

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

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License Nos: DPR-31, DPR-41

Report Nos: 50-250/98-12, 50-251/98-12

Licensee: Florida Power and Light Company

Facility: Turkey Point Nuclear Plant, Units 3 & 4

Location: 9760 S. W. 344 Street  
Florida City, FL 33035

Dates: November 15 - December 26, 1998

Inspectors: C. Patterson, Senior Resident Inspector  
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Approved by: L. Wert, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Enclosure

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## EXECUTIVE SUMMARY

### Turkey Point Nuclear Plant, Units 3 & 4 NRC Inspection Report 50-250/98-12, 50-251/98-12

This integrated inspection included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a 6-week period of resident inspection.

#### Operations

- Operator response to a failed channel of the reactor protection and safeguards actuation system was prompt and thorough (Section O1.2).
- The controls for obtaining usage of an offsite hydrogen recombiner following a design basis accident were formalized and detailed (Section O2.1).
- The licensee was self critical and proactive in the area of self assessment. A strong focus on nuclear safety was evident throughout the presentations at the Turkey Point 1998 Self Evaluation and the November Status meetings (Section O7.1).
- A Quality Assurance audit on the corrective action process was comprehensive, detailed, and well written. The licensee had appropriately addressed a weakness in the root cause analysis process identified during the audit (Section O7.2).

#### Maintenance

- System status changes made by the maintenance rule expert panel were thoroughly evaluated with realistic goal setting and included discussions of risk (Section M7.1).

#### Engineering

- The licensee satisfactorily assessed and repaired a coolant leak in the 3A emergency diesel generator radiator. Operator actions upon identification of the radiator leak were timely and appropriate (Section E1.1).

#### Plant Support

- The fourth quarter emergency preparedness drill was satisfactorily conducted, met the drill objectives, and concluded in a thorough training exercise. An issue relating to document controls and other lessons learned from the drill were being addressed by the licensee (Section P5.1).
- NRC Form 3 was correctly posted in the plant locations specified in the licensee's procedures. An out-of-date form at an additional unspecified location was promptly corrected (Section R7.1).
- The protected area fence was observed to have good physical integrity and material condition (Section S2.1).



## Report Details

### Summary of Plant Status

Unit 3 operated at or near full power and had been on-line since October 29, 1998.

Unit 4 operated at or near full power and had been on-line since October 14, 1997.

### I. Operations

#### **O1 Conduct of Operations**

##### **O1.1 General Comments (71707)**

Using Inspection Procedure 71707, the inspectors conducted frequent reviews of ongoing plant operations. In general, the conduct of operations was professional and safety-conscious; specific events and noteworthy observations are detailed in the sections below.

##### **O1.2 Loss of Power for Protective channel**

###### **a. Inspection Scope (71707)**

The inspectors reviewed the operators' response to loss of power to one of three channels of the reactor protection and safeguards actuation system known as the Eagle-21 System.

###### **b. Observations and Findings**

On December 1, channel 3 of the Eagle-21 System lost power affecting pressure level and reactor coolant average temperature control. Numerous annunciators were received in the control room. The inspectors observed good operator response in the control room to this plant condition. The operators promptly entered the applicable procedures. A thorough briefing of planned evolutions was conducted in the control room. The applicable bistable was placed in the tripped position per Technical Specification (TS) 3.3.1. Good use of "Peer Check" was observed when placing the bistables into the tripped position. A power supply problem was repaired and the channel was returned to service the next shift.

###### **c. Conclusions**

Operator response to a failed channel of the reactor protection and safeguards actuation system was prompt and thorough.



## O2 Operational Status of Facilities and Equipment

### O2.1 Hydrogen Recombiner

#### a. Inspection Scope (71707)

The inspectors reviewed the controls established for obtaining the containment hydrogen recombiner for service following a design basis loss of a coolant accident.

#### b. Observations and Findings

The controls for the hydrogen recombiner are maintained by plant procedure ONOP-094.3; Hydrogen Recombiner Acquisition; Installation and Operation, dated September 17, 1997. The procedure specifies the contractual agreement for use of the recombiner stored at another facility. The hydrogen recombiner is required by the Updated Final Safety Analysis Report 12 days after a design basis loss of a coolant accident. Attachment One of the procedure provides the specific information for obtaining the recombiner. This attachment was very detailed and included appropriate phone numbers and contacts.

