



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA STREET, N.W.  
 ATLANTA, GEORGIA 30323

Report Nos.: 50-335/86-18 and 50-389/86-17

Licensee: Florida Power and Light Company  
 9250 West Flagler Street  
 Miami, FL 33102

Docket Nos.: 50-335 and 50-389

License Nos.: DPR-67 and NPF-16

Facility Name: St. Lucie 1 and 2

Inspection Conducted: June 17 - August 4, 1986

Inspectors:	<u>H. O. Christensen Jr.</u>	<u>8-26-86</u>
	R. V. Crlenjak, Senior Resident Inspector	Date Signed
	<u>H. E. Bibb</u>	<u>8-26-86</u>
	H. E. Bibb, Resident Inspector	Date Signed
Approved by:	<u>S. A. Elrod</u>	<u>8/26/86</u>
	S. A. Elrod, Section Chief	Date/Signed
	Division of Reactor Projects	

SUMMARY

Scope: This inspection involved on site activities in the areas of Technical Specification compliance, operator performance, overall plant operations, quality assurance, station and corporate management practices, corrective and preventive maintenance activities, site security procedures, radiation control activities, and surveillance activities.

Results: One violation was identified, paragraph 5.

REPORT DETAILS

1. Licensee Employees Contacted

K. Harris, St. Lucie Site Vice President  
D. A. Sager, Plant Manager  
J. H. Barrow, Operations Superintendent  
T. A. Dillard, Maintenance Superintendent  
\*L. W. Pearce, Operations Supervisor  
R. J. Frechette, Chemistry Supervisor  
C. F. Leppla, Instrument and Control Supervisor  
C. A. Pell, Technical Staff Supervisor  
E. J. Wunderlich, Reactor Engineering Supervisor  
\*G. Longhouser, Security Supervisor  
J. Barrow, Fire Prevention Coordinator  
\*J. Scarola, Assistant Plant Superintendent - Electrical  
C. Wilson, Assistant Plant Superintendent - Mechanical  
\*N. G. Roos, Quality Control Supervisor.

Other licensee employees contacted included technicians, operators, mechanics, security force members and office personnel.

\*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on August 8, 1986 with those persons indicated in paragraph 1 above.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

(CLOSED) Violation 335/86-07-01, 389/86-06-01 - Missed Surveillance Testing. The licensee has revised procedures and implemented new procedures to ensure that individual departments are scheduling and completing required surveillances. This item is considered closed.

(CLOSED) Violation 389/85-20-01 - Inadequate Procedure for Performance of Direct Current (DC) Ground Isolation on Main Steam Isolation Valve (MSIV) Air Supply Solenoid Valve. The licensee performed the necessary procedure revisions to prevent similar failures. This item is considered closed.



#### 4. Plant Tours (Unit 1 and 2)

The inspector conducted plant tours during the inspection interval to verify that monitoring equipment was recording as required, equipment was properly tagged, operations personnel were aware of plant conditions, and plant housekeeping efforts were adequate. The inspectors also determined that appropriate radiation controls were properly established, critical clean areas were being controlled in accordance with procedures, excess equipment or material was stored properly and combustible materials and debris were disposed of expeditiously. During tours, the inspectors looked for the existence of unusual fluid leaks, piping vibrations, pipe hanger and seismic caution and danger tags, Component positions, adequacy of fire fighting equipment, and instrument calibration dates. Additionally, some tours were conducted on backshifts.

