode 5 (Cold Shutdown) was entered during this shutdown period to repair a service water leak discovered on the "D" RCP lower bearing oil cooler. The plant returned to Mode 1 power operations on April 25, 1981, and continued in this mode for the duration of the inspection period.

a. Shift Logs and Facility Records

The inspectors reviewed the records listed below and discussed various entries with operations personnel to verify compliance with Technical Specifications and the licensee's administrative procedures.

- Shift Supervisor's Log;
- Operator's Log;
- Equipment-Out-Of-Service Log;
- Equipment Clearance Order Log;
- Shift Relief Checklist;
- Control Center Status Board;
- Short Term Instructions;
- Auxiliary Building Operator's Log; and
- Operating Daily Surveillance Log.

In addition to these record reviews the inspectors independently verified selected clearance order tagouts.

At 0929 hours on April 17, with the plant in Mode 3 operations, while reviewing procedure OP-202, Plant Heatup, the inspector noted that step 6.6.1.4.1.d of this procedure, that placed the steam driven emergency feedwater pump (EFP-2) in its normal standby status by placing the steam supply valve (ASV-5) in "Auto", was not completed. The inspector questioned the operators as to the reason for EFP-2 not being in the auto start mode and the operators immediately placed ASV-5 in the "Auto" position.

Technical Specification (TS) 3.7.1.2 requires EFP-2 to be operable when in Mode 3 and TS 4.7.1.2 requires EFP-2 to be tested for operability within 24 hours after entering Mode 3. Procedure SP-349, Emergency Feedwater System Operability Demonstration, is used by the licensee to accomplish this surveillance. The inspector reviewed SP-349 which was completed at 0830 hours and determined that the operators had not returned the ASV-5 control switch to the "Auto" position as required by step 6.3.7. Failure to place the switch in the "Auto" position made EFP-2 incapable of automatic starting and therefore inoperable by TS requirements.

Violation (302/81-05-01): Failure to place the steam driven emergency feedwater pump in an operable status after entering Mode 3.

b. Facility Tours and Observations

Throughout the inspection period, facility tours were conducted to observe operations and maintenance activities in progress. Some operations and maintenance activities were conducted during back shifts. Also during this inspection period, numerous licensee meetings were attended by the inspectors to observe planning and management activities.

The facility tours and observations encompassed the following areas:

- Security perimeter fence;
- Turbine Building;
- Control Room;
- Emergency Diesel Generator Rooms;
- Auxiliary Building;
- Intermediate Building;
- Reactor Building;
- Battery Rooms; and
- Electrical Switchgear Rooms.

During these tours, the following observations were made:

- (1) Monitoring Instrumentation - The following instrumentation was observed to verify that indicated parameters were in accordance with the Technical Specifications for the current operational mode:
 - Equipment operating status;
 - Area, atmospheric and liquid radiation monitors;
 - Electrical system lineups;
 - Reactor operating parameters; and
 - Auxiliary equipment operating parameters.
- (2) Shift Staffing - The inspectors verified by numerous checks that operating shift staffing was in accordance with Technical Specification requirements. In addition, the inspectors observed shift turnovers on different occasions to verify that continuity of status, operational problems, and other pertinent plant information was being accomplished.
- (3) Plant Housekeeping Conditions - Storage of material and components and cleanliness conditions of various areas throughout the facility were observed to determine whether safety and/or fire hazards exist. The general housekeeping conditions are acceptable.

- (4) Radiation Areas - Radiation Control Areas (RCA's) were observed to verify proper identification and implementation. These observations included review of step-off pad conditions, disposal of contaminated clothing, and area posting. Area postings were verified for accuracy through the use of the inspector's own radiation monitoring instrument. As a result of the observations, the following item was identified:

At approximately 0700 hours on March 30, the inspector observed a licensee representative within a contaminated control area examining a valve operator. Review of Radiation Work Permit (RWP) 81-353, issued to cover the work and listing the protective clothing requirements for work in this area, indicated that rubber boots were required to be worn. The inspector observed that this representative was not wearing rubber boots. Failure to comply with the clothing requirements of an RWP is contrary to the requirements of procedure RP-101, Radiation Protection Manual.

