



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

Report Nos.: 50-250/88-37 and 50-251/88-37

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

Docket Nos.: 50-250 and 50-251

License Nos.: DPR-31 and DPR-41

Facility Name: Turkey Point 3 and 4

Inspection Conducted: November 28 - December 2, 1988 and December 19, 1988

Inspector: David C. Ward 12/30/88
D. C. Ward Date Signed

Approved by: J. R. Wiseman 12/30/88
for T. E. Conlon, Chief Date Signed
Plant Systems Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection was conducted in the areas of fire protection/prevention and a review of the licensee's actions to meet the separation requirements of 10 CFR 50, Appendix R, Section III.G. in the Turkey Point Unit 3 and Unit 4 Containments and the requirements of 10 CFR 50, Appendix R, Section III.O.

Results: Several minor weaknesses were identified in the area of the implementation of the Fire Protection Program. These weaknesses are summarized below:

- There is an apparent misunderstanding on the part of the Fire Protection Group regarding the training requirements for fire brigade members. Plant procedures specifically call for members to attend training every three months. However, the Fire Protection Group staff had interpreted this requirement to mean quarterly training which resulted in several brigade members not receiving their required training within the three month interval. In addition, the procedural requirements to disqualify ineligible members from duty were not implemented.
- The licensee did not appear responsive to NRC initiatives during this inspection. Specifically, the issue regarding the adequacy of the seismic design of the Reactor Coolant Pump (RCP) lube oil

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collection systems was identified very early in the inspection. However, the licensee did not provide a detailed update of the actions being taken to address the inspectors concerns until late in the inspection.

- The licensee's method of ensuring all reportable items are included in a special report as required by Technical Specifications (TS) was not adequate. This resulted in one reportable fire barrier breach not being included in a special report.

The licensee's review of the circumstances behind the unresolved item identified in this report regarding the rubber hose installed on the Unit 3 Reactor Coolant Pump (RCP) lube oil collection system may identify some major weaknesses in the area of plant design changes, maintenance, and review of potentially reportable items which will be evaluated at a later date.

Within the areas inspected, the following violations were identified:

- Assignment Of Ineligible Members To Fire Brigade Duty, Paragraph 2.d.(2).
- Failure To Report Fire Barrier Breach As Required By Technical Specifications, Paragraph 2.e.(1) (Not Cited).

In addition the following unresolved item was identified:

- Installation Of Rubber Hose On Unit 3 Reactor Coolant Pump "A" Lube Oil Collection System, Paragraph 3.b.



REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *J. Arias, Jr., Supervisor, Regulatory Compliance
- *K. Arnold, Fire Protection
- *P. Banaszak, Nuclear Engineering, Site
- *J. Cross, Plant Manager
- *H. Dager, Vice President
- *R. Earl, Supervisor, Quality Control
- *C. Fisher, Mechanical Engineering, Juno Beach
- *T. Grozan, Licensing
- *S. Hale, Engineering Manager
- *J. Hutchinson, Plant Support, Juno Beach
- *J. Odon, Site Vice President
- *L. Pearce, Superintendent, Operations
- *G. Salaman, Compliance Engineer
- *G. Smith, Services Manager
- *G. Traczyk, Acting Supervisor, Fire Protection

Other licensee employees contacted during this inspection included craftsmen, engineers, operators, mechanics, security force members, technicians, and administrative personnel.

Other Organizations

- J. Creighon - Bechtel Power Corporation
- *E. Oesterle - Bechtel Power Corporation
- D. Perrine - Diamond Corporation
- *D. Stanley - Bechtel Power Corporation

NRC Resident Inspector

R. Butcher

*Attended exit interview

2. Fire Protection/Prevention Program (64704)

a. Fire Prevention/Administrative Control Procedures

The inspector reviewed the following Fire Prevention/Administrative Procedures:



<u>Procedure No.(Date)</u>	<u>Title</u>
15500 (10/4/88)	Fire Protection Program
O-ADM-016.2 (1/19/88)	Fire Brigade Program
O-ADM-016.3 (3/22/88)	Fire Protection Impairment
EP 20107 (12/9/86)	Fire/Explosive Emergencies

Based on this review, it appears that the above procedures meet the NRC guidelines of the document entitled, "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls, and Quality Assurance," dated June 1977.