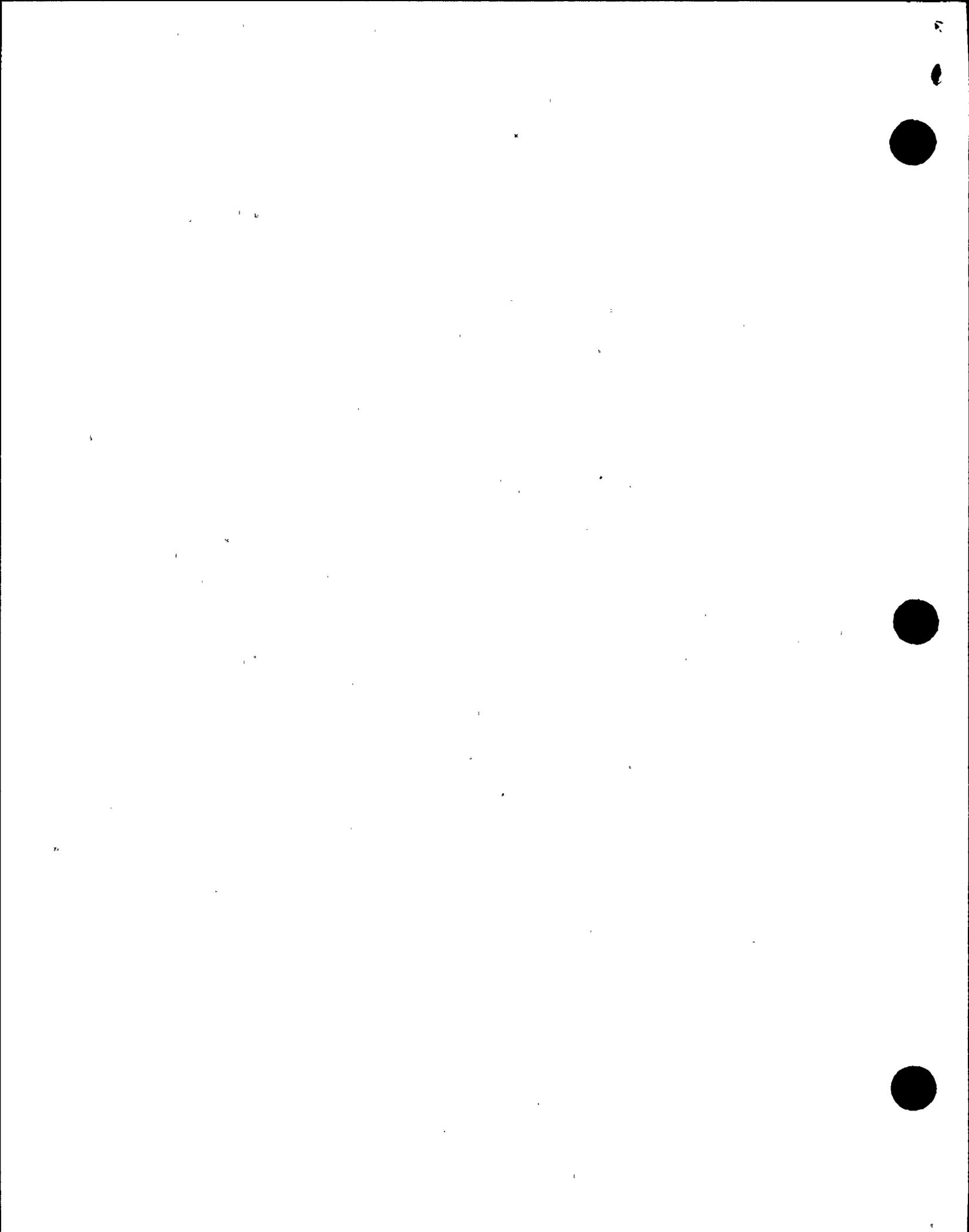
The inspectors routinely conducted partial walkdowns of the Emergency Core Cooling Systems (ECCS). Valve, breaker/switch lineups and equipment conditions were randomly verified both locally and in the control room. During the inspection period the inspectors conducted a complete walkdown, on the accessible areas of units 1 and 2 component cooling water (CCW) systems and the unit 2 feedwater and condensate systems, to verify that the lineups were in accordance with licensee requirements for operability and equipment material conditions were satisfactory. Additionally, flowpath verifications were performed on the following systems: Unit 1 and 2 chemical and volume control systems (CVCS), auxiliary feedwater (AFW) systems and electrical cable tray systems.

Over the last few months the inspectors noted some deficiencies in the unit 1 and 2 electrical cable tray systems. The deficiencies consisted of missing or partially removed cable tray covers and missing fasteners. The licensee has acted on these deficiencies and has initiated a program to correct and prevent recurrence.

