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

Report No. 50-302/81-02

Licensee: Florida Power Corporation
3201 34th Street, South
Miami, FL 33733

Facility Name: Crystal River Unit 3 Nuclear Generating Plant

Docket No. 50-302

License No. DPR-72

Inspection at Crystal River, Florida

Inspectors: Virgil Brownlee for — 4/16/81
T. F. Stetka — Date Signed

Virgil R Brownlee for — 4/16/81
B. W. Smith — Date Signed

Approved by: R.C. Lewis — 4/20/81
P. J. Kellogg, Section Chief, RRPI Section — Date Signed

SUMMARY

Inspection on February 3, through March 24, 1981

Areas Inspected

This routine inspection by the resident inspectors covered plant operations, security, radiological controls, Licensee Event Reports (LER's), Nonconforming Operations Reports (NCOR's), special reports, critical fire areas, core flood and decay heat system check valve testing, Licensee action on IE Bulletins and Circulars, non-routine events, 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 inspection involved 339 hours on site by the two resident inspectors.

Results

No violations or deviations were identified.

DETAILS

1. Persons Contacted

Licensee Employees

L. Bayer, Materials QC Inspector
J. Buckner, Officer of the Guard
*J. Bufe, Compliance Auditor
M. Collins, Reactor Specialist
*J. Cooper, QA/QC Compliance Manager
W. Cross, Operations Engineer
*R. Cosner, Compliance Secretary
R. Cunningham, Technical Support Supervisor
*Q. Dubois, Director Quality Programs
D. Farless, Technical Support Supervisor
*V. Hernandez, Compliance Auditor
J. Hessenger, QA/QC Inspector
W. Herbert, Nuclear Technical Specification Coordinator
S. Johnson, Maintenance Staff Engineer
W. Kemper, Plant Training Manager
H. Koon, Electrical Supervisor
G. Kilmer, I&C Technician
*H. Lucas, Security Officer
*T. Lutkehaus, Technical Assistant to the Nuclear Plant Manager
*P. McKee, Operations Superintendent
W. Pittman, Mechanical Supervisor
*K. Parnell, Corporate Security Specialist
G. Patrissi, Nuclear Fire Protection Specialist
*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
G. Williams, Qa/QC Supervisor
M. Willing, I&C Technician

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) on March 13 and at the conclusion of the inspection on March 24, 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 unresolved items and inspector followup items were discussed.

3. Licensee Action on Previous Inspection Items

(Open) Inspector Followup Item (302/80-28-03): Nuclear Services Closed Cycle Cooling Pumps (SWP-1A and 1B) continue to experience periodic discoloration of the oil in the lubricating systems. The cooling heat exchangers in the lubricating systems were tested for leaks. No leaks were indicated. The licensee is evaluating the installation of heaters in the gear boxes of the pumps if the problem is found to be due to condensation during pump heatup and cooldown. This item remains open pending further evaluations as to the cause of the oil discoloration on SWP-1A and 1B.

(Closed) Inspector Followup Item (302/79-26-05): The inspector reviewed several Surveillance Procedures (SP) (including SP-416) to verify SP's Instruction, AI-400.

(Closed) Inspector Followup Item (302/79-39-02): Training for planners for identification of disciplines was completed on 11/15/79. The inspector verified the training class record. In addition, the inspector reviewed several Maintenance and Preventative Maintenance Procedures to verify provisions are made to record requirements such as tool numbers, signing prerequisites, and specifying post maintenance testing and restoration.

(Closed) Inspector Followup Item (302/80-28-08): The inspector reviewed the evaluation of the reference rod failure and has no further questions on this item.

(Closed) Inspector Followup Item (302/80-33-03): The inspector verified that SP-312 has been revised to correct the OTSC pressure test points (Revision 21, dated 11/19/80).

(Closed) Inspector Followup Item (302/80-33-08): The licensee has determined it to be unnecessary to purchase special plugs to facilitate only front panel connections during the performance of SP-113. A revision was made to the procedure to require only front panel connections. The inspector reviewed SP-113 and has no further questions on this item.

(Closed) Inspector Followup Item (302/80-33-09): AP-109 has been revised to accurately reflect system operation (Revision 5, dated 10/9/80). The inspector reviewed AP-109 and has no further questions on this item.

(Closed) Inspector Followup Item (302/80-38-04): RCV-8 was replaced during the February, 1981 outage. RCV-8 downstream temperature indication and RCS leak rate calculations indicate the weepage problem has been corrected. The inspector has not further questions on this item.

(Open) Inspector Followup Item (302/81-01-06): The inspector reviewed the results of the licensee's testing program on Reactor Building (RB) Purge Valves AHV-1C and 1D completed on February 12. The test results confirmed the effect of ambient temperature changes on the valve seating ability. The licensee has modified the purge duct heaters to ensure air temperature is maintained above 85°F and is adding temperature instrumentation to the

ductwork to provide operator monitoring of duct temperatures. The licensee is continuing to test the sealing ability of the purge valves on a weekly basis and will discontinue this testing after sufficient confidence with valve sealing ability at the elevated temperature is demonstrated. This item remains open pending completion of the system testing and modifications.

(Closed) Inspector Followup Item (302/81-01-11): The licensee issued Short Term Instruction (STI) 81-6 to notify operators that the rod index annunciator setting was changed to provide a more conservative warning that rod index limits are being approached. This alarm setpoint change will allow operators to take earlier corrective actions thus preventing the exceeding of the T.S. limits.