The inspector also noted that this individual was not logged on the "RWP Authorized Personnel Radiation Exposure Log" (Form 912914) as is required by procedure RP-106, Radiation Work Permit Procedure. Recording of entries and exits from contaminated areas is required to assist in radiation exposure control.

Violation: Failure to comply with the requirements of procedures RP-101 and RP-106 with respect to RWP clothing requirements and radiation exposure log. (302/81-05-02)

The licensee has taken the following immediate actions:

-The event has been discussed at plant outage meetings that are conducted three times a day and are attended by licensee management and supervisory personnel;

-Chem/Rad department has had discussions with all supervisors and superintendents and notified these personnel of their intent to actively enforce RWP requirements.

-Chem/Rad department conducted their own audit of logging into and out of contamination areas. This audit identified additional violations. The violators were admonished and reported to their supervisor; and

-The licensee is revising procedure RP-101 to include an enforcement policy that will identify and remove from RCA access persistent RWP violators.

- (5) Fluid Leaks - Various plant systems were observed to detect the presence of leaks. A packing leak was identified on FWV-39. The licensee initiated a work request and repaired the packing leak. The inspector has no further questions on this item.

- (6) Piping Vibration - No excessive piping vibrations were noted.
- (7) Pipe Hangers/Seismic Restraints - Several pipe hangers and seismic restraints (snubbers) on safety-related systems were observed. As a result of these observations, the following was identified:

Hydraulic snubber EFH-109 was found to have a high fluid level (approximately 95% full). A check of the snubber by the licensee indicated the level was too high for the position of the piston rods, indicating the presence of air in the snubber. The snubber was replaced and testing was conducted on the removed snubber. At this time the licensee is still evaluating the cause of the air introduction into the snubber.

Inspector Followup Item (302/81-05-03): Review licensee's evaluation as to the cause of the air introduction into snubber EFH-109.

- (8) Security Controls - Security Controls were observed to verify that security barriers are intact, guard forces are on duty and access to the protected area is controlled in accordance with the facility security plan. No problems were identified in this area.
- (9) Surveillance Testing - Surveillance Testing was observed to verify that:

- Approved procedures were being used;
- Qualified personnel were conducting the tests;
- Testing was adequate to verify equipment operability; and
- Calibrated equipment, as required, were utilized.

The following tests were observed:

- SP-317, Reactor Coolant System Leak Rate;
- SP-113, Power Range Nuclear Instrumentation Calibration
- SP-179, Containment Type B and C Leak Rate Tests (Data review only);
- SP-433, In-Core Neutron Detector Channel Check;
- SP-157, Meteorological System Surveillance (data review only);
- SP-150, Operability and Functional Check of the Loose Parts Monitoring System (Data review only);
- SP-335, Radiation Monitoring Instrumentation Test;
- SP-421, Reactivity Balance Calculation; and,
- SP-354, Emergency Diesel Fuel Oil Quality and Diesel Generator Monthly Test (Data review only).

As a result of these observations, the following items were identified.

- a. During the performance of SP-433, In-Core Neutron Detector Channel Check, the inspector asked several questions concerning the calibration on the In-Core backup recorders. There appeared to be

some confusion as to what procedure covered the recorder calibration. A check by the inspector indicated the recorders are calibrated normally by SP-140, In-Core Neutron Detector System Calibration, but could be covered by PM-132, Non-Safety-Related Instrument Calibration, in the event that maintenance activities on the recorders required recorder calibration. A comparison of the calibration sheets of the two procedures indicated different acceptance criteria was allowed (SP-140 requires ± 9 Recorder Units, PM-132 requires ± 3 Recorder Units). The licensee will review the two procedures and correct the noted differences in the acceptance criteria of the two procedures.

