



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064

January 6, 2000

Gregg R. Overbeck, Senior Vice  
President, Nuclear  
Arizona Public Service Company  
P.O. Box 52034  
Phoenix, Arizona 85072-2034

SUBJECT: NRC INSPECTION REPORT NO. 50-528/99-21; 50-529/99-21; 50-530/99-21

Dear Mr. Overbeck:

This refers to the inspection conducted on December 6-10, 1999, at the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, facilities. The enclosed report presents the results of this inspection. A supplemental telephone exit was conducted on January 6, 2000.

The inspection was an examination of activities conducted under your license as they related to fire protection, safety, and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Original signed by

Dr. Dale A. Powers, Chief  
Engineering and Maintenance Branch  
Division of Reactor Safety

Docket Nos.: 50-528; 50-529; 50-530  
License Nos.: NPF-41; NPF-51; NPF-74

Enclosure:  
NRC Inspection Report No.  
50-528/99-21; 50-529/99-21; 50-530/99-21

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E-Mail report to D. Lange (DJL)  
 E-Mail report to NRR Event Tracking System (IPAS)  
 E-Mail report to Document Control Desk (DOCDESK)

E-Mail notification of report issuance to the PV SRI and Site Secretary (JHM2, TLB4).

E-Mail notification of issuance of all documents to Nancy Holbrook (NBH).

bcc to DCD (IE01)

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket Nos.: 50-528; 50-529; 50-530  
License Nos.: NPF-41; NPF-51; NPF-74  
Report No.: 50-528/99-21; 50-529/99-21; 50-530/99-21  
Licensee: Arizona Public Service Company  
Facility: Palo Verde Nuclear Generating Station, Units 1, 2, and 3  
Location: 5951 S. Wintersburg Road  
Tonopah, Arizona  
Dates: December 6-10, 1999  
Inspectors: C. E. Johnson, Senior Reactor Inspector  
Engineering and Maintenance Branch  
P. A. Goldberg, Reactor Inspector  
Engineering and Maintenance Branch  
W. M. McNeill, Reactor Inspector  
Engineering and Maintenance Branch  
Approved By: Dr. Dale A. Powers, Chief  
Engineering and Maintenance Branch  
Division of Reactor Safety

ATTACHMENT: Supplemental Information

## EXECUTIVE SUMMARY

Palo Verde Nuclear Generating Station, Units 1, 2, and 3  
NRC Inspection Report No. 50-528/99-21; 50-529/99-21; 50-530/99-21

In this announced, routine inspection, three NRC inspectors reviewed the licensee's implementation of the NRC-approved fire protection program and performed followup on previously identified inspection findings.

### Engineering

- The licensee determined that an inconsistency existed between Chapters 8 and 15 in the Updated Final Safety Analysis Report and the actual plant design. The inconsistency had resulted from a generic Combustion Engineering analysis that was used without necessary revision to account for the site-specific electrical system at Palo Verde. Chapter 15 assumed that 3 seconds of grid (offsite) power would be available to the reactor coolant pumps using the fast bus transfer through the startup transformer. Chapter 8 and 15 should have identified the specific design of the plant and credited the 3-second (minimum) power pulse from the auxiliary transformer following a turbine trip as the power that was relied upon to supply the reactor coolant pumps. The licensee event report stated that the licensee had missed several opportunities to identify the discrepancy during design change and technical specification amendment reviews. The licensee failed to adequately update the Updated Final Safety Analysis Report to ensure that it was accurate and contained the latest material developed. The failure was identified as a violation of 10 CFR 50.71(e) (Section E8.2). This Severity Level IV violation is being treated as a noncited violation (50-528; -529; -530/9921-01), consistent with Section VII.B.1.a of the NRC Enforcement Policy. The violation is in the licensee's corrective action program as Condition Report/Disposition Request (CRDR) 2-8-0074.

### Plant Support

- Fire protection equipment required for the program implementation that was inspected was visibly well maintained and available for use. However, the licensee identified significant corrosion problems in the fire protection system in early 1985. The inspectors noted that the corrective actions implemented appeared untimely, as evidenced by the observation that corrective actions were continuing at the time of the inspection. An inspection followup item was opened pending additional NRC review of the fire protection system corrosion issues and the licensee's corrective actions. Plant housekeeping for the control of transient combustibles was good (Sections F2 and F8).
- The qualification of the fire team members met the requirements of the fire protection program. Training provided to the fire team members met the necessary requirements. The observed drill was sufficient to demonstrate that the fire team members had the necessary fire fighting skills. Good communications (between the fire team commander and the control room staff) and team work were demonstrated during the fire drill (Section F5).