(Closed) Unresolved Item (302/78-10-03): The licensee controls decontamination activities through the use of procedures OP-420: Sonic Decontamination Equipment Operations and Electro-Polishing Process Control, CP-116: Standard Cleanliness Specifications, and RP-103: Decontamination of Personnel, Areas, and Equipment. These procedures address the decontamination methods to be used and identify the approved cleaning solutions. For decontamination activities involving safety-related equipment, specific maintenance procedures are witten that specify the decontamination methods and provide for a 10 CFR 50.59 review of the total maintenance activity.

(Closed) Unresolved Item (302/78-19-01): The licensee revised procedure SP-434, Fuel Storage Pool Missile Shields, to limit the time the fuel pools are uncovered (without fuel handling activities in progress) to 24 hours. This makes procedure SP-434 consistent with the NRR interpretation of TS 3.9.11.

(Open) Unresolved Item (302/78-25-02): A semiannual report was issued on February 20, 1981. The licensee has made substantial changes to the training programs since this item was identified and as a result, is modifying the method of submitting the semi-annual reports to the Operations Superintendent. These modifications include a new report form and an identifiable tracking systems. These modifications will be in effect by April 30, 1981 and will be re-examined after that time.

(Closed) Unresolved Item (302/78-25-03): A sampling of licensed operator records of required reactivity control manipulations on March 20 indicate that the shift supervisors are initalling the records to verify completion of the manipulations.

(Closed) Unresolved Item (302/78-26-03): The licensee has revised SP-110, Reactor Protection System Functional Testing, to provide signoffs and tolerances on the reactor coolant system high temperature bistable trip and new acceptance criteria for the high flux trip bistable setpoints. The inspector has reviewed these revisions and determined that though the revisions appear to allow these instrument settings to exceed technical specification limits, the nature of the test (i.e., a GO, NO-GO type test), and the instrumentation used to verify this operation will not allow TS

limits to be exceeded. The inspector also verified that the applicable calibration procedures were sufficiently conservative to prevent exceeding TS limits for these parameters.

(Closed) Inspector Followup Item (302/80-39-09): The inspector verified that the two senior licensed operators have received their license renewals. Action on this item is complete.

(Closed) Inspector Followup Item (302/80-25-01): The licensee has revised the on-site organization such that the Health Physics Manager now reports directly to the Nuclear Plant Manager. The licensee has also issued a Technical Specification change request (No. 51) to Nuclear Reactor Regulation reflecting the new site organization.

(Open) Inspector Followup Item (302/80-25-02): The plant staff has recommended and requested additional personnel from Florida Power Corporation (FPC) upper management that will increase staffing. This increase is consistent with the observed inadequacies identified by the NRC. FPC management has approved some of this increased staffing and site management is actively recruiting new personnel. This item remains open pending a review of FPC management's staffing approvals and site hiring activities.

(Closed) Inspector Followup Item (302/80-25-03): The licensee has established and implemented a qualitative program for contractor-supplied technicians. This program requires contractors to train their personnel in plant-specific procedures for Crystal River, requires contractor-supplied technicians to successfully pass a site administered quiz, and requires facility supervisors to verify the technician qualifications through the use of a check-off list. The inspector reviewed completed quizzes and check-off lists to verify program implementation. These findings, including the personnel hiring efforts underway (see item 80-25-02 preceeding indicate the licensee's attempts to correct inadequacies in this area are being accomplished.

(Open) Inspector Followup Item (302/80-25-08): The licensee has established a qualification program for contract-supplied technicians as delineated in item (302/80-25-03). The licensee has also initiated a qualification program for Health Physics Technicians and the Chemistry and Waste Technicians which the licensee is requiring all on-board technicians to complete by April 15, 1981, and all new incoming technicians to complete prior to assuming their duties. This qualification program is not identified or described in procedure AI-1500, Conduct of Chemistry, and Radiation Protection Department, which is the Chem/Rad Departments controlling procedure. The licensee will revise AI-1500 to include this qualification program. This item remains open pending the completion of the qualification program by the on-board technicians and the revision of AI-1500.

(Open) Unresolved Item (302/80-39-03): The licensee has corrected the lubrication chart discrepancy and has taken action to assure that the two controlled documents in the document control room and maintenance shop are consistent. In addition the licensee is developing a PRC approved procedure

(PM-133) that will encompass the present lubrication chart and provide enhanced document control. This item remains open pending the issuance of procedure PM-133.

(Open) Inspector Followup Item (302/80-23-06): The licensee has developed a new emergency plan consistent with the latest NRC requirements. The implementation of all the critique items identified in the previous Emergency Plan Drill conducted on May 29, 1980 remains to be verified.

(Open) Unresolved Item (302/79-23-06): The licensee has partially completed their commitments to this item as identified in NRC Inspection Report 50-302/80-16 as follows:

(a) The documentation of the requirements for the non-licensed personnel-training was intended to be accomplished in part, by the issuance and implementation of procedure MP-601, On-the-Job Training (OJT) of Maintenance Shop Personnel, dated 12/5/80. The inspector's review indicates that the three shops involved (I&C, Mechanical and Electrical) have attempted this task in their own unique way as follows:

- The I&C Shop has implemented MP-601 and has initiated a "New Employee Familiarization Schedule". Review of MP-601 is being complied, however the Schedules have only been partially completed.

- The mechanical shop has not implemented MP-601. Review of training in this shop indicates that documentation for various training sessions and records of systems worked on by mechanics are being maintained. Shop personnel stated that completion of MP-601 was the responsibility of the facility training groups.