#### c. Conclusions

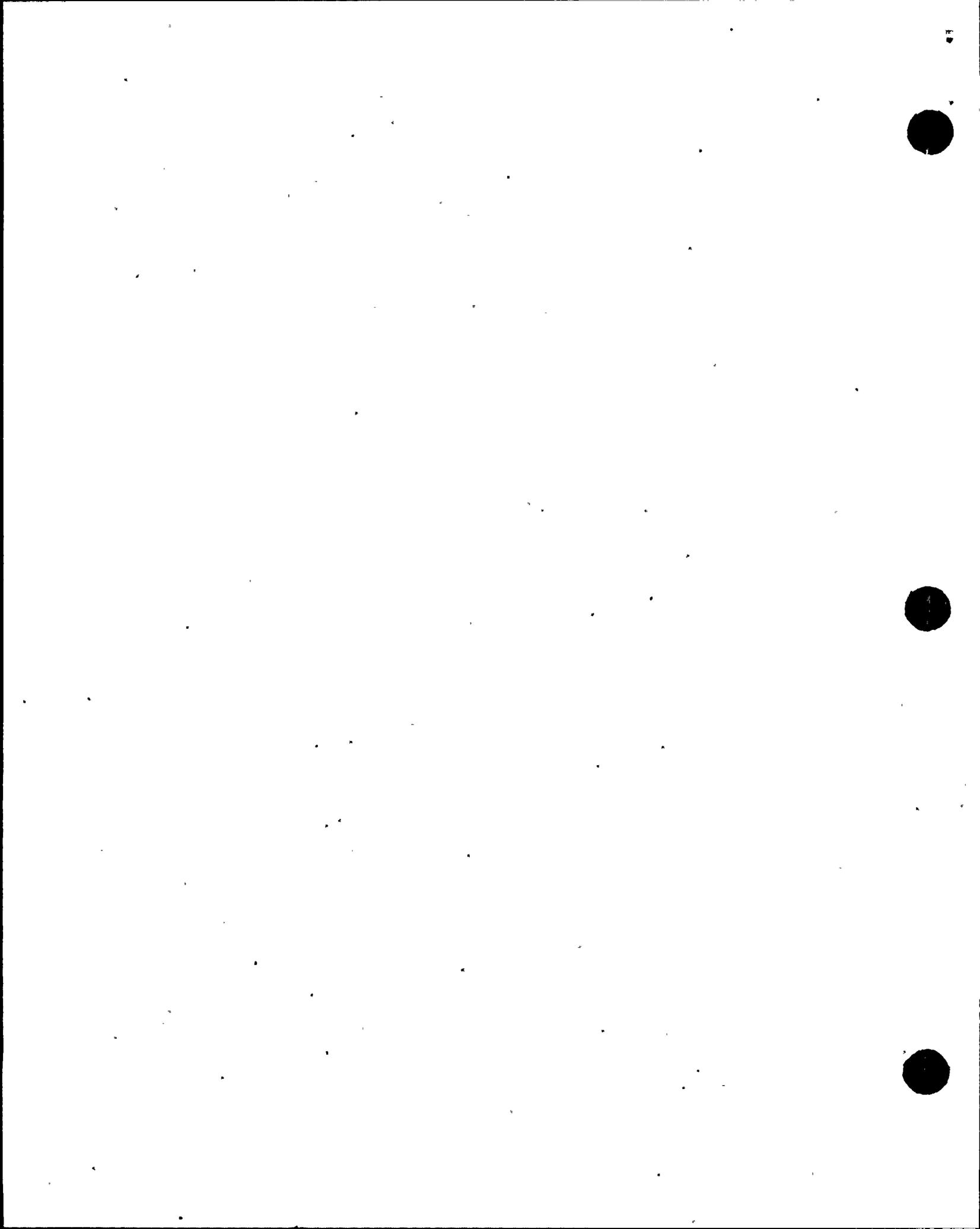
The controls for obtaining usage of an offsite hydrogen recombiner following a design basis accident were formalized and detailed.

### O2.2 Engineered Safety Feature System Walkdowns (71707)

The inspectors used Inspection Procedure 71707 to walk down accessible portions of the Unit 3 and Unit 4 Engineered Safety Feature systems and observed the responsible system engineer perform the monthly surveillance flow path verification utilizing the following procedures:

- 3-OSP-068.3, Containment Spray System Monthly Flow Path Verification, dated December 10, 1998.
- 4-OSP-068.3, Containment Spray System Monthly Flow Path Verification, dated December 10, 1998.
- 3-OSP-202.1, Safety Injection/Residual Heat Removal Flow Path Verification, dated December 10, 1998.
- 4-OSP-202.1, Safety Injection/Residual Heat Removal Flow Path Verification, dated December 10, 1998.