- The fire department was considered a strength to the fire protection program because it was comprised of a dedicated staff (Section F6).

## Report Details

### Summary of Plant Status

All three plants operated at full power during the inspection.

## III. Engineering

### **E8 Miscellaneous Engineering Issues (92903)**

#### E8.1 Configuration Control

##### a. Inspection Scope

The inspectors reviewed a sample of ten design master work orders (DMWOs), and focused on risk and safety-related hardware changes. The review also included the associated 10 CFR 50.59 evaluations. The DMWO's reviewed are listed in the Attachment.

##### b. Observations and Findings

Overall, the DMWOs examined by the inspectors were documented appropriately, with some exceptions discussed below. However, none of the exceptions were safety-related issues and none violated any NRC requirement.

#### DMWO 00742262 - Change the Charging Pump Low Lube Oil Pressure Switch

Setpoint: The inspectors found one DMWO that had a minor error reflecting a lack of attention to detail on the part of engineering personnel involved in nonsafety-related activities. Specifically, the first four 10 CFR 50.59 screening questions associated with DMWO 00742262, which changed the charging pump low lube oil pressure alarm switch, were marked "no." Question 5 read: "If all answers 1 through 4 all are 'no,' no 10 CFR 50.59 evaluation required or technical specification change is required. Recommend action approval." The DMWO's answer to Question 5 was "no," where it should have been "yes." There was not a 10 CFR 50.59 evaluation performed, only a screening. The inspectors agreed with the disposition that no evaluation was required and that this activity, changing an alarm set point, was nonsafety related.

DMWO 00751659 - Main Feedwater Turbine Lube Oil Coolers: The inspectors reviewed this DMWO because there were changes made, and no apparent updates to the drawings. The inspectors found that this modification was designated as a nonsafety-related modification. This designation was correct, in that, turbine-driven feedwater pumps are nonsafety related according to Table 3.2-1 of the Updated Final Safety Analysis Report. Thus, the oil coolers are also nonsafety related. This modification replaced a drain plug with a valve for ease of maintenance. As a nonsafety-related component, the update of vendor drawings for changes was not required. The inspectors agreed with the nonsafety-related designation of this modification.



DMWO 00770231 - Charging Pump Drain Wells: There were 1-inch lines that went from a well on the inboard side of the charging pump to an open drain on the outboard side, and they were subjected to atmospheric pressure. The inspectors found "pen and ink" or "red line" type changes to DMWO 00770231 that addressed the threaded joint and socket weld joint of a union. These changes were initialed and dated as required by procedure, and appeared to be proper changes.

It appeared that the intent of the DMWO was to have a threaded union on the inboard side (nearest the pump) and a socket welded union on the outboard side. The specification required Schedule 80 pipe for threaded connections and Schedule 40 for socket welded connections. The initial construction drawings were confusing in that both a socket weld and a threaded joint were identified on the inboard side. The licensee had recently identified and corrected this error, but the installed configurations of these joints were different. Unit 1 was threaded on both ends and Unit 3 was threaded on the top and welded on the bottom. Unit 2 was threaded on both ends for one pump and threaded on the top and welded on the bottom for two pumps. Thus, configuration control was inconsistent. However, this nonsafety-related installation did not violate any procedure.

The inspectors agreed with the designation of these lines as nonsafety related. A new Engineering Document Change (EDC) No. 1999-01015 corrected the misinformation and documented the currently installed configuration. Both Schedule 80 and 40 piping were to be used and the records indicated such.

DMWO 00708789 - Modify the Limitorque Model HBC Operator To Valve Yoke Adapter Plate To Allow Removal Without Removing the Stem Spline Adapter: The inspectors found that this modification was an enhancement for maintenance activities, and did not affect the operation of the valve. Disassembly of the valve was made easier with this modification. The modification was subtle, in that, it involved parts not shown on the valve drawings. Control, in this case, was by development of a new part number in the Standardized Information Management System (SIMS) for the modified adapter plate. The modified part did not affect the function of the valve assembly. In short, because a set screw was installed, this modification provided a backup method to secure the spline key and reduce the probability of valve failure. Although the valves were designated as safety related, the components modified were nonsafety related and did not require the use of an engineering document change.

c. Conclusions

Overall, the DMWOs reviewed indicated that the licensee was in compliance with their procedures. There was a lack of attention to detail noted where DMWO 00742262 (nonsafety related) screening question was answered "no" when it should have been marked "yes."