- The electrical shop has not implemented MP-601 nor could this shop locate records documenting training and qualifications. This shop has developed and is implementing a "Systems Qualifications Status Profile" form to document electrical qualifications and training.

b. A compliance Department audit of training activities was conducted on 12/15/80 (Audit No. 80-16). This audit identified similar findings as identified by the inspector.

All shops have delegated systems training to the newly organized facility training group. This group has been conducting systems training, however no criteria for minimum training requirements for each shop has been established.

The inspector determined that the following items need to be accomplished:

- Revise procedure MP-601 to include criteria for completion of personnel qualifications;

- Provide coordination between the shops and facility training group such that scheduling of personnel for systems training and a mimimum systems training critera can be established; and

- Accelerate electrical shop personnel training.

No violation for training activities is issued because the licensee's current practices meet current requirements and the licensee is taking positive actions to upgrade the training program. This item will remain open and will be subsequently reviewed to determine progress in this area.

(Closed) Inspector Followup Item (302/81-01-09): The licensee has conducted discussions with shift supervisors to assure all understand the definitiion of Offshift Power Capability will respect to TS 4.8.1.1.1.c.

(Closed) Inspector Followup Item (302/80-39-08): The licensee has completed a check of all affected cabinets and determined that no additional incorrect relays have been installed. The Hamlin relays are being replaced with Crydon relays in accordance with MAR 80-11-74. The licensee has identified a problem with this MAR as discussed in paragraph 9.b(6) of this report. Further action in this area will be followed in accordance with item (302/81-02-15).

4. Unresolved Items

Unresolved items are matters which more information is required to determine whether they are acceptable or may result in a violation. New unresolved items identified during this inspection are discussed in paragraphs 5.b(9)c.3, 5.b(11), and 9.b(6).

5. Review of Plant Operations

The plant continued with power operations (Mode 1) until February 17, 1981, at which time Reactor Coolant Pump seal degradation necessitated plant shutdown to Mode 5 operations in order to facilitate seal replacement. The plant returned to Mode 1 power operations on March 6, 1981, and continued in this Mode until March 17, 1981, at which time a Reactor Trip/Turbine Trip occurred (see section 10 of this report for details). The plant returned to Mode 1 power operations on March 19,1981, and continued in this mode for the remainder 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.

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 the operating 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.

On March 10, while existing the RCA, the inspector observed two technicians frisk test equipment that was used in the RCA and then remove the equipment from the RCA. There were no smears taken on the equipment. The inspector discussed this issued with Chem/Rad management personnel and was told that procedures RP-101, Radiation Protection Manual and RP-102, Respiratory Equipment Manual were being revised to clairy when equipment is required to be smeared prior to exiting the RCA. In addition to the procedure revisions, the licensee will issue a memorandum to highlight the revisions to these procedures, thus eliminating misunderstanding of the requirements.

Procedural changes to RP-101 and RP-102 have been made.

This issue did not result in a violation because the licensee was in compliance with present regulatory requirements.

Inspector Followup Item: Review licensee's practice for checking equipment exiting the RCA for contamination and verify issuance of a memorandum addressing this issue. (302/81-02-01)

(5) Fluid Leaks - Various plant systems were observed to detect the presence of leaks. No problems were identified in this area.

(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. No problems were identified in this area.

(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:

- S.P. -419, Turbine Overspeed Trip;
- S.P. -422, Reactor Coolant System Heatup and Cooldown Surveillance;
- S.P. -317, Reactor Coolant system Leak Rate;
- SP-349, Emergency Feedwater System Operability Demonstration (sections for motor driven pump only);
- SP-354, Emergency Diesel Fuel Oil Quality and Diesel Generator Monthly Test ('A' Emergency Diesel Generator only);
- SP-416, Emergency Feedwater Automatic Actuation (section 6.12 through 6.28 for post maintenance testing);
- SP-332, Monthly Feedwater Isolation Functional Test;
- SP-179, Containment Leakage Tests - Type B and C (Air Handling valve (AHV) -1D only. Results of this test are identified in paragraph 3 as Inspector Followup Item 302/81-01-06);
- SP-370, Quarterly Cycling of Valves (Data Review only);
- SP-321, Power Distribution Breaker Alignment and Power Availability Verification (Data review and independent verification by Resident Inspector);
- SP-421, Reactivity Balance Calculation (Independent calculations by Resident Inspector compared to licensee's calculations);
- CH-140, Determination of Water and Sediment in Petroleum Products (for EDG lube oil analysis); and
- CH-141, Determination of Saybolt Viscosity (for EDG lube oil analysis).

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

a. During review of Procedure SP-110, Reactor Protection System Functional Testing (see paragraph 2, unresolved item (302/78-26-03) of this report), the inspector noted that procedure SP-112, Calibration of the Reactor Protection System, had two setpoints that when taken with the allowed tolerances could result in exceeding technical Specification (TS) limits. These two parameters, Reactor Coolant System (RCS) pressure low (TS allowable - 1800 psig; SP-112 maximum allowable 1799.6 psig) and RCS pressure variable low (TS allowable 1870.8 psig @600°F; SP-112 maximum allowable 1866.14 psig @600°F) were identified to the

licensee. The inspector reviewed the immediate previous calibration record for SP-112 (performed 6/3/80) and verified that TS limits were not exceeded. The licensee will revise SP-112 to insure that the setpoint values including tolerances will not exceed TS limits.

Inspector Followup Item: Revise the RCS pressure low and RCS variable pressure low setpoints to insure that TS limits are not exceeded (302/81-02-02).

b. While observing the performance of SP-354, Emergency Diesel Fuel Oil Quality and Diesel Generator Monthly Test, the inspector noted that some of the readings recorded on the data sheets were outside the specified normal operating range. Investigation of these readings by the inspector indicate that these out-of-range readings do not affect diesel operability or availability.