The inspectors reviewed selected portions of the system flow path print and verified the prints were consistent with the procedures that were being used to perform the surveillance. The inspectors reviewed the completed procedures and verified appropriate management approvals. Equipment operability, material condition, and housekeeping were acceptable in all cases. Several minor issues were brought to the licensee's attention and were subsequently resolved. The inspectors identified no significant concerns as a result of these walkdowns. The inspectors concluded that the



monthly flow path verification surveillances associated with the Safety Injection, Residual Heat Removal, and Containment Spray Pumps were completed satisfactorily.

## **O7 Quality Assurance in Operations**

### **O7.1 Turkey Point Self Assessment**

#### **a. Inspection Scope (40500)**

The inspectors attended the Turkey Point 1998 Self Evaluation meeting and the November Status Meeting.

#### **b. Observations and Findings**

The Self Evaluation meeting was held on December 8. The purpose of the Self Evaluation was to review the 1998 performance to determine and prioritize the focus of the licensee's efforts for 1999. The review was comprehensive and included review of plant performance indicators, licensee internal and external reports, and various assessments and evaluations. The inspectors noted that the Self Evaluation team members included management and non management members. There was appropriate representation from Operations, Engineering, Maintenance, and various Plant Support areas. The team agreed upon seven focus areas for 1999. The focus areas were External Corrosion, The Self Assessment Program, Loss of Experience, The Corrective Actions Process, Work Optimization, Temporary Resources, and Work Location Housekeeping-Foreign Material Exclusion. The team also provided recommendations for each focus area.

The November 1998 Status Meeting was held on December 9. The purpose of the meeting was to provide licensee senior management with status of various plant organizations. The presentations included significant accomplishments, and site performance indicators describing trends, strengths, and challenges. In addition, the licensee discussed how challenges were being addressed or how they plan to address them. The inspectors noted good senior management attendance at the meeting, including management from St. Lucie Plant.

The inspectors noted frank, self critical, and open discussions throughout the presentations. Senior management exhibited an aggressive questioning attitude relating to nuclear safety topics. St. Lucie management actively participated in the discussions and shared lessons learned from that plant.

#### **c. Conclusions**

The licensee was self critical and proactive in the area of self assessment. A strong focus on nuclear safety was evident throughout the presentations at the Turkey Point 1998 Self Evaluation and the November Status meetings.



## O7.2 Corrective Action Audit

### a. Inspection Scope (40500)

The inspectors reviewed a Corrective Action Process Audit report performed by Quality Assurance. In addition, the inspectors reviewed the licensee's corrective action items that addressed the issues described in the report.

### b. Observations and Findings

The inspectors reviewed the Quality Assurance Audit QAO-PTN-98-009, Corrective Action. The audit was comprehensive and detailed and described a strength and two areas needing improvements. Additionally, the audit identified a programmatic issue with the Root Cause Analysis process. Specifically, in seven out of nine Condition Reports reviewed, generic implications were not sufficiently addressed. Monitoring and follow-up were not included in the disposition of the Condition Reports.

The inspectors reviewed the licensee's corrective actions which addressed the root cause analysis process issues. The licensee found that procedure's 0-ADM-059, Root Cause Analysis, and 0-ADM 518, Condition Reports, dated July 30, 1998, required clarification to describe program requirements. Additionally, a training brief was written to describe the changes and clarifications made to the two procedures.

The inspectors discussed the audit details with Quality Assurance and Plant management. In addition, the inspectors independently verified that the corrective actions addressing this issue had been completed. Quality Assurance plans to perform a follow up audit to assess whether the corrective actions were effective to resolve this issue.

### c. Conclusions

A Quality Assurance audit on the corrective action process was comprehensive, detailed, and well written. The licensee had appropriately addressed a weakness in the root cause analysis process identified during the audit.

## II. Maintenance

### M1 Conduct of Maintenance

#### M1.1 Surveillance Observation (61726)

The inspectors observed all or portions of the following work activities:

- 0-OSP-202.3 Safety Injection Pump and Piping Venting, dated September 28, 1998
- 3-OP-073.1 Steam Jet Air Ejector Operation, dated July 30, 1998
- 4-OSP-041.1 Reactor Coolant System Leak Rate Calculation, dated December 2, 1997.



These surveillance activities were properly performed and documented. No problems were identified.

## **M7 Quality Assurance in Maintenance Activities**

### **M7.1 Maintenance Rule Expert Panel**

#### **a. Inspection Scope (62707)**

On December 10, the inspectors observed the activities of the maintenance rule expert panel.