Inspector Followup Item (302/81-05-04): Review PM-132 and SP-140 to verify the acceptance criteria for In-Core backup recorder calibration are in agreement.

b. During the performance of SP-501, Halon System Functional Test (Rev 11, dated 4/10/81) on April 27, 1981, the inspector noted that personnel conducting the test were having difficulty obtaining level indication on the Halon Agent Storage Containers (ASC), even though several level indicating tapes were used. The surveillance was secured at this time in order to resolve the problem with the level indicating tapes. At this time, the inspector obtained a copy of the Fenwal Instruction Manual, Procedure for Determining weight of Contents in Fenwal Halon 1301 Agent Storage containers (revision 5, dated 3/26/76), for the purpose of performing a technical review of SP-501. The results of this review revealed numerous inadequacies in SP-501 and are detailed in the following:

1. SP-501 acceptance criteria for ASC pressure is "none less than 324 psi". SP-501 provides no pressure correction due to temperature variations. The Fenwal Instruction Manual indicates the acceptable lower limit on pressure, to ensure ASC pressure is greater than or equal to 90% of full charge pressure, is temperature dependent. The SP-501 limit would only be correct if the ASC temperature was 71.6° F and SP-501 does not require ASC temperature data to be recorded and temperatures above this temperature would require higher minimum pressure in order to be acceptable.
2. SP-501 records the level in the ASC in "inches from the equator weld". There is no acceptance criteria provided to show what an acceptable level reading would be. The acceptance criteria provided is "none less than 93.1 lbs" indicating a conversion is necessary to relate inches in the ASC to pounds in the ASC. The Fenwal Instruction Manual has a conversion chart to determine the weight of the ASC vs distance of the liquid level from the equator weld.

3. SP-501 allows the use of a #3 or #6 level indicating tape for determining ASC level. There is no requirement in the procedure to record which tape was used in making the level measurements. The Fenwal Instruction Manual indicates on the conversion chart (level vs weight) that the weight of the ASC based on level measurement above the equator weld differs by as much as 4 pounds depending on which level indicating tape is used.
4. SP-501 does not require the voltage to be measured at the heat gun. The Fenwal Instruction Manual indicates that low voltage at the heat gun (less than 102 volts) will result in erroneous data.
5. SP-501 does not specify the length of time to apply heat to the ASC prior to taking level measurements. The Fenwal Instruction Manual provides specific instructions on the length of time heat gun operation is required based on the initial temperature of the ASC.
6. SP-501 directs the installation of the level indicating tape prior to the use of heat gun. Fenwal Instruction Manual specifies use of the heat gun first and then installation of the level indicating tape.
7. SP-501 does not provide specific enough instructions for reading the level indicating tape. The Fenwal Instruction Manual provides specific instructions for reading the level indicating tape (time, direction of movement and appearance) and also provides a picture of two level indicating tapes with one showing a good reading and the other showing a bad reading.
8. The Fenwal Instruction Manual provides instructions on how the level indicating tape will respond if a substantial amount of the agent in the ASC has been lost. SP-501 does not contain these instructions.
9. SP-501 provides general instructions for locating the heat gun on the ASC. The Fenwal Instruction Manual provides specific instructions.

The inspector also reviewed completed data sheets for SP-501 from September, 1979, April, 1980, and September, 1980, to determine if this procedure had been used to verify Halon System Operability in the past.

Based on this review, it was determined that SP-501 has been used to verify Halon System operability. The inspector notified the licensee of his findings. The licensee acknowledged the inspector's findings and declared the Halon System inoperable. A

continuous fire watch was immediately established in accordance with Technical Specifications. The licensee has initiated action to revise SP-501 to ensure it is technically adequate to verify operability of the Halon System.

Failure to have an adequate procedure to verify operability of the Halon System is contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion XI and the licensee's Quality Program as delineated in the Final Safety Analysis Report (FSAR), Section 1.7. 6.1.7.k and is considered a violation.

Violation (302/81-05-05): Failure to have adequate procedures to verify Halon System operability (SP-501).

(10) Maintenance Activities - The inspector observed maintenance activities to verify that:

- Approved procedures were being utilized;
- Correct equipment clearances were in effect;
- Work Requests (W/R's), Radiation Work Permits (RWP's), and Fire Prevention Work Permits, as required, were issued and being followed; and,
- Quality Control personnel were available for inspection activities as required.