The inspector queried licensee representatives to determine why these operating ranges were not expanded to reflect actual operating ranges. These representatives stated that they are investigating a slight overcooling problem with the Emergency Diesels (ED's) which appears to be caused by a cooling flow control valve. Parts for these valves have been ordered and the valve will be repaired upon receipt of these parts. After the valves are repaired, the licensee will re-evaluate whether the normal operating range specified on the data sheets will be expanded.

Inspector Followup Item: Review the licensee's actions to repair the EDG cooling flow valves and to revise procedure SP-354. (302/81-02-03)

c. During the observation of the performance of SP-349, Emergency Feedwater Sytem Operability Demonstration; the inspector identified inadequacies with the performance of the system valve lineups as follows:

1. Valves were missing identification tags. The licensee has written a Short Term Instruction (STI) requiring operators to replace missing tags when discovered. This STI is applicable to all systems.

   Inspector Followup Item: Evaluate licensee's effectiveness in replacing missing valve identification tags. (302/81-02-04)

2. The licensee was performing independent valve position verifications by permitting two operators acting together to perform the valve lineups. The intent of an independent valve lineup verification is for one operator to conduct the valve lineup alone and then, when complete, turn the valve lineup over to another operator so that he will proceed

independently of the first operator to verify correct valve positioning. The licensee has written an STI to direct operators to perform independent verification of valve lineups as stated herein. The licensee is evaluating whether procedure changes are necessary.

Inspector Followup Item Evaluate the licensee's actions to determine that independent valve position verifications are adequate. (302/81-02-05)

3 The inspector noted that the instrument isolation, equalization, drain, and vent valves were not included on the valve lineup sheets nor did they appear on the system flow diagrams. The licensee will take corrective action to revise the flow diagrams and revise the existing valve lineups or develop new valve lineups to include these instrument valves.

Unresolved Item: Revise system flow diagrams and system valve lineups to include instrument valves. (302/81-02-06).

(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:

- Calibration of 'A' Emergency Diesel Generator gauges in accordance with Preventative Maintenance Procedure (PM)-132, Plant NonSafety-Related Instrument Calibration;
- Electrical checks of Control rod Drive (CRD) Auxiliary bus and bus 5 in accordance with PM-126, Electrical Checks of CRD Power Train;
- Replacement of 'A; Emergency Diesel Generator Bearing Oil;
- Cleaning of Service Water Heat Exchanger (SWHX)-1C in accordance with PM-112, Inspection/Cleaning and Shooting of Heat Exchanger Water Boxes and Tube Sheets;
- Reactor Coolant Pumps A, B and D seal replacement in accordance with Maintenance Procedure (MP)115, Reactor Coolant Pump Inspection and replacement job; and,

- Observed the use of MP-122, Disassemble and Reassembly

of Flanged Connections, during Reactor Coolant Pump seal replacement job.

As a result of these reviews the following item was identified:

During review of MP-115, Reactor Coolant Pump Inspection and Replacement, the inspector noted that information added to the procedure by a temporary change dated 2/21/81 had been inadvertantly deleted by a temporary change dated 2/23/81. This problem was caused by the person writing the 2/23/81 temporary change not ensuring that previous temporary changes that were still in effect had not affected the same page of the procedure. In addition, the inspector noted that no numbering system existed for identifying temporary changes, thus it was extremely difficult to determine the order of temporary changes that were issued on the same day. The issue was brought to the attention of the licensee. The licensee acknowledged the inspector's comments and informed the inspector that they were aware of the temporary change problems associated with MP-115 and had withdrawn the procedure from the field in order to review all the temporary changes and to consolidate them into a single change. The inspector was further informed that a two-man team had been sent to several utilities for the purpose of comparing their methods of handling changes to procedures (both temporary and permanent). As a result of the team's findings, Administrative Instruction (AI)-400, Plant Operating Quality Assurance Manual Control Document, has been rewritten to implement a new method for controlling temporary and permanent procedure changes. The new revision to AI-400 has been Plant Review Committee approved and is awaiting issue pending receipt of new forms and completion of training on the new method.

Inspector Followup Item (302/81-02-07): Evaluate implementation and effectiveness of AI-400 in regard to the new method of controlling temporary and permanent procedure changes.

(11) During Review and observation of plant operation activities, the inspector noted numberous NCI (Non-conforming Item) tags attached to equipment. These tags indicate that the quality of the equipment, item, or material is unacceptable, indeterminate, or not operable. The licensee's procedure which controls issuance of the NCI tags, QC-800, Nonconforming Item Tag Control, does not provide sufficient control to insure that systems with nonconforming items are not relied upon for performance of safety functions.

This issue was discussed with facility management and a directive was given to supervisor personnel that no item, equipment, or material that contained an NCI tag would be used. The licensee is now reviewing QC-800 and the use of NCI tags to formulate a method of assuring that nonconforming items are not utilized.

Unresolved Item: Review methodology and control of nonconforming items and develop an effective system for controlling their use. (302/81-02-08).

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

6. Critical Fire Area Inspection

Nuclear Reactor Regulation (NRR) has performed evaluations of fire protection programs at all operating plants. These evaluations have identified, in the NRR Fire Protection Safety Evaluation Report (SER), critical areas where a fire may affect redundant safe shutdown systems.

Crystal River Critical Fire areas are identified in the SER and include the cable spreading room and various fire zones in the auxiliary and intermediate buildings.