The inspector also reviewed the implementation of the procedural requirements outlined in O-ADM-016.2, Fire Brigade Program. This review identified a number of discrepancies which are discussed in Paragraph 2.d.(2) of this report.

b. Fire Protection Surveillance Procedures

The inspector reviewed the following Fire Protection System Surveillance Procedures:

<u>Procedure No.(Date)</u>	<u>Title</u>
MP 15537.3 (1/28/77)	Surveillance of Penetration Fire Barriers
O-OSP-016.22 (8/15/88)	Open Head Spray/Sprinkler 3 Year Air Flow Test Surveillance Program
O-SMM-016.1 (3/17/88)	Fire Suppression System Annual Flush
O-SMM-016.6 (9/14/88)	Fire Door Inspection
4-SMM-016.2/1/28/88	Spray/Sprinkler System Inspection

The above surveillance procedures were reviewed to determine if the various test outlines and inspection instructions adequately implement the surveillance requirements of the plant's Fire Protection Technical Specifications (TS). In addition, these procedures were reviewed to determine if the inspection and test instructions followed general industry fire protection practices, NRC fire protection program guidelines and the guidelines of the National Fire Protection Association (NFPA) Fire Codes. Based on this review, it appears that the above procedures are satisfactory, except Procedure No. O-SMM-016.6.



Procedure No. O-SMM-016.6 is implemented to satisfy the annual visual inspection of fire doors required by TS 4.15. However, in reviewing this procedure, the inspector found that the procedure calls for an inspection of the latch and door closure, but does not specifically require the door surface to be inspected and documented. The inspector found by review of a sample of the surveillance results from this procedure that damage to the door surface was being identified even though not specifically required by the procedure. In addition, during the plant tour, the inspector did not find any fire doors which were significantly degraded. Therefore, this is identified as Inspector Followup Item 50-250, 251/88-37-01, Revise Fire Door Surveillance Procedure To Document Visual Inspection of Door Surface.

The inspector also noted that Procedure No. MP-15537.3 did not identify all of the fire protection barriers installed to meet the requirements of 10 CFR 50 Appendix R. This issue had been previously identified by the licensee and a procedure revision is in progress. During a recent surveillance required by TS, this procedure could not be used and interim Test Requests (TR) were used to perform the required surveillance. The upgraded procedure will be reviewed during a future inspection.

c. Fire Protection System Surveillance Inspections and Tests

The inspector reviewed the following surveillance inspection and test records for the dates indicated:

<u>Procedure No.</u>	<u>Results Reviewed</u>
MP 15537.3	6/11/87, 1/28/85
*MP 15537.3	
TR 280-87	3/02/88
TR 011-88	2/26/88
TR 028-88	4/19/88
TR 034-88	3/02/88
TR 038-88	3/17/88
TR 039-88	4/19/88
TR 054-88	4/19/88
TR 002-88	3/01/88
O-OSP-016.22	7/29/88
O-OSP-016.4	9/30/85, 9/26/88, 1/19/87
O-SMM-016.1	4/1/88
O-SMM-016.6	3/14/87, 8/16/87, 3/17/88, 9/8/88

*MP 15537.3 conducted under special TRs listed.

The surveillance test records data and testing frequency associated with the above fire protection system surveillance test/inspections



were found to be satisfactory with regard to meeting the requirements of the plant's Fire Protection TS.