The following maintenance activities were observed:

- Troubleshooting of spray valve (RCV-14) limit switch problem;
- Replacement of spray valve (RCV-14) limit switch assemblies in accordance with Maintenance Procedure (MP)-402, Maintenance of Limitorque Valve controls, and installation of a grease relief on the Limitorque operator in accordance with Modification Approval Record (MAR) 81-4-74;
- Reactor Coolant Pump "C" seal replacement in accordance with MP-115, Reactor Coolant Pump Inspection and Replacement;
- Calibration of Nuclear Service Water Surge Tank Pressure Transmitter (SW-135-PT) (Work package and data review);
- Modification of Main Steam Isolation Valve's (MSV) 411, 412, 413, and 414 in accordance with MAR T81-4-75 and MAR 79-9-74; and
- Replacement of Nuclear Services Seawater Pump (RWP-1) check valve (RMV-36).

As a result of these observations, the following were identified:

- a. On April 1, at approximately 1045 hours while observing maintenance to replace the Nuclear Services Seawater Pump (RWP-1) check valve (RWV-36) located within the Radiation Control Area (RCA), the inspector noted that the Standing Radiation Work Permit (SRWP) had expired as of 2400 hours, March 31. The SRWP had been issued for a three month period. When the mechanics were notified of the expired SRWP, they immediately terminated work and proceeded to obtain a new SRWP. The inspector reviewed other SRWP's and determined that all SRWP's issued on January 1, 1981, for a three month period had expired. Upon notification of the expired SRWP by mechanics the Chem-Rad technicians removed all expired SRWP's and began reissuing required SRWP's.

The inspector discussed this issue with licensee representatives and stated that provisions should be made to renew required SRWP's prior to their expiration date. These licensee representatives acknowledged the inspector's comments and stated renewal of SRWP's prior to the expiration dates have been their practice, however they will review their activities in this area to assure they are effective.

Unresolved Item: Review methods for SRWP renewal to assure that SRWP's are renewed prior to expiration. (302/81-05-06).

- b. During maintenance observation on RCV-14 (Pressurizer Spray Valve) the inspector noted that maintenance personnel were using a hydraulic snubber located beneath the valve as a step to reach the valve. This issue was brought to the attention of the Maintenance Superintendent by the inspector. The Maintenance Superintendent immediately notified the associated shop supervisor to get this practice stopped. In addition the inspector requested that a documented inspection of all snubbers in the vicinity of RCV-14 be inspected subsequent to the maintenance to verify snubber operability. The inspection was completed and no inoperable or damaged snubbers were discovered. Due to past snubber damage discovered in the top area of the pressurizer subsequent to maintenance activities, the inspector requested the licensee to determine if a viable method could be developed to require post maintenance snubber inspection whenever maintenance is performed in the vicinity of the top area of the pressurizer.

Inspector Followup Item (302/81-05-07): Review licensee's action on determining if a viable method could not developed to require post maintenance inspection of snubbers in the vicinity of the top of the pressurizer.

- (11) Fire Protection - Fire extinguishers and fire fighting equipment were observed to be unobstructed and inspected for operability. No evidence of smoking was observed in the designated "No Smoking" areas.

6. Receipt of New Fuel

On April 3, 1981, the inspector observed major portions of the receipt, unloading and storage of six fuel containers. The inspector verified procedures were available and being followed. In addition, on April 9, 1981 the inspector reviewed the completed fuel shipment package for completeness. No discrepancies were noted.

7. Review of IE Bulletins

The following IE Bulletins (IEB) were reviewed to verify the adequacy of the licensee's actions:

- a. IEB 80-21, Valve Yokes Supplied by Malcolm Foundry Company, Inc.
- b. IEB 81-01, Surveillance of Mechanical Snubbers

This review identified no inadequacies and action on these Bulletins is considered to be complete.

8. Review of Licensee Event Reports and Non-Conforming Operations Reports (NCOR)

- a. The inspector reviewed Licensee Event Reports (LERs) to verify that:
 - The reports accurately describes the events;
 - The safety significance is as reported;
 - The report satisfies requirements with respect to information provided and timing of submittal;
 - Corrective action is appropriate; and
 - Action has been taken.

LER's 81-05, 81-07, 81-08, 81-10, 81-12, and 81-13 through 81-19 were reviewed. This review identified the following items:

- (1) LER 81-05 reported the failure of the mechanical seal on Building Spray Pump (BSP) 1A. The cause of the failure was attributed to a defective mechanical seal, however there is evidence that the seal failure may have been enhanced by maintenance activities. To prevent recurrence, the licensee is reviewing the suspected maintenance procedure (MP-131, Disassembly and Reassembly of

BSP-1A and 1B and DHP-1A and 1E to assure the procedure is adequate to prevent seal damage.