A review of administrative, compliance and emergency procedures were conducted to verify that: provisions have been made and implemented to establish fire watches as required, and controls are adequate to control combustible material and ignition sources in the critical fire areas. The following procedures were reviewed:

- Administrative Instruction (AI)-1000, Good Housekeeping;
- Emergency Plan Procedure (EM)-101, Fire Protection Plan; and
- Compliance Procedure (CP)-118, Fire Prevention Work Permit Procedures.

In addition, the inspector reviewed a sampling of fire protection surveillance procedures and completed data sheets to verify Technical Specification requirements are being met.

Tours of Critical Fire areas verified implementation of the Fire protection controls. The inspector had no further questions on this item.

7. Core Flood and Decay Heat System Check Valve Testing

The WASH 1400 Report identified two valve configurations that resulted in a high potential for an intersystem LOCA, a breach of containment integrity and subsequent core meltdown. The configurations identified were to check valves in series or a single check valve and motor operated valve in series such that a failure of the two valves would result in the overpressurization and subsequent rupture of a low pressure system outside of the containment.

As a result of the above concerns, the NRC is preparing an order which will include new technical specifications on Reactor Coolant System Operational Leakage, requiring periodic testing to be performed on individual valves that fall into the category of the above configurations. The periodic

testing would verify leakage rates are within acceptable values, or, in the event the leakage rates are unacceptable, place operational restrictions on the plant.

The licensee was made aware of the proposed order by NRR's Project Manager and initiated necessary actions to develop and perform leak rate testing on valves that fell into the valve configurations identified in the WASH 1400 Report. The identified valves were Decay Heat Valves 1 and 2, and Core Flood Valves 1 and 3. Leak Rate testing on these valves was completed satisfactorily on 3/5/81. The inspector reviewed the leak test procedures (Performance Test Procedures (PT)-128 and 129) and the results of the tests. Based on acceptance criteria contained in the draft technical specifications, the valve leakage rates were acceptable. The inspectors have no further questions on this issue at this time.

8. Review of IE Bulletins and Circulars

The following IE Bulletins (IEB) and Circulars (IEC) were reviewed to verify adequacy of the licensee's actions.

a. IEB81-01: Surveillance of Mechnical Snubbers
b. IEC80-16: Operational Deficiencies in Rosemont Model 510 DU Trip Units and Model 1152 Pressure Transmitters
c. IEC81-01: Design Problems Involving Indicating Pushbutton Switches Manufactured by Honeywell Incorporated
d. IEC78-15: Tilting Disc Check Valves Fail to Close with Gravity in Vertical Position

(Reference NRC Report 50-302/80-39, paragraph 6.9). The licensee has verified that the tilting disc check valves are properly oriented. The licensee's actions on this Circular are considered to be complete.

9. Review of Licensee Event Reports, Nonconforming Operations Reports (NCOR), and Special Reports

a. The inspector reviewed Licensee Event Reports (LERs) to verify that:

- The reports accurately describe 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 80-55, 80-57, 80-58, 81-01, 81-02, 81-03, 81-04, 81-06, 81-09, and 81-11 were reviewed.

In addition, Special Report 80-03, which reported inadvertant actuation of an Emergency Core Cooling System (ECCS) and was submitted as required by Technical Specification 6.9.2, was reviewed. This event was

reviewed in detail by the resident inspectors as delineated in NRC Inspection Report 50-302/80-38, paragraph 6c.

The inspector's reviews of these reports identiifed the following items:

(1) LER 80-55 and Special Report 80-03 identified relay failures in the Engineered Safety Feature Actuation System (ESFAS). The relays described in the reports were identified by Crystal River Nuclear Plant specific drawing numbers in lieu of the relay manufacturer and model number.

The inspector discussed this reporting method with licensee representatives and stated that the report should include the manufacturer and model number of the relays in lieu of plant specific drawing numbers to facilitate identification of generic problems. This reporting information is consistent with the requirements of NUREG-0161, Instructions for Preparation of Data Entry Sheets for Licensee Event Report File.

Licensee representatives acknowledged the inspector's comments and will submit corrected reports.

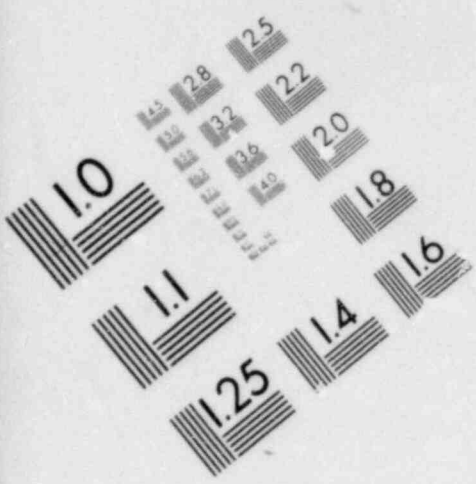
Inspector Followup Item: Review corrected reports for LER 80-55 and Special Report 80-03. (302/81-02-09)

LER 80-55 stated that surveillance frequency for the failed relay will be double until 4/1/81 at which time it will be re-evaluated.

Inspector Followup Item: Review results of increased relay testing (LER 80-55) and licensee's re-evaluation of the cause of Failure. (302/81-02-10).

(2) LER 81-11 was issued as a prompt report on March 6 to report the finding that containment isolation valves CAV-1, 3, 4, 5 and 126 are not capable of meeting the environmental qualification due to submergence following a Loss of Coolant Accident (LOCA). This finding was determined as a result of the licensee's ongoing evaluation of equipment environmental qualifications in accordance with IE Bulletin 79-01B.

