



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

Report Nos.: 50-335/91-27 and 50-389/91-27

Licensee: Florida Power & Light Co  
 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: December 23, 1991 - January 27, 1992

Inspectors:	<u><i>S.A. Elrod</i> for</u>	<u>2/25/92</u>
	S. A. Elrod, Senior Resident Inspector	Date Signed
	<u><i>M.A. Scott</i> for</u>	<u>2/25/92</u>
	M. A. Scott, Resident Inspector	Date Signed
Approved by:	<u><i>K.D. Landis</i></u>	<u>2/25/92</u>
	K. D. Landis, Section Chief	Date Signed
	Division of Reactor Projects	

SUMMARY

Scope:

This routine resident inspection was conducted onsite in the areas of plant operations review, maintenance observations, surveillance observations, review of nonroutine events, fire protection review, and followup of previous inspection findings.

Results:

This inspection addressed normal at-power activities and two downpower evolutions for repairs conducted on Unit 2. Unit 2 passed 400 days of continuous operation this inspection period. Surveillance and maintenance were well coordinated with plant operations in a number of areas. One occasion where operators did not practice meticulous equipment status control was observed.

Within the areas inspected, the following violation was identified:

VIO 335/91-027-01 - Failure to Follow Equipment Control Procedures, paragraph 2.b.

Within the areas inspected, the following noncited violations were identified:

NCV 389/91-027-02, Engineered Safety Features Actuation Channel Out-of-Service Due to Personnel Error, paragraph 6.a.

NCV 335/91-027-03, Technical Specification required plant vent stack radiation sampler and monitor inappropriately out-of-service, paragraph 6.b.

NCV 335/91-027-04 Failure to Follow Work Control Procedure, paragraph 8.



## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \* D. Sager, St. Lucie Plant Vice President
- \* G. Boissy, Plant General Manager
- \* J. Barrow, Fire/Safety Coordinator
- \* H. Buchanan, Health Physics Supervisor
- \* C. Burton, Operations Manager
- \* R. Church, Independent Safety Engineering Group Chairman
- \* R. Dawson, Maintenance Manager
- \* R. Englmeier, Nuclear Assurance Manager
- \* R. Frechette, Chemistry Supervisor
- C. Leppla, Instrument and Control Supervisor
- \* L. McLaughlin, Licensing Manager
- \* G. Madden, Plant Licensing Engineer
- \* A. Menocal, Mechanical Supervisor
- T. Roberts, Site Engineering Manager
- \* L. Rogers, Electrical Supervisor
- N. Roos, Services Manager
- C. Scott, Outage Manager
- D. West, Technical Manager
- J. West, Operations Supervisor
- W. White, Security Supervisor
- \* D. Wolf, Site Engineering Supervisor
- E. Wunderlich, Reactor Engineering Supervisor

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

#### NRC Employees

- \* S. Elrod, Senior Resident Inspector
- \* M. Scott, Resident Inspector

- \* Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

### 2. Review of Plant Operations (71707)

Unit 1 began the inspection period returning to power following a refueling outage. The unit ended the inspection period in day 35 of power operation.

Unit 2 began and ended the inspection period at power, day 417 of continuous power operation.

a. Plant Tours

The inspectors periodically conducted plant tours 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 restraint settings, various valve and breaker positions, equipment caution and danger tags, component positions, adequacy of fire fighting equipment, and instrument calibration dates. Some tours were conducted on backshifts. The frequency of plant tours and control room visits by site management was noted to be adequate.

The inspectors routinely conducted partial walkdowns of ESF, ECCS, and support systems. Valve, breaker, and switch lineups and equipment conditions were randomly verified both locally and in the control room. The following accessible-area ESF system and area walkdowns were made to verify that system lineups were in accordance with licensee requirements for operability and equipment material conditions were satisfactory:

- Unit 1 ECCS space,
- Unit 2 fan rooms,
- Unit 1 SFP area and FHB system, and
- Unit 2 SFP area and FHB system.

b. Plant Operations Review

The inspectors periodically reviewed shift logs and operations records, including data sheets, instrument traces, and records of equipment malfunctions. This review included control room logs and auxiliary logs, operating orders, standing orders, jumper logs, and equipment tagout records. The inspectors routinely observed operator alertness and demeanor during plant tours. They observed and evaluated control room staffing, control room access, and operator performance during routine operations. The inspectors conducted random off-hours inspections to ensure that operations and security performance remained at acceptable levels. Shift turnovers were

observed to verify that they were conducted in accordance with approved licensee procedures. Control room annunciator status was verified. Except as noted below, no deficiencies were observed.