On July 30, 1986, while making a routine tour of the unit 1 piping penetration room, the inspector noted that temporary scaffolding was being supported on one end by a horizontal run of safety related conduit. The conduit had not been deformed or damaged due to the added weight. However, it should be noted that safety related systems are designed for predetermined levels of stress and that potential changes in the stress level, whether temporary or permanent require appropriate reviews, approvals, and controls. The licensee has removed the temporary scaffolding and is reviewing this area to prevent recurrence.

#### 5. Plant Operations Review (Units 1 and 2)

The inspectors reviewed selected shift logs and operations records, including data sheets, instrument traces, and records of equipment malfunctions. This review included control room and auxiliary logs, operating orders, standing orders, jumper logs and equipment tagout records.



The inspectors routinely observed operator alertness and demeanor during plant tours. During routine operations, operator performance and response actions were observed and evaluated. Random off-hours inspections were conducted during the reporting interval to assure that operations and security remained at an acceptable level. A number of shift turnovers were observed to verify that they were conducted in accordance with approved licensee procedures.

The inspectors performed an in-depth review of the following safety-related tagouts (clearances):

Unit-1

1-7-39 CVCS/CCW Letdown Heat Exchanger TCV-2223  
1-7-89 1A Boric Acid Makeup (BAM) Station Relief Valve V-2133

Unit 2

2-7-76 BAM Station Relief V-2171

On June 25, 1986, the inspector conducted a routine comparison of an operating procedure (OP 2-0700020, Revision 8, Condensate and Feedwater System - Normal Operation) with the system drawing (2998-8-080, sheet 2 of 2 - Flow Diagram - Feedwater and Condensate Systems). During the initial review it was noted that several (10) deficiencies existed. Valves which were upstream valves on the drawing were described as downstream valves in the procedure and valves associated with one flow transmitter (FT-9011) on the drawing were described in the flowpath of a different flow transmitter (FT-09-3-A1, A2 & A3) in the procedure. The inspector verified the correct system layout by hand walking the system. Valve labeling errors were to be expected since the procedure, not the drawing, was used as the reference document for making up and attaching the valve identification labels. The drawing was verified correct and a further in-depth review of the procedure revealed a total of 95 errors - wrong valve numbers, incorrect valve descriptions, unit one referenced components on unit two procedure, etc. Additionally, three valves which the procedure designated as "open" were found to be "closed". The most recent performed copy, April 1986, of this procedure has the valves initialed as being open. A walk down of the system verified these valves to be closed. The licensee was unable to explain why the operators had initialed the valve lineup as "open" when the valves were actually "closed". These are examples of failure to properly establish, implement or maintain procedures as required by Technical Specification (TS) 6.8.1 and is a violation (389/86-17-01).

On July 11, 1986, at approximately 10:00 a.m., while conducting a routine control room tour, the inspector noted that the remote 190 foot wind direction instrument was reading incorrectly. The instrument malfunction had been logged in the "Out-Of-Service" log on July 9, 1986 at 10:15 a.m. However, a plant work order (PWO) had not been initiated to repair and restore it to service.

Plant Administrative Procedure 0010432, Rev. 26, step 5.1 states: "All persons at Florida Power and Light Company's St. Lucie Plant, are responsible for reporting by use of the NPWO [Nuclear Plant Work Order] Form, deficiencies, malfunctions or abnormal conditions that require corrective maintenance on plant systems or equipment". Additionally, step 8.1 states: "When a condition requiring modification or maintenance is known it shall be reported and documented on the Nuclear Plant Work Orders form".

The failure to initiate a NPWO on the 190 foot wind direction instrument upon discovery of instrument malfunction is a second example of failure to implement procedures (335/86-18-01).

#### 6. Technical Specification Compliance (Units 1 and 2)

During this reporting interval, the inspectors verified compliance with limiting conditions for operations (LCOs) and results of selected surveillance tests. These verifications were accomplished by direct observation of monitoring instrumentation, valve positions, switch positions, and review of completed logs and records. The licensee's compliance with LCO action statements was reviewed concerning selected occurrences as they happened.