The licensee's investigation of valve submergence indicated that submergence would not occur until at least 30 minutes into a LOCA and that valve isolation capabilities would not be affected since the valves are immediately automatically closed upon onset of a LOCA. The possibility exists that the motor-operated valves could re-open as a result of submergence and the licensee has therefore taken temporary corrective action (Issuance of a Short Term Instruction and revision to emergency procedure EP-106) to assure the valves are de-energized if a LOCA occurs. Permanent corrective action is to qualify the valves for operation under



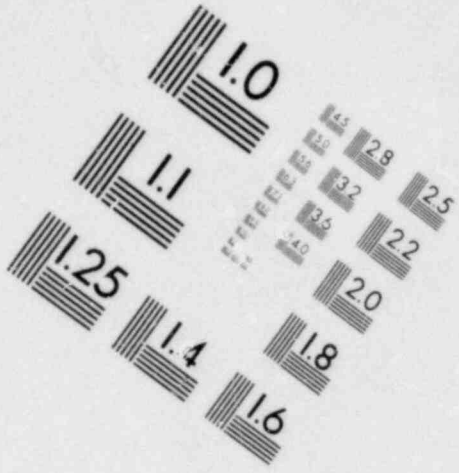
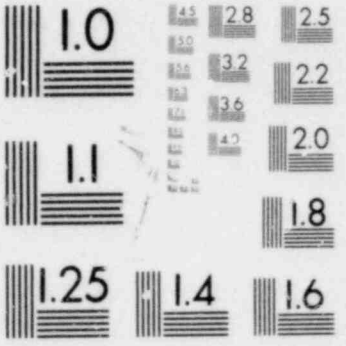
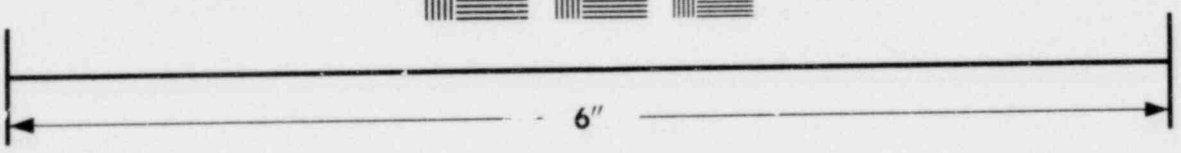
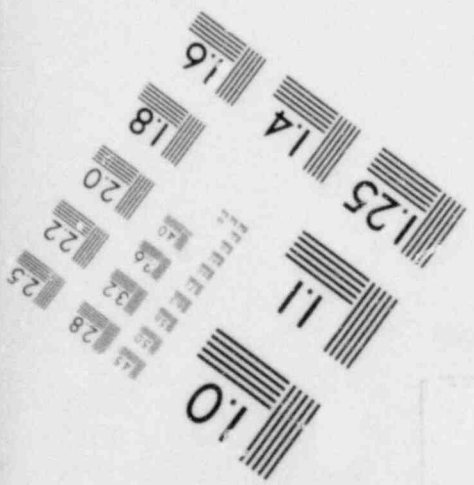
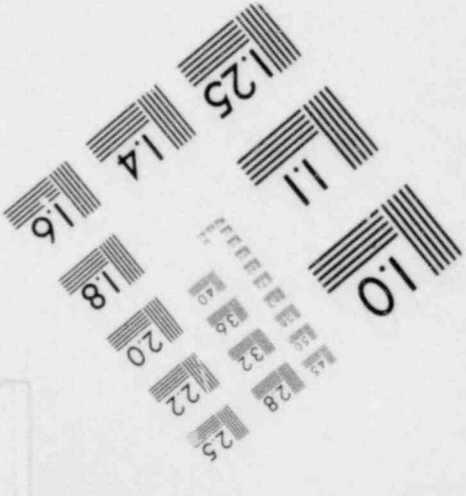


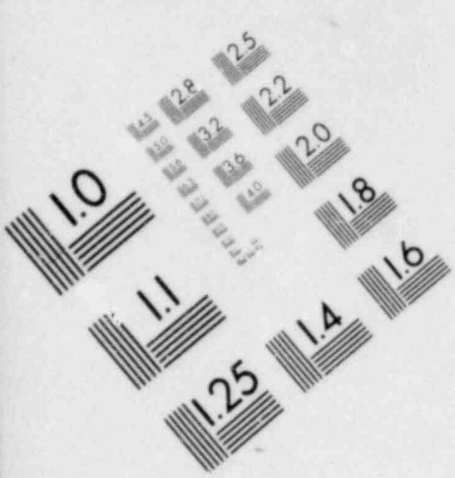
IMAGE EVALUATION
TEST TARGET (MT-3)