#### **b. Observations and Findings**

The expert panel met and reclassified three systems. The expert panel consisted of five members as required by plant procedure O-ADM-728, Maintenance Rule Implementation, dated February 26, 1998. The status of two systems was changed from a(1) to a(2).

The auxiliary feedwater backup nitrogen consumption had returned to an acceptable level following a plant modification and the system status was returned to a(2). The rod control system was returned to the a(2) status following a cycle of operation with no card failures or dropped rods. There was a thorough discussion of system goals being met by the corrective action taken before changing system status from a(1) to a(2). One system was changed from a(2) to a(1). The Unit 3 Steam Jet Air Ejector radiation monitor was changed to a(1) status after numerous failures. The establishment of goals was thoroughly discussed for the system being placed in a(1) status. The original goals presented were expanded by the expert panel and made broader to add additional items. Risk significance was included in the discussion.

#### **c. Conclusions**

System status changes made by the maintenance rule expert panel were thoroughly evaluated with realistic goal setting and included discussions of risk.

## **III. Engineering**

### **E1 Conduct of Engineering**

#### **E1.1 3A Emergency Diesel Generator (EDG) Radiator Leak**

##### **a. Inspection Scope (71707, 62707, and 37551)**

During a monthly surveillance on the 3A EDG, the EDG tripped on low cooling water pressure as a result of a radiator tube leak. The inspectors monitored the licensee's immediate corrective actions, observed the radiator repair activities, and assessed the licensee plans for long term corrective actions.



b. Findings and Observations

On December 2, during a monthly 3A EDG surveillance, the EDG tripped on low cooling water pressure. During the surveillance, an operator had reported to the control room that the EDG radiator was leaking. Operations subsequently initiated unloading of the diesel. However, prior to the completion of the unloading, the EDG tripped. The licensee entered a 72-hour action statement per TS 3.8.1.1b. The diesel radiator was completely drained and engineering performed an air static pressure test on the radiator and found leakage through one tube. The licensee obtained technical assistance from the diesel manufacturer and from a local radiator repair specialist. A test repair procedure was written and the radiator tube was repaired.

The inspectors discussed the details of the repair with engineering and observed the field maintenance repair activities on the radiator tube. During a post maintenance air static test, the licensee verified the repaired tube was leak free and no additional leaks were identified. The inspectors independently verified compliance with TS action statements as a result of the EDG being inoperable.

The inspectors reviewed the actions taken by the operator performing the surveillance and the time line of activities including control room actions when the radiator leak was identified. Additionally, the inspectors later reviewed procedure number 3-OSP-023.1, Diesel Generator Operability Test, dated August 13, 1998, with the licensed operator that was performing the diesel surveillance when the radiator leak occurred. The operator was well versed with the surveillance procedure, diesel testing requirements, and operation of the diesel systems. He was also aware that a radiator leak had occurred during a previous surveillance. The inspectors noted that throughout the procedure there were cautions and guidance informing the operator to inspect for cooling water leaks. The inspectors concluded that actions taken by the operator immediately after identifying the radiator leak were consistent with procedural requirements.

Engineering management stated that the root cause of the radiator leak was due to corrosion and erosion of the outside diameter of the tube. The licensee's inspection of the Unit 3B EDG radiator did not reveal any similar or immediate potential issues with the radiator leaking cooling fluid. Additionally, management stated that long term corrective actions include changing both the 3A and 3B EDG radiators by the end of the next refueling outage. Engineering was also reviewing whether the radiator changes could be completed on-line before the Unit 3 refueling outage.

c. Conclusions

The licensee satisfactorily assessed and repaired a coolant leak in the 3A emergency diesel generator radiator. Operator actions upon identification of the radiator leak were timely and appropriate.



#### IV. Plant Support

##### **P5 Staff Training and Qualification in EP**

##### **P5.1 Emergency Preparedness Drill**

##### **a. Inspection Scope (71750)**

The inspector observed and participated in the fourth quarter emergency preparedness drill and reviewed the lessons learned critique report.

##### **b. Observations and Findings**

On November 19, the licensee held the fourth quarter emergency preparedness drill. The inspectors participated and observed activities in the Control Room (simulator), Technical Support Center (TSC), and Operations Support Center (OSC). In addition, during the drill the inspector reviewed and discussed technical, Health Physics (HP), and operational issues with plant management.