#### 7. Maintenance Observation

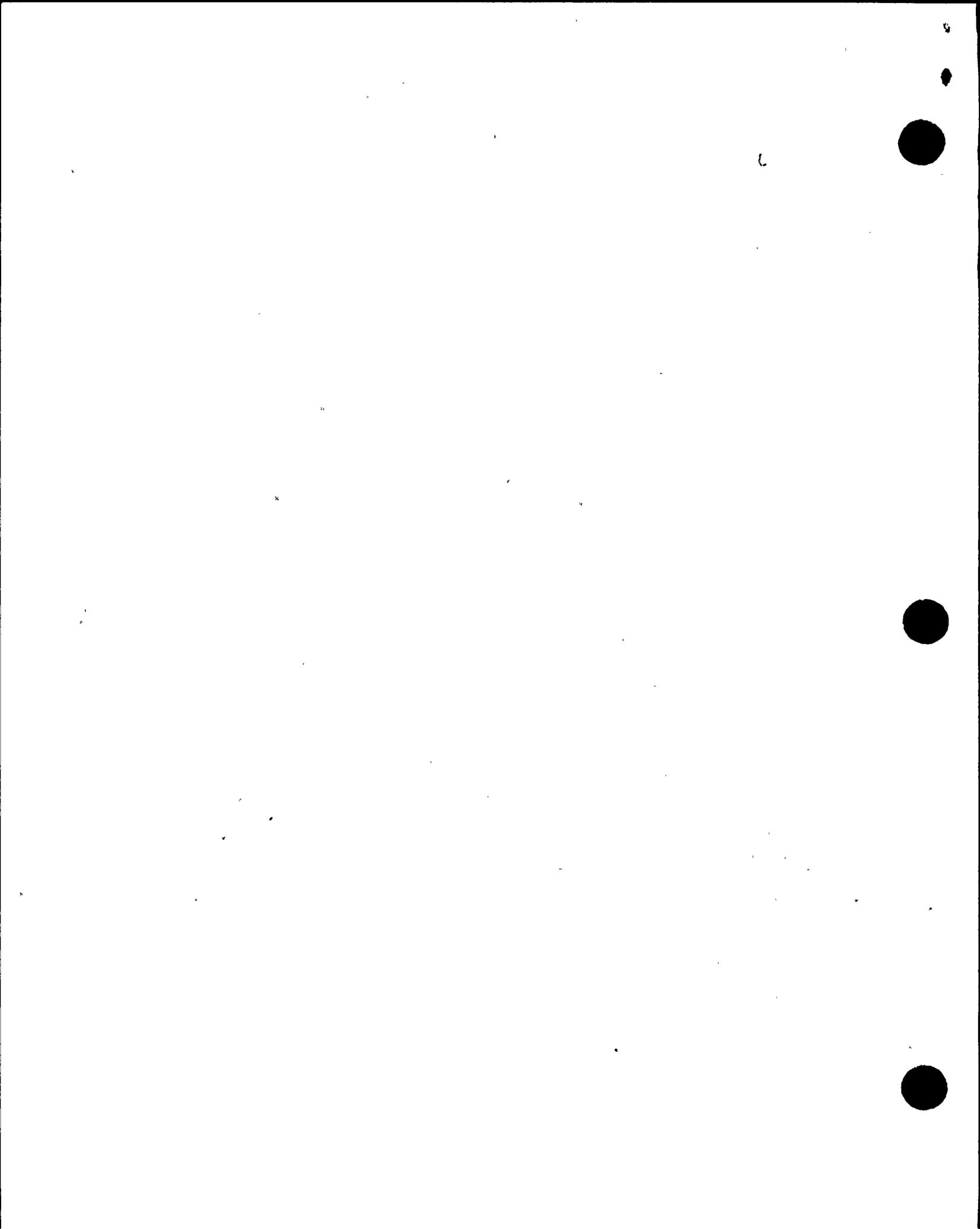
Station maintenance activities of selected safety-related systems and components were observed and reviewed to ascertain that they were conducted in accordance with requirements. The following items were considered during this review; LCOs were met, activities were accomplished using approved procedures, functional tests and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; and radiological controls were implemented as required. Work requests were reviewed to determine status of outstanding jobs and to assure the priority was assigned to safety-related equipment. The inspectors observed portions of the following maintenance activities:\_\_\_