During this inspection period, the inspectors reviewed the following tagouts (clearances):

1-12-2 Administrative Control of Equipment tags 44 - 52 for valves V08562 to V08570 on the "A" train MSIV, and

1-11-259 LS-14-2A, Level switch to CCW surge tank.

- (1) On December 23, in Mode 1, while transferring the Unit 1 electrical power source from the startup transformers to the Unit 1 auxiliary transformers, the control room operators observed indications of improper switchgear functioning. After the transfer, a current reading on the A-train auxiliary transformer feed ammeter showed the auxiliary transformer breaker to be closed, however, the breaker position indicating lights were both dimly lit. Operators also observed that the startup transformer breaker position lights showed that the startup breaker was still closed.

The operators immediately stopped power ascension activities, notified their management, and investigated the condition. They determined that both circuit breakers were closed, and that the startup transformer circuit breaker would not open remotely. The problem was found to be a poor contact in the auxiliary transformer circuit breaker control circuit.

While troubleshooting these circuit breakers, the operators racked out the 1A startup transformer circuit breaker, moved it several feet away from the switchgear, and tested it. It was reinstalled within minutes. TS 3.8.1.1 required, in part, two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system be operable while in Modes 1, 2, 3, and 4. The action statement required, in part, return to service of inoperable circuits within 72 hours. The licensee met this time requirement. However, when the operators racked out the 1A startup transformer circuit breaker, they did not declare it inoperable per TS 3.8.1.1 nor did they log this action in the TS Equipment Out-Of-Service Log per OP 0010129, Rev 18, Equipment Out of Service. The licensee stated that the reasoning followed was the same as the reasoning that allows temporary disablement of the EDG start circuit while manually rotating the EDG prior to surveillance runs without declaring it out of service and testing the other EDG. The inspector judged this logic faulty since safety considerations allowed to support required surveillances do not necessarily apply to troubleshooting and repair. Also, the actions described above were not consistent with known licensee policy

and routine inspector observations of the removal from service process.

Unit 1 TS 6.8.1.a requires that written procedures shall be established, implemented, and maintained covering the activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Appendix A, paragraph 1 included procedures for equipment control and for log entries. This was implemented on site in part by OP 0010129, Rev 18, Equipment Out-Of-Service, which required that all equipment required by TS shall be logged in the Equipment Out-of-Service Log when that equipment has been determined to be inoperable. Failure to declare the A-train offsite circuit out-of-service and log the condition in the Equipment Out-of-Service Log when that equipment had been made inoperable by removing the circuit breaker was a violation of TS 6.8.1. This is VIO 335/91-027-01, Failure to Follow Equipment Control Procedures.

- (2) On January 19, the licensee discovered lightly wetted lagging on Unit 2 valve V12424, the 4A heater feedwater inlet valve (nominally operating at 330 degrees F, 450 psig). This 24-inch, carbon steel, Pacific brand, gate valve was a secondary plant valve and not directly safety-related. By January 21, the lagging was removed, exposing a through wall pinhole leak in the valve body. The same day, the licensee downpowered to approximately 60 percent power to investigate this leak, and also investigate a TCW heat exchanger tube leak and clean condenser waterboxes. Ultrasonic and magnetic particle testing and inspection of the area around the pinhole revealed that the valve base material was sound. Previous inspection of the adjacent pipe, performed during the last outage, revealed no degradation from erosion. The licensee concluded that the pinhole was a casting flaw (porosity) that would not propagate. A licensee contractor sealed the pinhole on January 23 with a leak repair plug and external band following restoration of the valve to normal operating temperature. Following these repairs, the plant was returned to its normal configuration. Permanent weld repair using heat treatment, was deferred until the April 1992 refueling outage.
- (3) On the morning of January 26, the licensee observed a lubricating oil leak from 2B main feedwater pump instrument tubing. The tubing from the lubricating oil pump discharge, was bent at a point beneath a pressure gage. The cause and time at which the bend occurred were unknown. Oil was leaking from a tubing fitting that was cracked around one-fourth the circumference. The unit was down-powered to approximately 45 percent for replacement of the tubing. A new tubing assembly was preassembled and staged prior to field work commencing.