Good technical assessments, use of Emergency Operating Procedures (EOPs), and command and control were noted in the control room. Manning of the TSC and the OSC, including Security controls was timely and well organized. The inspectors followed the emergency classification assessments in the control room and in the TSC and noted they were appropriately assessed. The State and NRC notifications were timely. HP support in the TSC and in the OSC was noteworthy. In the OSC, the inspectors noted that several questions were raised by HP technicians relating to the appropriate methods of recording doses under various emergency conditions.

The inspectors reviewed the licensee's drill critique with the emergency preparedness coordinators. Strengths and areas for improvement were identified. Two Operations critique items relating to procedure adherence were discussed with the Operations supervisor. These items were appropriately being addressed by the training department. The questions which had been raised by HP relating to recording of a dose were being addressed by HP management. An issue relating to an out-of-date EOP found in the Technical Support Center and some missing EOPs in the Emergency Operating Facility (EOF) was discussed with the Documents Controls supervisor. The licensee's investigation of this issue revealed that incorrect codes were being input to the computer, and consequently some procedures were not being distributed to all required locations. Although the licensee was addressing the deficiency, the inspectors found that this issue was not being documented or tracked via the licensee's corrective action process. The inspectors discussed this issue with licensee management and the licensee later informed the inspectors that a condition report was being written to document and track corrective actions on this issue. During a subsequent visit to the EOF, the inspectors verified that the missing EOPs had been replaced. The inspectors independently verified additional selective critique items were being addressed by the responsible departments.

c. Conclusions

The fourth quarter emergency preparedness drill was satisfactorily conducted, met the drill objectives, and concluded in a thorough training exercise. An issue relating to document controls and other lessons learned from the drill were being addressed by the licensee.

**R7 Quality Assurance in Radiation Protection and Chemistry Activities**

R7.1 NRC Required Postings

a. Inspection Scope (71750)

The inspectors reviewed the postings of NRC Form - 3, Notice to Employees Standards for Protection Against Radiation (Part 20); Notices, Instructions and Report to Workers; Inspections (Part 19): Employee Protection.

b. Observations and Findings

On December 16, the inspector observed an out-of-date NRC Form 3 posted on a bulletin board in the licensee's "SPEAKOUT" area. The form was dated August 1997. The correct revision of this form was dated September 1998. The licensee's posting requirements were reviewed. The requirements are specified in plant procedure 0-ADM-508, NRC Posting Requirements, dated November 5, 1997. The procedure specifies that the form is posted in seven locations of plant or building entrances. The inspectors verified several other locations and found the correct revisions posted. The form in the "SPEAKOUT" area was not required by the licensee's procedure and did not receive a periodic verification that the posting was correct. The licensee promptly removed the out of date posting and initiated a review to decide whether this location should be included in the plant procedure.

c. Conclusion

NRC Form 3 was correctly posted in the plant locations specified in the licensee's procedures. An out-of-date form at an additional unspecified location was promptly corrected.

**S2 Status of Security Facilities and Equipment**

S2.1 Outside Area Patrol

a. Inspection Scope (71750)

On December 9 and 10, the inspectors reviewed areas patrolled by the security force on the owner controlled property.



b. Observations and Findings

The inspectors observed the physical integrity of the protected area fence. Vehicle access paths and transportation of warehouse items into the protected area were reviewed from outside the protected area on the patrol route of the security force. All areas were part of the routine tour and the physical integrity of the fence was good. The Central Alarm Station and Secondary Alarm Station was inspected for camera viewing of the protected area fence. No problems were identified.

c. Conclusion

The protected area fence was observed to have good physical integrity and material condition.

V. Management Meetings

X1 **Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on December 30, 1998. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

**PARTIAL LIST OF PERSONS CONTACTED****Licensee**

T. Abbatiello, Quality Assurance Manager  
G. Hollinger, Licensing Manager  
R. Hovey, Site Vice-President  
D. Jernigan, Plant General Manager  
T. Jones, Operations Manager  
J. Kirkpatrick, Protection Services Manager  
R. Kundalkar, Vice President, Engineering and Licensing  
M. Lecal, Training Manager  
M. Pearce, Maintenance Manager  
R. Rose, Work Control Manager  
D. Tomaszewski, Acting Engineering Manager  
J. Trejo, Health Physics/Chemistry Supervisor  
A. Zielowka, Thermolag Project Manager

Other licensee employees contacted included office, operations, engineering, maintenance, chemistry/radiation, and corporate personnel.

**INSPECTION PROCEDURES USED**

IP 37551: Onsite Engineering  
IP 40500: Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems  
IP 61726: Surveillance Observations  
IP 62707: Maintenance Observations  
IP 71707: Plant Operations  
IP 71750: Plant Support Activities