E8.2 (Closed) Licensee Event Report 50-528; 529; 530/98-003-00 and 50-528; 529; 530/98-003-01: Unanalyzed condition existed when automatic fast bus transfer capability was blocked.

On February 19, 1998, the licensee discovered that the plant had been in an unanalyzed condition during certain times in the past when the fast bus transfer capability was blocked (typically during maintenance or testing), thereby, preventing the transfer of plant equipment from the unit auxiliary transformer (turbine generator power) to the startup transformer (offsite power). This problem affected each of the three units and was evidently undetected at the time of initial plant licensing. The only electrical loads affected by this concern were the reactor coolant pumps, which are assumed to receive power from the offsite electrical grid for a minimum of 3 seconds following a turbine trip coincident with one of the assumed accidents, i.e., a feedwater line break, steam generator tube rupture, reactor coolant pump sheared shaft, or reactor coolant pump seized rotor. During times that the fast bus transfer was blocked, the 3-second power capability was not available. As a consequence, calculational results addressing departure from nucleate boiling and other reactor parameters were not assured of being conservative for those times.

The licensee determined that the cause of the problem was an inconsistency that existed between Chapters 8 and 15 in the Updated Final Safety Analysis Report and the actual plant design. The inconsistency had resulted from a generic Combustion Engineering analysis that was used without necessary revision to account for the site-specific electrical system at Palo Verde. Chapter 15 assumed that 3 seconds of grid (offsite) power would be available to the reactor coolant pumps, but, as stated above, this would not have been the case when the fast bus transfer function was blocked. Chapters 8 and 15 of the Updated Final Safety Analysis Report should have identified the specific design of the electrical system of the plant and should have credited the 3-second (minimum) power pulse from the unit auxiliary transformer following a turbine trip as the power that was relied upon to supply the reactor coolant pumps. The licensee event report stated that the licensee had missed several opportunities to identify the discrepancy during design change and technical specification amendment reviews. The licensee event report also stated that changes already implemented to the 10 CFR 50.59 process should preclude recurrence of an error of this type.

10 CFR 50.71(e) states, in part, that the licensee shall periodically update the final safety analysis report to ensure that it contains the latest material developed. The licensee failed, during numerous reviews and updates from perhaps as early as original plant licensing, to adequately update the Updated Final Safety Analysis Report to ensure that it was accurate and contained the latest material developed for the specific design of the electrical system of the plant and should have credited the 3-second power pulse from the unit auxiliary transformer following a turbine trip as the power that was relied upon to supply the reactor coolant pumps. This failure was identified as a violation of 10 CFR 50.71(e). This Severity Level IV violation is being treated as a noncited violation (50-528; -529; -530/9921-01), consistent with Section VII.B.1.a of the NRC Enforcement Policy. The violation is in the licensee's corrective action program as Condition Report/Disposition Request (CRDR) 2-8-0074.

Within CRDR 2-8-0074, dated February 17, 1998, the licensee documented that a preliminary analysis indicated that no safety limits related to fission product barriers would have been exceeded had a design basis accident occurred during a time when fast bus transfer capability was blocked. The licensee continued to operate the units but placed a moratorium on any actions that would block the fast bus transfer function. As long as this restriction remained in place, the assumed post-trip 3 seconds of power to the reactor coolant pumps was assured.

The licensee completed its analysis of the condition and reported in Revision 1 to the licensee event report that the condition was no longer considered unanalyzed, and that the temporary restrictions on blocking fast bus transfer could be lifted. This was based on the conclusion that, in situations where the fast bus transfer function is blocked, power will continue to be supplied to the reactor coolant pumps via the auxiliary transformer for more than 3 seconds prior to actuation of the reverse power relay (which trips the turbine generator breaker). This conclusion was based on a statistical study of 26 turbine trips showing that 3 seconds of power would have been available in each case to the reactor coolant pumps from the auxiliary transformer before the reverse power set points were reached. This conclusion was documented in Calculation 13-EC-MA-232, "Main Generator Reverse Power Relay Actuation Time," Revision 0, which verified that the time between closure of the turbine stop valves and tripping of the auxiliary transformer output circuit breakers met or exceeded the 3-second assumption in the accident analyses for continued power to the reactor coolant pumps following a turbine trip. The inspectors noted that the time between turbine stop valve closure and reverse power relay actuation varied between 3.97 and 7.55 seconds. These facts, according to the licensee's representative, eliminated the original concern and, had they been known at the time, could have been used to preclude the need to report the event. The inspectors determined that this calculation was the licensee's only means of verifying that the reactor coolant pumps would have power for more than 3 seconds prior to actuation of the reverse power relay.