##### Unit-1

PWO-0067 Replace Y-Strainer in Extraction Steam SS-10-1B

##### Unit-2

PWO-3772 2V-08618 & 08619 Repair Leak-by (AFW) [Auxiliary Feedwater]  
 PWO-3285 2V-17508 DG [Emergency Diesel Generator] Cooling Drain  
 Valve - Broken Stem  
 PWO-3773 2V-08663 & 08668 Repair Leak-by (AFW)  
 PWO-3774 2V-08600 Repair Leak-by (AFW)



8. Review of Nonroutine Events Reported by the Licensee (Units 1 and 2)

The following Licensee Event Reports (LER's) were reviewed for potential generic impact, to detect trends, and to determine whether corrective actions appeared appropriate. Events which were reported immediately were also reviewed as they occurred to determine that TS were being met and that the public health and safety were of utmost consideration. The following LER's are considered closed:

Unit-1

86-02 "Reactor Trip During Reactor Protection System Testing"

On February 6, 1986, an automatic trip occurred during the monthly reactor protection system logic matrix test. As part of the test, two of the eight reactor trip circuit breakers (TCB) were open. A faulty switch in the testing circuitry caused two more TCB's to open, resulting in a reactor trip.

86-04 "Reactor Trip Due to High Steam Generator Level"

On April 13, 1986, during a startup, mismatches in reactor power, steam loads and steam generator (S/G) feed rates caused S/G levels to exceed the Hi-Hi trip setpoint and caused the turbine generator and feed pump to trip. This resulted in an automatic reactor trip on loss of load.

86-05 "Technical Specification Deviation Due to Personnel Error"

On June 6, 1986, with the unit at 100 percent power, a power reduction was commenced in preparation for a scheduled outage. During the course of the shutdown, problems with the digital data processor system (DDPS) software were encountered. The DDPS is a computer system used to monitor plant parameters, perform calculations, process data, and display information. After several attempts the DDPS was restarted by reloading the program using the cycle 7 system dump magnetic tape. The cycle 7 magnetic tape dump not only reloaded the DDPS programs, it also reinitialized the incore detector sensitivity and alarm setpoints to the beginning of cycle 7 values. Therefore, the subsequent DDPS incore detector parameters which incorporated those variables were inaccurate.

A startup of the unit was commenced on June 19, 1986. The unit was in mode 1 and synchronized to the grid at 0043 on June 20. Power ascension continued throughout the morning until the unit reached 100 percent power at 1205. The operators had again experienced problems with the DDPS during this subsequent startup. Due to these problems, the reactor engineering department conducted a "snapshot" (instantaneous poll of all incore detectors) at 0840 to verify the sensitivity factors. The reactor engineering department engineer quickly discovered the improper sensitivity factors and recognized it as a problem. However, because of his relative inexperience with this type of fault, the engineer did not realize that the system was unable to fulfill the requirements of TS 3.1.2, monitoring of linear heat rate. Subsequently, the appropriate plant personnel were not informed of the TS deviation. The engineer did initiate steps to enter the correct sensitivity factors and alarm setpoints.

In summary, TS 3.2.1 requires, with the incore monitoring detector system inoperable, that reactor power be reduced to the limits (88 percent) specified in table 3.2-2 within 4 hours. The unit was above the limits for approximately 8 hours. This is a violation of unit 1 TS. However, since it was identified by the licensee, considered severity level IV or V, reported, corrected within a reasonable length of time, was not a violation which could be expected to have been prevented by the licensee's previous corrective actions, and in accordance with 10 CFR 2, Appendix C, IV.A, a Notice of Violation was not issued.