Power ascension in the early afternoon of the same day was uneventful.

c. Technical Specification Compliance

Licensee compliance with selected TS LCOs was verified. This included the review of selected surveillance test results. These verifications were accomplished by direct observation of monitoring instrumentation, valve positions, and switch positions, and by review of completed logs and records. Instrumentation and recorder traces were observed for abnormalities. The licensee's compliance with LCO action statements was reviewed on selected occurrences as they happened. The inspectors verified that related plant procedures in use were adequate, complete, and included the most recent revisions.

d. Physical Protection

The inspectors verified by observation during routine activities that security program plans were being implemented as evidenced by: proper display of picture badges; searching of packages and personnel at the plant entrance; and vital area portals being locked and alarmed.

The licensee's attention to plant conditions and prompt correction of degradations was a key factor in continued excellent plant performance. The failure to declare equipment out-of-service for troubleshooting and maintenance is considered an isolated instance.

3. Surveillance Observations (61726)

Various plant operations were verified to comply with selected TS requirements. Typical of these were confirmation of TS compliance for reactor coolant chemistry, RWT conditions, 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 properly, 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 surveillance tests discussed in the following paragraphs were observed:

- a. OP 2-0110050, Rev 11, Control Element Assembly Periodic Exercise.
- b. I&C 1-0700051, Rev 11, Auxiliary Feedwater Actuation System Monthly Functional Test.
- c. OP 2-0700050, Rev 26, Auxiliary Feedwater Periodic Test, Data Sheets "A" and "B", for the 2A and 2B pumps.



- d. OP 2-2200050, Rev 37, Emergency Diesel Generator Periodic Test and General Operating Instructions:

During this surveillance, performed on December 26, 1991 the EDG performed well, however one of the two solenoid-operated valves that refill the fuel day tanks failed to function automatically. Independent local and remote tank level alarms functioned properly and manual valve operation was easily accomplished and successful. The operator replaced a blown fuse and the circuit functioned correctly during subsequent automatic operation. Subsequent review showed that, following the tank level alarm, the 12 cylinder engine was capable of almost two hours of operation with no operator action. The surveillance test required one hour of operation plus a few minutes for startup and shutdown. The licensee initially credited operator action concerning fuel transfer and considered the surveillance satisfactory.

Subsequent inspector review of Unit 2 TS 3/4.8.1 showed that TS surveillance step 3 required that the operator "verify that the fuel transfer pump can be started and transfers fuel from the storage system to the engine-mounted tank."

The inspector reviewed RG 1.108, Rev 1, and determined that the surveillance would be considered a valid test per criterion e.(3), which involved a successful start, successful loading to at least 50 percent of full load, and continued operation for at least one hour.

Since these two criteria are not always compatible and TS 4.8.1 deals directly with TS operability, the inspector questioned the licensee's determination. The licensee, then reclassified the surveillance as failed, carried out required TS actions, and though troubleshooting could find no faulty components, replaced the alarm module since these had failed more frequently than other components. Since the degree of operator action allowed during surveillances was not clear, the inspector intends to clarify it through correspondence with NRC Region II and Headquarters staffs.

- e. OP 3200051, Rev 8, At Power Determination of Moderator Temperature Coefficient:

- Unit 1 following post-refueling startup, and
- Unit 2 near 300 ppm RCS boric acid concentration per TS 4.1.1.4.2.

This test is an infrequently performed evolution per AP 0010020, Rev 0, Conduct of Infrequently Performed Tests or Evolutions at St. Lucie Plant. The required pre-evolution briefings were excellent and oversight and attention to detail by management, SROs, RCOs, and the reactor engineers was meticulous. Both tests reached satisfactory conclusions.



The above tests were carried out satisfactorily with good coordination among the participating groups, non-licensed operators, and licensed operators.

- f. OP 2-2200050, Rev 38, Emergency Diesel Generator Periodic Test, for the 2B EDG.