In addition, the inspector reviewed Test Procedure (TP) 507, Fire Main Post Indicator Valve (PIV) Leak Test. This procedure was generated in response to a Notice of Deviation issued in the Resident Inspectors Report No. 88-36. The test procedure requires the flushing of the fire loop and the leak testing of each PIV to ensure leakage was within an allowable range. This procedure appears adequate to address the concerns outlined in the resident inspectors report. The inspector also witnessed portions of the test being conducted and did not note any discrepancies. The test appeared very effective in reducing the amount of leakage through some PIVs. Leakage at one PIV prior to the test appeared to be in excess of 100 Gallons Per Minute (GPM); however, following the flushing of the line leakage from this PIV was reduced to 2 GPM. The licensee intends to incorporate this TP into a permanent plant procedure which will be conducted annually.

d. Fire Brigade

(1) Organization

The total station fire brigade is composed of approximately 57 personnel from the operations, chemistry and health physics staff. The on duty shift fire brigade leader is normally one of the licensed operators. The inspector reviewed the on duty shifts for the following dates and verified that sufficient qualified fire brigade personnel were on duty to meet the provisions of the plant's TS.

June 1988

July 1988

The review resulted in the inspector identifying a number of cases where ineligible personnel were assigned brigade duty. This issue is further discussed in Paragraph 2.d.(2). No other discrepancies were noted.

(2) Training

The inspector reviewed the training and drill records for three brigade leaders and twelve brigade members for the period fourth quarter 1987 through third quarter 1988.

The inspector found that of the fifteen brigade members who's training records were reviewed, four members had missed a required three month training session for second quarter of 1988. Per procedure O-ADM-016.2, Section 5.3.1, a brigade member who misses the required three month training is to be removed from active status on the Fire Brigade Assignment Sheet. However, these four members were not removed from active status.



Consequently, the inspector identified twenty shifts in July 1988 where at least one of these four ineligible members was assigned to fire brigade duty. In addition to these four members who missed the required training, three other members training was not conducted within the three month interval required by procedure. This is identified as Violation Item 50-250, 251/88-37-02, Assignment Of Ineligible Members To Fire Brigade Duty. The remaining brigade members had attended the required training and participated in the required fire brigade drills.

(3) Fire Brigade Drill

During this inspection, the inspector witnessed an unannounced fire brigade drill. The drill fire scenario was an electrical fire in the Unit 4 4160 Volt switchgear room which was apparently caused by an electrical fault.

Five fire brigade members responded to the pending fire emergency. Four brigade members assembled outside the switchgear room in full protective firefighting turnout clothing and self contained breathing apparatus. The fifth brigade member was unable to locate protective clothing in his size. An initial size-up of the fire condition was made by the fire brigade leader and one 1-1/2 inch fire attack hose line and two portable fire extinguishers were advanced into room. The fire attack hose line as placed in service on the fire and the fire was placed under control in 15 minutes. In addition, the fire brigade initiated fire victim search and rescue, smoke control, and water control operations.

With the exception of one brigade member not being able to obtain protective clothing in his size, the fire brigade utilized proper manual firefighting methods and reacted to the fire drill scenario in an effective and efficient manner.

The licensee is in the process of upgrading the fire brigade equipment lockers outside the Radiation Control Area (RCA) to include additional gear in a wider variety of sizes. This should eliminate the problem of members not having protective clothing in the correct sizes.

e. Plant Tour and Inspection of Fire Protection Equipment

(1) Permanent Plant Fire Protection Features

A plant tour was made by the inspector. During the plant tour, the following safe shutdown related plant areas and their related fire protection features were inspected:

Emergency Diesel Generator Building
 Unit 3 Auxiliary Feedwater Pump Area
 Unit 3 Component Coolant Water Pump Area
 Unit 3 Charging Pump Area
 Unit 4 Component Cooling Water Pump Area
 Unit 4 Charging Pump Room

The inspector found that the fire protection features in these plant areas were inservice or for those inoperable features compensatory measures were in place in accordance with TS.