### Unit 2

#### 86-06 "Both Diesel Generators Out of Service"

On March 10, 1986, with the unit at full power, the 2B emergency diesel generator (DG) was removed from service to repair an idler pulley wheel on the belt-driven engine cooling fan. On March 12,, while performing a required operability surveillance on the redundant 2A DG, one of the two engines in the 2A DG set failed to start. Repairs on the 2B DG were completed and the unit was returned to operable status within the time limit allowed by TS.

#### 86-07 "Pressurizer Code Safety Valves Inoperable"

While shutdown for a normal refueling outage on April 17, 1986, two of three pressurizer code safety valves failed to lift within the required pressure range when bench tested. The lift point of the third could not be determined due to excessive seat leakage.

One valve was found to have a ruptured bellows which allowed boric acid from the reactor coolant system (RCS) to cause corrosion that resulted in binding, forcing an increase in the lift setpoint. The second valves was 14 psi out of tolerance. No cause could be determined. The seats on the third valve were steam cut such that the bench test rig did not have sufficient capacity to overcome seat leakage. All pressurizer code safety valves were rebuilt and satisfactorily tested. The Office of Nuclear Reactor Regulation is reviewing this event to determine if the plant had adequate over pressure protection during the last fuel cycle.

#### 86-08 "Technical Specification Deviation Due to Personnel Error"

On April 28, 1986, with the unit shutdown for a scheduled refueling outage and in mode 6, at approximately 0510 a contractor bargaining unit walkout occurred. During the 24 hours of the walkout a required hourly fire watch was not conducted. The fire watch discrepancy was discovered during a routine inspection by Utility Quality Assurance personnel when it was noted that the fire watch log sheet had not been signed since the walkout began. This is a violation of TS 3.7.12. However, since it was identified by the licensee, considered severity level IV or V, reported, corrected within a

reasonable length of time, was not a violation which could be expected to have been prevented by the licensee's previous corrective actions, and in accordance with 10 CFR 2, Appendix C, IV.A, a Notice of Violation was not issued.

#### 86-09 "Excessive Containment Bypass Leakage"

On April 4, 1986, with the unit in a refueling outage, a local leak rate test on containment penetration 28A revealed a leakage rate of 115,000 sccm. This penetration contains a line for drawing liquid samplers from the safety injection tanks and is considered a bypass leakage path for the purpose of TS. When the combined leakage rate for all bypass pathways was calculated on May 22, 1986, the total exceeded the 0.12 La limit of TS 3.6.1.2 (c). The cause of the excessive leakage was due to a degraded disc on the outside containment isolation valve.

#### 86-10 "Reactor Trip Due to Low Steam Generator Level"

On June 4, 1986, during post-outage turbine overspeed testing, a reactor trip occurred at 5 percent power as a result of low steam generator (S/G) water level. No component or system failures occurred during the event. The cause of the event was ineffective manual control of the S/G water levels during low power operation.

### 9. Physical Protection (Units 1 and 2)

The inspectors verified by observation and interviews that measures taken to assure the physical protection of the facility met current requirements. Areas inspected included the organization of the security force, the establishment and maintenance of gates, doors and isolation zones in the proper conditions, that access control and badging was proper, and procedures were followed.

### 10. Surveillance Observations

The inspectors verified that plant operation was in compliance with selected TS requirements. Typical of these were confirmation of compliance with the TS requirements for reactor coolant chemistry, refueling water tank, containment pressure, control room ventilation and AC and DC electrical sources. The inspectors verified that testing was performed in accordance with adequate procedures, test instrumentation was calibrated, LCOs were met, removal and restoration of the affected components were accomplished, test results met requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel. The inspectors observed portions of the following surveillances:

1-1400050 Unit 1 - Reactor Protection System Monthly Functional Test

1-1220050 Unit 1 - Linear Power Range Safety Channel Quarterly Calibration

1-1400052 Unit 1 - Engineered Safeguards Actuation System - Channel  
Functional Test

1-0700051 Unit 1 - Auxiliary Feedwater Actuation System Monthly Functional  
Test

1-0110062 Unit 1 - Trip Circuit Breaker Testing