#### 4. Maintenance Observation (62703)

Station maintenance activities involving selected safety-related systems and components were observed/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 the status of outstanding jobs and to ensure that priority was assigned to safety-related equipment. Portions of the following maintenance activities were observed:

- a. NPWO 4874/65 provided work control instruction for the bench testing of the 1A ICW HFA relay (#4 on CWD 832);
- b. NPWO 6843/64 provided work control instruction for the troubleshooting and subsequent testing of the pressurizer pressure SIAS module BA 106 on channel "MA";
- c. NPWO 6939/63 provided work control for the troubleshooting and calibration of FT 2212-1 loop for the Unit 1 charging header flow;
- d. NPWO 4870/65 provided work control for the troubleshooting and component replacement of the "in sync" light on the IC instrument bus inverter;
- e. NPWO 6880/64 provided work control for the removal and calibration of PI 1102D, Unit 2 "MD" channel RCS pressure, that had drifted in its calibration; and,
- f. NPWO 6894/64 provided work control for the troubleshooting and repair of 2C AFW pump discharge flow recorder FR 09-2C.

The above observed activities were performed acceptably with good interface with operations personnel.

#### 5. Fire Protection Review (64704)

During the course of their normal tours, the inspectors routinely examined facets of the Fire Protection Program. The inspectors reviewed transient



fire loads, flammable materials storage, housekeeping, control of hazardous chemicals, and fire barriers.

The observed fire protection activities and features were acceptable.

6. Onsite Followup of Written Nonroutine Event Reports (Units 1 and 2) (92700)

LERs were reviewed for potential generic impact, to detect trends, and to determine whether corrective actions appeared appropriate. Events that the licensee reported immediately were reviewed as they occurred to determine if the TS were satisfied. LERs were reviewed in accordance with the current NRC Enforcement Policy. LER 335/91-09 was closed.

a. (Open - Unit 2) LER 389/91-06, Engineered Safety Features Actuation Channel Out of Service Due to Personnel Error.

This LER reported a licensee-identified TS violation where RAS channel "D" had been placed in bypass in lieu of the required tripped state when taken out of service. The channel remained in this state for 69 hours, exceeding the TS 3.3.2 "return to operable or be placed in trip" statement of 48 hours. The difference between "bypass" and "trip" positions for the RAS channels is that the resulting trip logic is two out of three when bypassing one channel and one out of three when tripping one channel.

The licensee had completed or initiated the following corrective action via the in-house corrective action systems as stated in the LER text:

- counselled the responsible licensed personnel;
- issued open item notice 91-26 (2) requesting training department evaluation of the event as a training item;
- repaired the faulted channel;
- issued open item notice 91-26 (4) requesting review of the equipment out of service process; and,
- issued open item notice 91-26 (5) for human factors oriented modification of the bypass key.

The tentative due date for items 91-26-(2), (4), and (5) above is March 1, 1992. The last two actions above are also addressed by Corrective action request 122691 from the QA department on site.

The RAS channel bypass key will be modified to have a chain and instruction tab attached. The instructions will remind the operator of the appropriate TS instruction and required deviation log entry to



be made when the key is used. The human factors approach to RAS bypass key use should provide a positive reminder of proper usage.

LER 389/91-06 will remain open pending corrective action completion.

Failure to trip the RAS signal as required by TS is closed NCV 389/91-027-02, Engineered Safety Features Actuation Channel Out of Service Due to Personnel Error. It is not being cited because the licensee's corrective actions associated with this event met NRC Enforcement Policy Section V.G criteria for not issuing a Notice of Violation.

- b. (Closed - Unit 1) LER 335/91-09, Removal of the Plant Vent Stack Monitors From Service Resulted in a Condition Prohibited by Technical Specification.

This LER reported a licensee-identified TS violation where the plant vent stack particulate sampler; iodine sampler, and noble gas activity monitor was taken out of service without initiating appropriate TS 3.3.3.10 required alternate sample collection. With the unit in Mode 6, this condition existed for approximately 12 hours. During this time period, there were no activities that could have resulted in an abnormal gaseous release.

The root cause was a cognitive personnel error by utility licensed operators for referencing an inappropriate TS requirement pertaining to radiation monitoring instrumentation. TS 3.3.3.1 required one channel of noble gas effluent monitor of the plant vent system to be in service during Modes 1,2,3, and 4. TS 3.3.3.10 required particulate, iodine, and noble gas monitoring at all times via the sampler/monitor or by grab samples.