Inspector Followup Item: Review the licensee's determination as to whether maintenance procedure MP-131 is adequate to prevent mechanical seal damage. (302/81-05-11)

- (2) LER 81-12 reported operational problems with containment isolation valves (CIV's) MUV-260 and MUV-261. This program is being tracked under Inspector Followup Item (302/80-39-06). These valves will be included in this program as discussed in paragraph 3 of this report.
- (3) LER 81-14 reported the failure of a Clark relay in the Engineered Safety Feature Actuation System (ESFAS). The cause of the failure was a burr on the relay shaft. The licensee has initiated work requests (Nos. 22650 and 22779) to inspect and clean the relays and to examine the relays for deformation in areas that would impair operability. This work is planned to be done during the next refuel outage.

Inspector Followup Item: Verify the licensee's actions to inspect, clean, and examine for deformation the Clark relays in the ESFAS. (302/81-05-12).

b. The inspector reviewed NCOR's to verify the following:

- Compliance with the Technical Specifications;
- Corrective actions as identified in the reports or during subsequent reviews have been accomplished or are being pursued for completion;
- Generic items are identified and reported as required by 10 CFR Part 21; and
- Items are reported as required by the Technical Specifications.

The following NCOR's were reviewed:

81-33	81-122	81-139
81-34	81-123	81-140
81-38	81-125	81-141
81-49	81-127	81-142
81-51	81-128	81-143
81-108	81-129	81-144
81-109	81-131	81-147
81-111	81-132	81-152

81-112	81-133	81-154
81-116	81-134	
81-119	81-136	
81-120	81-137	
81-121	81-138	

Based on this review, the following item was identified:

NCOR 81-142 reported that a high crankcase pressure alarm was received while testing Emergency Diesel Generator (EDG) A in accordance with surveillance procedure SP-354. Investigation by the licensee indicates that the cause of the high pressure was clogging of the crankcase ejector and oil separator. These items were cleaned and EDG-A was returned to service.

Subsequent review by the licensee indicates that the crankcase ejector and oil separator were scheduled for cleaning every 5 years or 5,000 engine hours in accordance with procedure SP-605, Emergency Diesel Generator Engine Inspection/Maintenance. This schedule is consistent with the engine manufacturer's technical manual which is based on continuous diesel engine operation. The EDG's at the Crystal River facility are operated in a standby emergency mode and therefore have not yet operated for 5,000 hours and consequently have not had these components cleaned since initial diesel installation.

The licensee will revise SP-605 to require cleaning of the crankcase ejector and oil separator at each refueling outage. In addition, EDG-B will have these components cleaned during the next surveillance test interval for SP-354.

Inspector Followup Item: Verify that SP-605 is revised to require crankcase ejector and oil separator cleaning at each refueling outage and that these components are cleaned on EDG-B. (302/81-05-08).

9. Nonroutine Events

a. Loose Part in Once-Through-Steam Generator (OTSG) B

On March 26, 1981 at 1057 hours, a loose parts monitor alarm was received on "B" OTSG. Plant shutdown began at 1112 hours and the unit was in Mode 3 (Hot Standby) at 1434 hours. At approximately 2035 hours on March 30, 1981, the licensee removed a cylindrical-shaped object from the top of the "B" OTSG. Examination of the OTSG did not indicate any damage done by the loose part. The object was shipped to Lynchburg, Va. for examination and identification by Babcock and Wilcox (B&W). The results of B&W's evaluation indicated with high probability that the object was an upper guide tube nut from a fuel assembly. A safety evaluation was performed by B&W on continued operation with a missing fuel assembly upper guide tube nut. The evaluation indicated the continued plant operation until the next scheduled refueling outage was acceptable. The licensee is planning to confirm and evaluate the

source of the loose part during the next scheduled refueling outage. The inspectors were present in the control room shortly after receipt of the loose parts monitor alarm and observed the licensee's actions in response to this alarm. In addition, the inspector attended the Plant Review Committee's meeting that reviewed and approved the Deviation Modification Approval Record (MAR) to allow continued plant operation with a missing control rod guide tube nut. The inspectors have no further questions on this item at this time.