The inspectors questioned the licensee's conclusions by postulating a scenario with a single active failure consisting of an inadvertent trip of the generator breaker. This could be caused by either a problem with the reverse power sensing circuit or the breaker itself. If this were to occur prior to the expected breaker trip resulting from reverse power (i.e., within 3 seconds of accident initiation), and the fast bus transfer function was blocked or out-of-service on both trains (a condition allowed by plant procedures), all four of the reactor coolant pumps would lose power in less than 3 seconds and the plant would fail to meet the design basis assumptions for the relevant accident scenarios.

In discussions, the licensee's representative informed the inspectors that this scenario was believed to be outside of the design basis of the plant. The inspectors reviewed Chapter 15 of the Updated Final Safety Analysis Report, which stated that for event combinations that require consideration of a single failure, the limiting failure was listed in a table in Chapter 15. Only low probability dependent failures and independent pre-existing failures were considered credible and included in the table. Pre-existing failures were defined as equipment failures that existed prior to the event initiation and were not

revealed until called upon during the event. The inspectors discussed this issue with personnel in the NRC's program office and determined that postulating the failure of a reverse power relay or a breaker failing directly following a trip of the main generator was outside of the licensee's design bases.

#### **IV. Plant Support**

##### **F1 Control of Fire Protection Activities (64704)**

The inspectors reviewed the licensee's fire protection program to verify that the licensee had properly implemented and maintained the fire protection program as required by the operating license. The inspectors reviewed fire protection procedures, administrative controls, fire team members' qualifications, and fire team staffing to determine if they were in accordance with the approved fire protection program. The inspectors also conducted tours of the facility and observed a fire drill to verify licensee implementation of the fire protection program.

The inspectors concluded that, for the aspects of the fire protection program reviewed, the licensee's fire protection program was properly controlled, implemented, and maintained in accordance with the approved fire protection program.

##### **F2 Status of Fire Protection Facilities and Equipment (64704)**

###### **a. Inspection Scope**

The inspectors performed a walkdown inspection of accessible areas of the 100 foot elevations of the control, turbine, and emergency diesel generator buildings; fire pump house; fire water tank; and the 140-foot elevation of the control building. This inspection included observation of fire suppression and detection equipment, fire-rated assemblies, emergency lighting, safe shutdown panel, electrical penetrations, and emergency response equipment.

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

The inspectors found that the Updated Final Safety Analysis Report figures were accurate in describing the location of a randomly selected fire extinguisher, and fire hose and foam stations. The inspectors randomly selected two fire doors and one penetration and found that they were appropriately installed and rated, as described in the Updated Final Safety Analysis Report.

The inspectors observed good housekeeping (for the control of transient combustibles). Emergency lighting was standard throughout the areas of the plant, and appeared to be properly positioned. Laydown areas for equipment staging and storage were marked. Fire team response equipment (e.g., fire engines, protective gear) was well maintained and ready for use. The inspectors observed that fire protection equipment (e.g., fire hose and foam stations) was maintained in good visible condition. The motor- and diesel-driven fire pumps appeared to be in good visible condition, with the exception of

minor oil leaks and some corrosion on associated piping. [As discussed in Section F8, the licensee had identified significant material condition problems with certain fire protection equipment.]

The fire protection staff conducting the tour was able to appropriately address specific questions posed by the inspectors regarding fire protection equipment and responsibilities.

c. Conclusions

The specific fire protection equipment required for the program implementation that was inspected was visibly well maintained and available for use. Plant housekeeping for the control of transient combustibles was good.

**F3 Fire Protection Procedures and Documentation (64704)**

The inspectors reviewed portions of the licensee's approved fire protection program, as documented in the Updated Final Safety Analysis Report for the facility, to verify that the procedures adequately implemented the licensee's approved program. The inspectors found that the procedures reviewed adequately implemented the approved fire protection program.

In addition, the inspectors reviewed maintenance and surveillance procedures and records of selected fire protection equipment (e.g., jockey, motor- and diesel-driven pumps, and fire dampers) to verify that the equipment was maintained in an operable condition. The inspectors found that preventive maintenance records for the two fire diesels, one motor-driven fire pump, fire damper, and jockey pump were current and that appropriate maintenance had been performed periodically, as required by the licensee's preventive maintenance program.