The inspector also randomly selected a Fire Protection Impairment (FPI) tag to insure that it had been reported to the NRC in accordance with TS. FPI 1766 was issued on July 1, 1988 due to a breach of fire barrier 45F in the Unit 4 Charging Pump Room. Per TS 3.14.5.b.2, when a fire barrier penetration is not returned to functional status within 7 days, a report to the Commission must be made. However, when the licensee reviewed their special report issued at the end of July 1988, this FPI had not been reported. In response to this finding, the licensee immediately conducted a complete review of all FPI's outstanding to determine if any others had not been reported. This review found no other discrepancies. Also, the licensee implemented a new method of generating the computer data base reports to insure a similar violation would not occur. Finally, the licensee began processing a Special Report for FPI 1766. This is identified as a Violation Item, Failure to Report Fire Barrier Breach As Required By Technical Specification: However, since this violation meets the criteria of the Enforcement Policy outline in 10 CFR Part 2 Appendix C, Section V, this violation is not being cited.

The plant tour also verified the licensee's implementation of the fire prevention administrative procedures. The control of combustibles and flammable materials, liquids and gases, and the general housekeeping were found to be very good in the areas inspected.

One welding operation was observed in the Unit 4 Component Cooling Water Pump Area. An approved "Hot Work" permit had been issued for each of the welding operations and the work practices met the requirements of the licensee's fire prevention control procedures.

(2) Appendix R Fire Protection Features

The inspector visually inspected the fire rated raceway fire barriers required for compliance with Appendix R, Section III.G.2 in the following plant areas:



<u>Room</u>	<u>Raceways</u>
Unit 4 Charging Pump Room	B4H1314 B4H1317 B4H1362 BPB1872 BPB4832
Unit 2 Charging Pump Room	B3H1318 B3H1319 B3H1323 B3H1374 BPB3863 BPB3921

Based on the inspector observations of the above raceway fire barrier enclosures, it appears that the one hour fire barrier integrity associated with the fire barrier assemblies was being properly maintained in a satisfactory condition.

The inspector made a walkdown of the Appendix R related automatic sprinkler protection in the following plant areas:

Unit 3 Component Cooling Water Pump Area
Unit 4 Component Cooling Water Pump Area

Based on this walkdown, the inspector determined that the sprinkler protection provided for the areas identified above provided sufficient protection with respect to controlling an exposure fire.

The following eight-hour emergency lighting units were inspected:

<u>Unit No.</u>	<u>Location</u>
EL 046-18	Unit 4 Charging Pump Room
EL 073-30	Cable Spreading Room
EL 074-30	Cable Spreading Room
EL 083-60	Cable Spreading Room

These units were in service, lamps properly aligned and appeared to be properly maintained.

3. Compliance With 10 CFR 50, Appendix R, Section III.G and III.O. (64100)

10 CFR 50.48 requires Turkey Point Units 3 and 4 to comply with the requirements of III.G, III.J. and III.O of 10 CFR 50, Appendix R. Florida Power and Light (FP&L) was granted a scheduler exemption from the schedule requirements outlined in 10 CFR 50.48 and is not required to be in total compliance with Appendix R until the end of the present Unit 4 outage. In



preparation for an upcoming team inspection to verify compliance with Appendix R, an inspection was made of the fire protection features installed in the Unit 3 and Unit 4 containments to meet the requirements of Section III.G.d, e, and f of Appendix R and the Reactor Coolant Pump (RCP) lube oil collection system installed to meet the requirements of Section III.O of Appendix R.

a. III.G Separation

The cable routings for circuits associated with postfire safe shutdown equipment in the Unit 3 and Unit 4 containments were not available at the time of this inspection. The licensee is in the process of accumulating this information for the Appendix R Team inspection following the Unit 4 outage. Therefore, the inspector was only able to verify the physical location of radiant energy shields, fire retardant coatings and fire detection system installed in the containments. The adequacy of cable separation was not reviewed.