The stated corrective action of the LER were completed. The licensee's corrective actions associated with this event met NRC Enforcement Policy Section V.G criteria for not issuing a Notice of Violation. It is identified as closed NCV 335/91-027-03, TS Required Plant Vent Stack Radiation Sampler and Monitor Inappropriately Out-of-Service.

The above events indicated a minor lack of attention to detail by the operations department. Per the information on similar events provided in the LER text, these types of operator oversight had been occurring on a two to three year cycle. When implemented, the human factored modification of the RAS bypass key should reduce the likelihood of operator error.

7. Onsite Followup of Events (Units 1 and 2)(93702)

Nonroutine plant events were reviewed to determine the need for further or continued NRC response, to determine whether corrective actions appeared appropriate, and to determine that TS were being met and that the public

health and safety received primary consideration. Potential generic impact and trend detection were also considered.

The operational actions observed and reviewed during this period were acceptable and addressed in other portions of this report.

8. Followup of Inspection Identified Items (GE HFA Relay Failures to Latch) (Units 1 and 2) (92701)

Synopsis

Engineered safety features and loss of offsite power testing at the St. Lucie site have identified GE HFA relay failure-to-latch conditions contrary to GE Service Letter 190.1 and a resultant GE 10CFR Part 21 notification (NRC Bulletin 88-03). GE Service Letter 190.1 stated that, for older latching relays in Class 1E service, utilities should perform certain latch tests and replace relays failing the test with new HFA 1xx (Century Series) relays manufactured after November 1, 1987. For Class 1E service, field adjustment was not an option, and vendor manual GEK-45486 provided no instructions for adjusting the latching function. All latching-type relays manufactured after November 1, 1987, would be checked for the condition at the factory. Not only have older (but field tested) HFA latching relays subsequently failed to function reliably while installed in safety systems, so have relays manufactured after November 1, 1987.

Use and Function of Latching Relays at St. Lucie

St. Lucie Unit 1 had 14 and Unit 2 had 6 safety-related latching HFA 154 series relays. The 14 Unit 1 Class 1E latching relays served:

- 3 CCW pumps 1A, 1B, 1C;
- 3 ICW pumps 1A, 1B, 1C;
- 2 Reactor cavity cooling fans 1 HVS 2A, 2B;
- 2 Auxiliary building supply fans 1 HVS 4A, 4B;
- 2 Reactor support cooling fans 1 HVE 3A, 3B; and
- 2 ECCS room exhaust fans 1 HVE 9A, 9B.

The 6 Unit 2 Class 1E latching relays served:

- 3 CCW pumps 2A, 2B, 2C; and
- 3 ICW pumps 2A, 2B, 2C.

The primary purpose of these latching relays was to preserve, during a loss of power, control system knowledge of which individual components were running when loss of power occurred. These components would be automatically restarted when power returned.

These relays mechanically latch closed when operated and are electrically reset by a small coil. Some models at other sites could also include a manual reset button. The relays were mounted on vertical surfaces and the



plate-shaped armature operated in a horizontal direction rather than "up-and-down." Closing force was provided by an electromagnetic coil, opening force was provided by a spring. The U-shaped latch, which sat above the top edge of the plate-shaped armature, had a roughly rectangular notch in the end on each side. The notches were about 1/8 inch wide by 1/8 inch deep. When the relay actuated, the armature would move horizontally and the latch be pulled down by another spring - trapping the armature in both notches.

#### Previous Failures of Relays to Reliably Latch

NRC Bulletin 88-03, based on a GE 10 CFR Part 21 notification, identified potential latch engagement problems affecting series 51B (151B), 54 (154), 71b (171B), and 74 (174) latching relays. The bulletin focused on the relays failing to remain closed [as during seismic events, etc.] At St. Lucie, the failure to remain latched would result in no automatic signal to start and would require operator action to carry out the safety function.

Bulletin 88-03 inspections were performed at St. Lucie in 1988 and reported complete by FPL letter L-88-392 of September 22, 1988. Three of 20 relays, for the 2A, 2B, and 2C CCW pumps, were previously 154E relays and tested satisfactory. Four of the remaining 17 failed the inspection and were replaced with 154E relays. These four were for the 2A and 2B ICW pumps, 1HVS 2B, and 1A ICW pump.