**F4 Fire Protection Staff Knowledge and Performance (64704)**

The inspectors evaluated fire protection staff knowledge by conducting interviews and a plant walkdown with staff members. Discussions with the emergency services division management staff, fire protection operations lead and team members, and nuclear assurance auditors indicated that they had a good understanding of NRC requirements for the fire protection program. The fire protection staff also demonstrated an extensive knowledge of the National Fire Protection Association Codes, a detailed understanding of fire hazards associated with the facility, and familiarity with the facility's fire protection systems, testing, and analyses. In addition, inspectors determined that the licensee's fire protection staff demonstrated ownership of their assigned responsibilities. All fire members were certified as emergency medical trained. The inspectors found that the fire protection staff knowledge was excellent.

The inspectors also conducted interviews with four licensee personnel qualified to stand fire watch. These fire watch personnel were determined to be knowledgeable of their duties and responsibilities.

**F5 Fire Protection Staff Training and Qualification (64704)**

a. Inspection Scope

The inspectors reviewed (1) the readiness of the onsite fire department to fight fires, (2) personnel qualifications, and (3) training records. The inspectors also interviewed fire department staff responsible for fire protection training, reviewed a fire drill plan, observed the performance of the fire department during a fire drill, and attended the fire drill critique/debrief.

b. Observations and Findings

The fire department training requirements were defined in Procedures 14DP-0TR01, "Fire Department Training Program Description," Revision 9, and 14DP-0TR02, "Fire Department Training Program Administration," Revision 12. The inspectors verified the initial and continuing training and qualification of five members of the B shift met the requirements set out in procedures. The inspectors found that the training records were in good order. The inspectors also noted through discussions with fire team members and review of records, that extensive training (i.e., live fire exercises, hazardous material, emergency medical, and technical rescue) was appropriately conducted during the first, second, and fourth calendar quarters.

Fire Drill

Approximately three fire drills were performed by the licensee each calendar quarter. The inspectors observed a fire drill conducted by the fire protection department on December 8, 1999. The inspectors' noted good communications (between the fire team commander and the control room staff), good team work, and fire fighting skills exhibited during the fire drill. The fire drill scenario was sufficient to demonstrate the necessary skills of the fire team members. The response of the fire team to the drill was timely. Upon completion of the drill, a fire drill critique/debrief was conducted. There was good feedback between the members and supervisory personnel.

c. Conclusions

The qualification of the fire team members met the requirements of the fire protection program. Training provided to the fire team members met the necessary requirements. The observed drill was sufficient to demonstrate that the fire team members had the necessary fire fighting skills. Good communications (between the fire team commander and the control room staff) and team work were demonstrated during the fire drill.

**F6 Fire Protection Organization and Administration (64704)**

a. Inspection Scope

The inspectors reviewed the licensee's fire protection and administrative organization.

b. Observations and Findings

The inspectors found that the fire protection operations department was under the Emergency Services Division. The fire department consisted of approximately 27 fire team members, 2 fire engines, 2 ambulances, 1 special operations vehicle, 1 command vehicle, and 2 administrative vehicles. Additional support was available from the fire department in Phoenix.

The fire protection department at Palo Verde was unique. Unlike most other fire departments with fire brigades made up of operational, maintenance, and various other personnel from different organizations, this fire protection department was comprised of a dedicated staff. The inspectors considered this dedicated fire department a strength to the fire protection program at Palo Verde.

The fire operations department was available to respond to fire, medical, hazardous material, and technical rescue emergencies.

c. Conclusions

The fire department was considered a strength to the fire protection program because it was comprised of a dedicated staff.

**F7 Quality Assurance in Fire Protection Activities (64704)**

The inspectors reviewed two Nuclear Assurance Division audits of the fire protection program: Nuclear Assurance Division Audit 98-005, "Fire Protection Program," dated June 19, 1998, and Nuclear Assurance Division Audit 99-007, "Fire Protection Program and Integrated Self-Assessment," dated July 1, 1999, and discussed the audit results with applicable licensee personnel. The inspectors found that the audits were thorough, detailed, self-critical, and conducted in accordance with the requirements of the fire protection program. Audit 99-007 identified corrosion issues of the fire protection system as discussed in Section F8 of this report. The inspectors noted that the audit teams were properly staffed with knowledgeable personnel, which included team members from the Nuclear Assurance Division, technical specialists from the site, technical specialists from other utilities, and independent consultants. Audit findings were clearly documented in the reports and condition report/disposition requests were generated to resolve the identified problems. The inspectors reviewed six condition report/disposition requests that were generated from the audit findings to determine if adequate corrective actions were performed. The documents reviewed were Condition Report/Disposition Requests 9-8-Q143, 1-9-0109, 9-9-Q167, 9-9-Q145, 9-9-Q148, and 9-8-Q160. The inspectors found that the corrective actions were appropriate and completed in a timely manner.