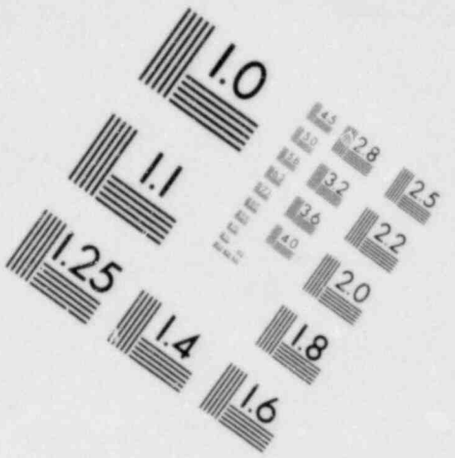
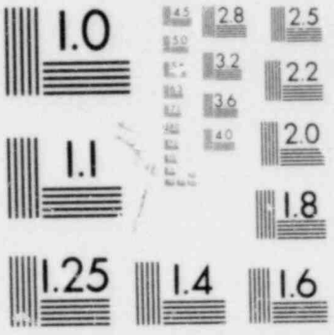
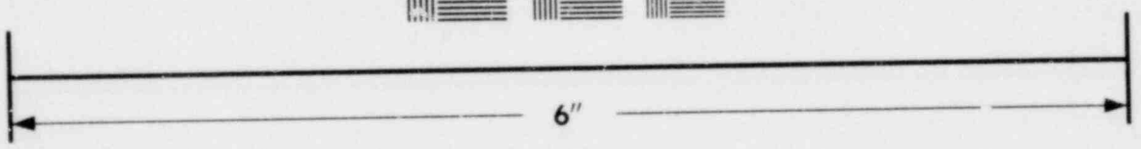
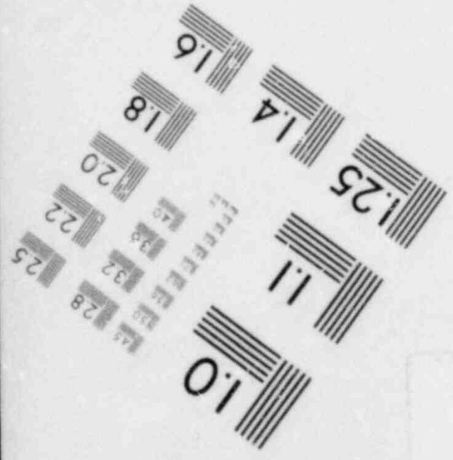
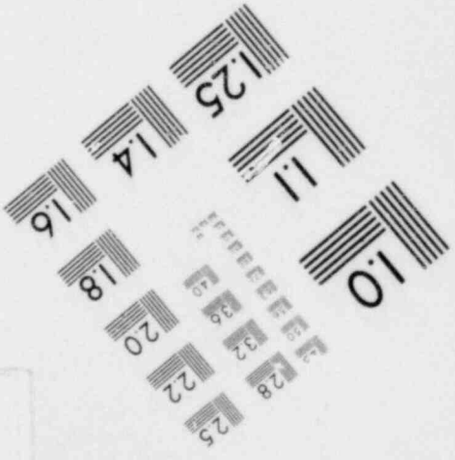


IMAGE EVALUATION
TEST TARGET (MT-3)









submerged conditions. Engineering activities to qualify these valves is currently underway.

Inspector Followup Item: Review licensee's progress to redesign MOV's CAV-1, 3, 4, 5 and 126 to assure operations under submerged conditions (302/81-02-11).

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 repo ted as required by 10 CFR Part 21;
- Items are reported as required by the Technical Specifications.

The following NCOR's were reviewed:

80-286	81-52	81-80
80-288	81-53	81-81
80-323	81-54	81-82
81-05	81-55	81-83
81-06	81-57	81-84
81-07	81-58	81-85
81-10	81-59	81-86
81-12	81-62	81-87
81-15	81-63	81-88
81-19	81-64	81-90
81-24	81-65	81-91
81-28	81-66	81-92
81-29	81-67	81-93
81-31	81-68	81-95
81-37	81-69	81-96
81-40	81-70	81-97
81-41	81-71	81-98
81-44	81-72	81-99
81-45	81-73	81-100
81-46	81-74	81-101
81-47	81-75	81-102
81-48	81-77	81-103
81-50	81-78	81-104
81-39	81-79	81-105
81-14		81-106
		81-107

(1) NCOR 81-31 reported installation of non-safety-related equipment in a safety-related system. An unauthorized differential pressure cell was installed to improve flow monitoring of the Nuclear Closed Cycle Cooling water pumps (SWP's). When the cell was discovered, it was removed from the system.

Subsequent investigation indicated that the cell was installed under a modification (MAR 79-5-3), however the MAR did not identify the type of cell installed. The MAR has been returned to the licensee's engineering group for redesign and the licensee is continuing to measure SWP flows thorugh the use of existing instrumentation and approved surveillance procedures.

Inspector Followup Item: Review licensee's action to modify SWP flow measuring techniques. (302/81-02-12)

(2) NCOR 81-52 reported the use of non-quality oil in the safety-related Nuclear Services Closed Cycle Cooling pump (SWP-1A). The non-quality oil was removed and quality oil installed. To provide better control of lubricating oils, the licensee has established an oil qualification procedure and quality oil storage areas and containers. In addition, the licensee is issuing a new procedure (PM-133) to control lubrication chart usage. This new procedure is addressed in unresolved item (302/80-39-03) (see paragraph 3 of this report) and will be followed under this item number.

(3) NCOR 81-72 reported the failure to conduct emergency drills. The licensee has recently revised their emergency plan to be consistent with the new NRC requirements and will be conducting drills for the new plan in the near future. The followup on the emergency plan revisions is identified as Inspector Followup Item (302/80-23-06) (See paragraph 3 of this report) and the conduct of the drills will be review during subsequent inspections.

(4) NCOR 81-63 reported a leak in a containment tendon guide tube. The leak was caused while drilling in the containment building wall for installation of a new fire protection system. The drill penetrated a grease-filled tendon guide tube and "knicked" a tendon wire thereby allowing a small amount of grease (approximately one pint) to leak from the tube. A temporary repair has been made to the tube and a Modification Approval Record (MAR) 81-2-77 is being developed to affect permanent repair. The licensee has also developed and implemented procedure MP-515, Drilling in Reinforced Concrete Structures, to prevent recurrence of this event.