In the fall of 1990, The 2B ICW pump relay failed to latch in service during a LOOP test. The relay had insufficient clearance between the U-shaped latch and the armature. This relay was replaced under NPWO 5553/62. Recent licensee inquiry found that this relay's date code was 14GT (July 1981).

In the fall of 1991, the 1A ICW pump relay failed to latch in service during a LOOP test. The relay had insufficient clearance between the U-shaped latch and the armature. This relay was adjusted to meet the 1/32 inch criteria under NPWO 4473/65. The licensee then reinspected all 20 Class 1E relays under NPWOs 2287/66 and 4950/65 per Bulletin 88-03 requirements. Four additional relays latched intermittently or had insufficient latch engagement. Relays failing the inspection were:

- 1A ICW pump      Date Code 14UC (July 1988)
- 1B CCW pump      Date Code 14UC (July 1988)
- 1 HVS 2B        Date Code 14TC (June 1988)
- 1 HVE 3B        Date Code 14VC (August 1988)
- 2B CCW pump      Date Code 14FU (June 1982)

This was 25 percent of the Class 1E latching relays installed at St. Lucie. The licensee, being unsure whether the relay settings were drifting or had been initially mis-set, planned to monitor them again in the Spring of 1991 during the next Unit 2 refueling outage.

### Evaluation of NRC and Vendor Literature

Subsequent to the test failures, the licensee found that very new relays not only had full, rather than 1/32 inch, latch engagement but also had about 1/32 inch additional available armature movement after latching. FPL-GE staff conversations confirmed this as a standard practice.

Inspector review found that NRC Bulletin 88-03 attached Figure-2 did not show the correct location of the 1/32 inch latch engagement, did not show the notch in the end of the latch, and did not discuss additional armature movement toward the coil with the latch engaged. Figure-2 did show shims [items 114, 117 (use as required)] behind the latch mounting screw. "Use as required" is contrary to the options in the vendor manual and Service Advice Letter.

GE stated in vendor manual GEK-45486 that HFA 154 Series relays are calibrated at the factory and under normal conditions will require no further adjustments. Detailed field adjustment of the latch was not addressed. The manual did address several other adjustments, if required:

- Contact burnishing;
- Changing contacts from Normally-open to Normally-closed and vice-versa;
- Adjustment of coil pickup voltage (a spring tension adjustment);
- Ensuring all contacts open or close simultaneously with 3/64 inch wiper when in the operated position - contact arms may be bent slightly to accomplish this; and
- Check to see that the armature latches in when operated by hand and opens readily when reset.

GE service letter 190.1, which the bulletin was based on, added a requirement:

- When latched, both latch legs must engage [overlap] the armature by 1/32 inch.

GE service letter 190:1 also added two adjustment checks:

- The clearance between the top of the molded contact carrier and the top of the relay armature must be 1/32 inch minimum.
- With the armature fully depressed against the pole piece, check that the latch is fully rotated by pulling up on the latch assembly - no motion is allowed.

The latch mechanism was mounted to the case in the same manner as a contact. Adjustment by shimming to obtain proper latching did not appear



to be difficult, and in fact this is what the factory did. The biggest problem was that the vendor manual did not have directions and part numbers, nor did it recommend a periodic reinspection of the latch function.

The inspector concluded that the GE manufacturing conditions resulting in the service letter and NRC Bulletin may not have been corrected, thus these failures to latch could be a symptom of a generic safety problem. Additionally, recently obtained information supported the conclusion that the inspection criteria disseminated by NRC Bulletin 88-03 may well have been incorrect or subsequently changed. NRC review with the vendor appears appropriate and has been requested via NRC Region II.