b. Reactor Trips

At 1905 hours on April 11, a reactor trip from full power occurred due to failure of the "D" vital bus inverter and subsequent loss of Non-Nuclear Instrumentation (NNI) Y power. This loss caused a feedwater runback to occur in the Integrated Control System (ISC) which resulted in a reactor trip on High Reactor Coolant System (RCS) pressure. During this event, the pressurizer spray valve (RCV-14) did not open to assist in control of reactor pressure and the operators utilized feedwater to assist with reactor pressure control. A controlled plant shutdown occurred and the operators had sufficient instrumentation from the redundant NNI(X) power to monitor plant conditions. The NNI (Y) power supply was returned approximately one minute after the trip by switching to a redundant vital bus inverter, RCV-14 was repaired, and a plant startup was begun.

At 0154 hours on April 12, with the reactor at approximately 12% power a reactor trip occurred during testing of the main turbine (routine testing for a turbine startup). The trip was caused by the anticipatory reactor trip circuitry that activates when the emergency feedwater pumps (EFPs) start. The EFPs were started when both Once Through Steam Generators (OTSGs) received low-low level signals which resulted when main turbine throttle valve (TV-1) failed to close. The plant response to this trip was normal.

During this second trip, a main reheater relief valve (RHV-10) failed to properly reseat resulting in a loss of main condenser vacuum and causing the initiation of the Main Steam Isolation Valve (MSIV) rupture matrix. Actuation of this matrix caused closure of the MSIVs. When the operator's reopened the MSIVs to enable use of the turbine bypass valves to control plant temperature, it was noted that valve MSIV 414 stuck in a mid-position. Subsequent investigation of this valve by maintenance personnel indicated failure of the hydraulic snubber mechanism resulting in destruction of the valve actuator.

At 2004 hours on April 12, with the plant in Mode 3 (Hot Standby) and holding while plant maintenance was being accomplished, a third reactor trip occurred due to high RCS pressure. Since the reactor was sub-critical, this trip caused only the group 1 safety-rods (the only rods withdrawn) to trip. The cause of the RCS high pressure was the repeat failure of RCV-14 to open to assist in controlling RCS pressure (with the plant in Mode 3, RCS temperature is controlled by reactor coolant

pump operation and RCS pressure is controlled by the spray valve (RCV-14). Following this trip a plant cooldown to Mode 4 (Hot Shutdown) was commenced to effect repairs on RCV-14.

The licensee has completed repairs to RCV14 and MSIV 414. In both cases, modifications were made to these valves to improve their reliability. In addition the modification made to MSIV 414 was accomplished on the other MSIVs. The inspectors reviewed these trip events, examined the modifications made to the valves, and observed portions of the maintenance being performed (see paragraph 5.B.(10)). The inspectors have also reviewed the maintenance completed on the Inverter "D" repair and on the various secondary system components. The inspectors have concluded that the trips were the result of unavoidable equipment failures and that the licensee has taken adequate corrective actions to minimize recurrence of these events. The plant was returned to full power operation at 0105 hours on April 26.

The inspectors will review the final licensee "Lessons Learned" reports.

Inspector Followup Item: Review the recommendations of the "Lessons Learned" task force from the reactor trips of April 11 and 12, 1981. (302/81-05-09).

10. Emergency Plan Drill

On April 22, at 1000 hours the licensee conducted a drill of the new Emergency Plan. The new plan represents a complete revision of the previous plan and is consistent with the revised requirements of 10 CFR Part 50, Appendix E and the recommendations of NRC NUREGs and Regulatory Guides.

The scenario of this drill involved a fire (Unusual Event), an explosion and large fire (Alert), a Loss of Cooling Accident (LOCA) combined with a loss of containment integrity (Site Emergency), and high radiation levels at the site boundary (General Emergency). The drill involved participation of local hospitals, local government agencies and state government agencies. The drill concluded at approximately 1800 hours and was observed by the Resident Inspectors.

Drill critiques were held on the morning of April 23 and the licensee is presently compiling the critique minutes such that identified inadequacies can be corrected.

Inspector Followup Item (302/81-05-10): Review Emergency Drill critique minutes and verify the corrective actions were completed.