Review of the grease loss and of the tendon wire damage by the licensee indicate no degradation of containment structural integrity (The TS requires removal of a tendon wire on a periodic basis to verify structural integrity and the licensee has determined that up to seven such wires can be removed from each tendon without affecting the integrity of the tendon. This particular tendon has had no wires removed.) This event and the licensee's corrective actions are being followed by the resident inspectors.

Inspector Followup Item: Review the licensee's progress on the repair to the containment tendon guide tube in accordance with NAR 81-2-77. (302/81-02-13)

(5) NCOR 81-96 reported the sticking in mid-position of a core flood valve (CFV-16) that is also a containment isolation valve (CIV). Investigation of this event by maintenance personnel indicated that valve sticking was caused by a bent valve stem and cracked bushing resulting from a lack of lubrication on the stem bushing.

The inspector discussed this event with licensee representatives and as a result of these discussions the licensee is developing a listing of all CIV's requiring lubrication to assure they are included in the licensee's PM lubrication program (see NRC Inspection Report 50-302/80-23, Followup Item 80-23-09). In addition, during the recent plant shutdown, the licensee lubricated a number of normally inaccessible valves and is continuing to identify and lubricate applicable CIV's.

Inspector Followup Item: Review the progress in lubricating CIV's and in complete a listing of all CIV's to be included in the formal PM lubrication program. (302/81-02-14).

(6) NCOR 81-104 through 81-107 reported failures of relays and bistables in the engineered safeguards (ES) system. The event originated due to failure of a solid state triac relay. When this relay was replaced in accordance with an approved modification (MAR 80-11-74), the replacement resulted in the failure of a pressure bistable and an auxiliary relay. These additional failures were identified during subsequent retesting to verify system operation.

The cause of this event was improper application of MAR 80-11-74. The licensee has been unable to replace original equipment solid state triac relays and developed this MAR to replace all existing solid state triac relays with an approved and qualified replacement. The MAR, however, was written to replace all relays at the same time and not on an individual as applied in this event. The licensee is revising MAR 80-11-74 to provide for partial relay replacement.

Unresolved Item: Revise MAR 80-11-74 to provide for a partial replacement of solid state triac relays in the ES system. (302/81-02-15).

c. The licensee has identified numerous relay failures in the Engineered Safety Feature Actuation system (ESFAS). A partial listing of these failures were identified in NCOR's 80-292, 80-299, 80-323, 81-50, 81-87,
81-88, 81-104 through 107, LER 80-55 and Special Report 80-03.

The inspector discussed these failures with licensee representatives and determined that these failures appear to be confined to two relay types. The licensee will compile relay failure data and conduct an engineering review to determine if a common failure mode exists.

Inspection Followup Item: Examine results of licensee's engineering review of ESFAS relay failures (302/81-02-16).

10. Nonroutine Events

a. Rector Trip Due to Operator Error

On March 17, at 1443 hours the reactor tripped from full power. The trip was caused by a technician inadvertantly pushing the "A" control rod drive (CRD) breaker "Trip Reset" pushbutton instead of the "B" CRD breaker "Trip Reset" pushbutton during the performance of surveillance procedure SP-110, Reactor Protective System Functional Testing. Since the "B" CRD breaker was already opened by the test, opening the "A" CRD breaker initiated the reactor trip.

The inspectors arrived in the control room soon after the trip and observed the plant shutdown. No abnormalities were observed.

Review of the event, interviews with personnel, and examination of the procedure and equipment do not indicate any inadequacies in the licensee's activities. The licensee's "Lessons Learned" task force is reviewing the event and may have specific recommendations. The task force finding remains to be reviewed.

Inspector Followup Item: Review the recommendations of the "Lessons Learned" task force from the Reactor trip of March 17, 1981. (302/81-02-17).

b. Overfill of Reactor Coolant Drain Tank (RCDT)

On February 20, 1981, while in cold shutdown (Mode 5), a spill of approximately 75 gallons of primary coolant occurred from the RCV-8 (pressurizer pressure relief valve) flange. Maintenance activities were being performed on WDV-247 (Waste Disposal pump recirculation valve) and RCV-8. In addition reactor coolant system draindown was in progress per Operating Procedure (OP)-303, Draining and Nitrogen Blanketing of the Reactor Coolant System. The opening of WDV-247 during the draindown provided a path for the primary coolant to the RCDT in addition to the normal path to the Reactor Coolant Bleed tank. The RCDT filled up and waste backed up through the RCV-8 discharge line to ther RCV-8 flange resulting in the spill. The inspector reviewed this event with the licensee to determined what corrective actions

would be taken to preclude this and similar events from occurring in the future. The licensee's "Lessons Learned" task force reviewed the event and initiated the following corrective actions:

(1) Administrative Instruction (AI)-500, will be revised to include guidance for the performance of valve lineups performed in support of operating procedures on valves "blue-tagged" to a department other than operations.

(2) Compliance Procedure (CP)-115, will be revised to reflect that personnel must be assured that any clearances being issued does not conflict with a valve lineup which is being, or was, performed for an ongoing procedure.

(3) Instructions on the inter-relationship of the waste disposal system and reactor coolant system will be incorporated into the requalification training of all operators.

(4) Immeidate circulation of the "Lessons Learned" findings to all shift personnel.

Items (2) and (4) above have been accomplished and the inspector has no further questions on these items.

Inspector Followup Item (302/81-02-18): Review AI-500 to verify guidance is provided for performance of valve lineups, performed in support of Operating Procedure, on valves "blue-tagged" to a department other than operations.

Inspection Followup Item (302/81-02-19): Review requalification training syllabus to verify interrelationships between waste disposal and reactor coolant systems are addressed.