The licensee's corrective actions following reinspection of the relays initially included repair of one relay along with replacement of the other ones. While the sketch accompanying Bulletin 88-03 showed "use as necessary" shims, and the repair was clearly within the skill and capabilities of the experienced relay engineer making the repair, the vendor literature only addressed replacement of relays and the plant repair procedures and NPWO did not specifically authorize the actions taken. Unit 2 TS 6.8.1.a required that written procedures be established, implemented and maintained covering the activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Appendix A, paragraph 9.e, includes procedures for obtaining permission to work. This was implemented on site by AP 0010432, Rev 57, Nuclear Plant Work Orders, which required that all corrective maintenance work be authorized through the NPWO and conform to Quality Instructions, Administrative, and Maintenance Procedures. Repair of the relay violated AP 0010432. The licensee took action to replace the relay in question even though it functioned properly, review shop decisions involved, and change maintenance procedure 0960066, Rev 4, General Electric Type HFA Relay Testing and Setup Procedure, to address latch adjustment. Based on frequent observations of licensee maintenance actions, the inspector judged that this was an isolated event. This violation is not being cited because of lack of safety significance and because the licensee's corrective actions met NRC Enforcement Policy Section V.A criteria for not issuing a Notice of Violation. This is closed NCV 335/91-027-04, Failure to Follow Work Control Procedure.

9. Followup of Inspector Identified Items (Attendance at FRG Meetings) (Units 1 and 2) (92201)

The inspector had previously observed that the QA and ISEG staffs frequented FRG meetings as observers. The licensee management viewed this as inhibiting candid conversation and asked the two groups to reconsider their needs. After several months, the inspector again reviewed this area to determine if this policy change had a detrimental effect on QA and ISEG operations. Interviews with supervisors of both organizations revealed that they had each analyzed their operations and determined that routine "observation" of FRG meetings was not central to their planned activities. Additionally, the Site Quality Group had provided a regular FRG member, so

important information was readily available, and audited the FRG on an annual basis. The inspector concluded that the activities of these two groups were not adversely affected by not frequenting FRG meetings as observers.

10. Followup of Headquarters and Regional Requests (Units 1 and 2)(92701)

During this inspection period, the NRC staff had the resident inspectors complete a survey on the containment hatch closure equipment at this site.

The licensee actions in this area were acceptable.

11. Exit Interview (30703)

The inspection scope and findings were summarized on January 31, 1992, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. Proprietary material is not contained in this report. Dissenting comments were not received from the licensee.

<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
335/91-027-01	Open	VIO - Failure to Follow Equipment Control Procedures, paragraph 2.b.
389/91-027-02	Closed	NCV - Engineered Safety Features Actuation Channel Out of Service Due to Personnel Error, paragraph 6.a.
<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
335/91-027-03	Closed	NCV - TS Required Plant Vent Stack Radiation Sampler and Monitor Inappropriately Out-of-Service, paragraph 6.b.
335/91-027-04	Closed	NCV - Failure to Follow Work Control Procedure, paragraph 8.

12. Abbreviations, Acronyms, and Initialisms

AC	Alternating Current
AFW	Auxiliary Feedwater (system)
AP	Administrative Procedure
ATTN	Attention
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CWD	Control Wiring Diagram
DC	Direct Current
DPR	Demonstration Power Reactor (A type of operating license)
ECCS	Emergency Core Cooling System



EDG	Emergency Diesel Generator
ESF	Engineered Safety Feature
FHB	Fuel Handling Building
FT	Flow Transmitter
GE	General Electric Company
HFA	A GE relay designation
HVE	Heating and Ventilating Exhaust (fan, system, etc.)
HVS	Heating and Ventilating Supply (fan, system, etc.)
ICW	Intake Cooling Water
LCO	TS Limiting Condition for Operation
LER	Licensee Event Report
LOOP	Loss of Offsite Power
LS	Level Switch
MSIV	Main Steam Isolation Valve
NCV	NonCited Violation (of NRC requirements)
NPF	Nuclear Production Facility (a type of operating license)
NPWO	Nuclear Plant Work Order
NRC	Nuclear Regulatory Commission
OP	Operating Procedure
ppm	Part(s) per Million
psig	Pounds per square inch (gage)
QA	Quality Assurance
RAS	Recirculation Actuation Signal
RCO	Reactor Control Operator
RCS	Reactor Coolant System
Rev	Revision
RG	[NRC] Regulatory Guide
RWT	Refueling Water Tank
SFP	Spent Fuel Pool
SIAS	Safety Injection Actuation System
SRO	Senior Reactor [licensed] Operator
TCW	Turbine Cooling Water
TS	Technical Specification(s)
VIO	Violation (of NRC requirements)