- The inspector verified that each radiant emergency shield designated on the following drawings was installed:

<u>Drawing No.</u>	<u>Raceways</u>
Unit 3:	
5610-E-100/85-118-Rev. 0	3C1331* 3C1332*
5610-E-101/85-118-Rev. 0	3C1155 3C1165 3C1173 PB3719 PB3720
5610-E-101/83-150-Rev. 1	3C094A** 3C094B** 3C1182**
5610-E-100/83-150-Rev. 1	3C225 3C1333 TB3885
Unit 4:	
5610-E-110/83-149-Rev. 2	4C192
5610-E-108/83-149-Rev. 2	4C226 4C247 4C645
5610-E-107/83-149-Rev. 3	4C1336 4C1337
5610-E-110/83-149-Rev. 2	4C192



*Radiant Energy Shield no longer required per Change Request Note (CRN) E-5518

**Radiant Energy Shield, no longer required per approved exemption request (Exemption Q.1 of Section 9.6A of the Turkey Point FSAR).

Radiant energy shields were provided on all of the above raceways which are required to be protected.

In addition, the inspector examined the Flamastic fire retardant coating applied to cables in cable trays outside the secondary shield wall. This material is applied to safe shutdown cables to provide a radiant energy shield and prevent the propagation of fire across the cables. Also the Flamastic coating is part of the justification for exemptions from the separation requirements of Appendix R granted by the NRC (Sections 4.P.2. and 4.Q.2 of the Turkey Point FSAR Section 9.6.A). The Flamastic was found degraded in many locations due to work conducted during the Unit 3 and Unit 4 outages. The licensee's fire protection staff stated that this item had been previously identified and a TR was being issued to ensure the flamastic was reapplied as required by the FSAR. The results of this TR will be reviewed during a future inspection.

The inspector also reviewed the smoke detector installation in the electrical penetration area of the Unit 3 and Unit 4 containment. The cables in cable trays represent the primary in-situ combustibles in this area. The detectors are installed directly over these cable trays. In addition, the licensee has provided smoke collectors over each detector. The placement of these detectors appeared adequate to detect a fire originating in the cable trays.

Based on this inspection, the installation of the radiant energy shields, fire retardant coatings and fire detection system appeared adequate except as noted above. The cable routings for postfire safe shutdown circuits inside the Unit 3 and Unit 4 containments will be reviewed during the forthcoming Appendix R Team Inspection.

b. Compliance With III.0

Section III.0 requires each RCP to be equipped with an oil collection system if the containment is not inerted during normal operations. The system is required to be designed, engineered, and installed such that failure will not lead to fire during normal or design basis accident conditions, and that the system will withstand a safe shutdown earthquake. All leakage from potential pressurized and unpressurized leakage sites is to be collected and drained to a vented closed container that can hold the entire lube oil system inventory. The tank vent requires a flame arrestor if the flash-point characteristics of the oil presents the hazard of fire flash-back.

The inspector reviewed the plant change and modification (PC/Ms) packages issued to install the lube oil collection systems in Unit 3 and Unit 4, PC/Ms 80-05 and 80-08, respectively. These PC/Ms called for the systems to be designed to seismic Category I standards and called for a system able to contain the entire inventory of lube oil from one RCP. Oil collection drip pans were provided at the lube oil cooler, oil lift pump enclosure and lower bearing on each pump. The lubricating oil used in the pumps has a flash point of 450°F and the collection tank is located away from ignition sources and postfire safe shutdown equipment. Therefore, a flame arrestor is not provided on the tank. The system consists of the oil collection pans which are hard pipe through 1-1/2 inch pipe to the collection tank and several pipe supports.

The NRC granted an exemption from the requirements of Appendix R Section III.0 to FP&L by letter, dated March 27, 1984 based on an FP&L submittal dated May 12, 1983. The exemption allows the RCP lube oil collection systems at Turkey Point to be designed to handle the inventory from only one RCP for each unit rather than from all three as required by Appendix R, Section III.0.

The inspector conducted a walkdown of the RCP lube oil collection systems and found a discrepancy in the as-built system for the Unit 3 "A" RCP. The original PC/M 88-05 called for the system to be hard piped from the pan to the oil collection tank. However, in the field a rubber hose was installed between the hard pipe and each oil collection pan. Subsequent to this finding, the inspector was informed by licensee management that this hose was not seismically qualified as required. The licensee was unable to determine how or when the hose had been installed by the end of this inspection.

In addition to the above discrepancy, the inspector found that the RCP oil collection system on the Unit 4 RCPs was being upgraded under PC/M 86-130 during this outage and that a similar plant change for Unit 3, PC/M 86-127, was planned for Unit 3. A review of PC/M packages 86-130 and 86-127 revealed that they were the result of a May 14, 1985 letter from Bechtel Power Corporation (BPC) to FP&L which questioned the seismic design of the Unit 3 and Unit 4 RCP lube oil collection systems. Specifically, the letter stated that the connection of the pipe to the oil collection pans do not provide adequate restraint and the letter stated that the pipe routings between the oil collection pans and the first seismic support have been modified since PC/Ms 80-05 and 80-08 had been implemented and these modifications have not been seismically analyzed. PC/Ms 86-130 and 86-127 call for seismically qualified flexible hoses to be installed between the drip pans and system piping and the addition of a number of pipe supports. In their May 12, 1983 letter requesting an exemption from the requirements of Appendix R, Section III.0 FP&L states "The lube oil collection system is seismically designed and will remain functional during a seismic event". FP&L to date has not requested an exemption from the requirements of Appendix R



Section III.0, that the RCP lube oil collection system be seismically designed nor has a scheduler exemption been applied for from the schedule requirements of 10 CFR 50.48 in regards to these systems.

Based on the discrepancies noted above, the inspector requested that FP&L provide documentation that the original design under PC/Ms 80-05 and 80-08 were adequate from a Seismic Category I stand point, determine how and when the rubber hose was installed on the Unit 3 "A" RCP, and identify what action was taken on the BPC letter which called into question the original design of the systems in 1985.

The licensee was unable to furnish any of the requested information prior to the end of the inspection. Therefore, during the exit interview, this item has been classified as an apparent violation.

On December 19, 1988, the inspector contacted Gabe Salaman of the licensee's Regulatory Compliance Department by telephone and was informed that an evaluation of the as-built configuration of the RCP lube oil collection systems had been completed. This evaluation proved that the original seismic design of the systems was adequate and that through testing of the rubber hose installed on the Unit 3 system, this system was also determined to be adequate and would have remained functional following a seismic event. This evaluation was completed on December 9, 1988 and was documented in a letter from BPC to FP&L on that date. The licensee's representative stated further that they have still not determined to date how and when the rubber hose was installed on the Unit 3 "A" RCP. Therefore, based on this additional information, the apparent violation has been deleted and an Unresolved Item 50-250/88-37-03, Installation of Rubber Hose On Unit 3 Reactor Coolant Pump "A" Lube Oil Collection System, has been opened to followup on the licensee's investigation and corrective actions in regards to the installation of the rubber hose in the Unit 3 RCP lube oil collection system.

Based on the information above, the RCP lube oil collection systems installed in Turkey Point Unit 3 and Unit 4 appear to be in compliance with the requirements of 10 CFR 50, Appendix R, Section III. 0 and the NRC SER issued by letter dated March 27, 1984 granting the licensee's an exemption from the requirements of Section III.G of Appendix R.

4. Exit Interview

The inspection scope and results were summarized on December 2, 1988, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.



<u>Item Number</u>	<u>Description and Reference</u>
50-250, 251/88-37-01	IFI - Revise Fire Door Surveillance Procedure To Document Visual Inspection Of Door Surface, Paragraph 2.b
50-250, 251/88-37-02	Violation - Assignment Of Ineligible Members To Fire Brigade Duty, Paragraph 2.d(2)
Not Cited	Violation - Failure To Report Fire Barrier Breach As Required By Technical Specifications, Paragraph 2.e.(1)
50-250/88-37-03	URI - Installation of Rubber Hose On Unit 3 Reactor Coolant Pump "A" Lube Oil Collection System

The unresolved item listed above replaced an apparent violation identified in the exit interview on December 2, 1988. This item was identified to the licensee in a telephone conversation subsequent to the inspection with a licensee employee (See Paragraph 3.b).

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