The inspectors concluded that the licensee's fire protection quality assurance program activities met the requirements of the NRC-approved fire protection program.

**F8 Miscellaneous Fire Protection Issues (64704)**

a. Inspection Scope

The inspectors reviewed and discussed the system health and significant issues related to the fire protection system.

b. Observations and Findings

On December 6, 1999, the licensee presented an overview of their fire protection program, and fire protection system issues to the inspectors. The latter was also the subject of a teleconference held on January 5, 2000. The licensee's system health report indicated that the fire protection system was characterized, in regard to performance, as yellow. Yellow represented that the system performance was in need of attention. There were significant material condition issues that the licensee had identified in Bechtel Interim Report IR-047, "Fire Protection System Corrosion and Biological Control," dated March 25, 1985, and additional material condition corrosion issues in "Fire Protection Program Audit Report 99-007 and Integrated Self-Assessment," dated July 1, 1999.

Some of the issues that resulted in the fire protection system being characterized as yellow were corrosion of position indication valves and piping (above and below ground) as well as degradation of piping and tank coatings. The inspectors understood that no technical specification or safety-related equipment was affected by the observed corrosion. The licensee's representative informed the inspectors that corrective actions have been developed and implemented, in some instances, to prevent and correct these deficiencies. An early corrective action was made to chemically improve the quality of the water in the fire protection water tanks to minimize corrosion. Current corrective actions in process involved the replacement of certain underground piping and position indication valves. The licensee was developing plans to address the above ground piping corrosion issues, which were tracked by Condition Report/Disposition Requests 36148 and 36149. The inspectors' review of these deficiencies and the licensee's corrective actions for the corrosion of valves and associated piping, indicated that the licensee was appropriately pursuing these issues at the time of the inspection. The inspectors noted that the corrective actions implemented appeared untimely, in that, the underground piping corrosion issues were identified in early 1985, and corrective actions were continuing at the time of the inspection. The issue of further NRC review of the fire protection system corrosion issues and the licensee's corrective actions is an inspection followup item (50-528; -529; -530/9921-02).



c. Conclusions

The licensee identified significant corrosion problems in the fire protection system in early 1985. The inspectors noted that the corrective actions implemented appeared untimely, as evidenced by the observation that corrective actions were continuing at the time of the inspection. An inspection followup item was opened pending additional NRC review of the fire protection system corrosion issues and the licensee's corrective actions.

**V. Management Meetings**

**X1 Exit Meeting Summary**

The inspectors presented the inspection results in an exit meeting to members of licensee management on December 10, 1999. The licensee's management acknowledged the findings presented. A supplemental telephone exit was conducted on January 6, 2000, during which the inspection followup item was discussed.

The lead inspector asked the representatives of the licensee's management whether any material examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

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S. Baur, Section Leader, Regulatory Affairs  
M. Czarnylas, Fire Department Lead, Emergency Services Division  
S. Dodd, Nuclear Instructor, Training, Emergency Services Division  
D. Fan, Department Lead, Design Engineering  
F. Garrett, Department Lead, Emergency Services Division Programs  
S. Grier, Section Leader, System Engineering  
M. Hodge, Section Leader, Nuclear Engineering  
F. Jabali, Senior Engineer, Nuclear Assurance  
W. Johnson, Senior Evaluator, Nuclear Assurance  
D. Lamontagne, Section Leader, Nuclear Assurance  
D. Leech, Department Lead, Nuclear Assurance  
D. Marks, Section Lead, Regulatory Affairs  
D. Mauldin, Vice President, Engineering  
A. Newton, Evaluator/Auditor, Nuclear Assurance  
E. O'Neill, Section Lead, Training, Emergency Services Division  
R. Rogalski, Engineer, Licensing  
R. Sattelmaier, Senior Fire Protection Advisor, Emergency Services Division  
C. Seaman, Director, Emergency Services Division  
G. Shanker, Department Lead, System Engineering  
R. Stroud, Senior Consultant, Regulatory Affairs  
R. Swindell, Team Member, Fire Protection Maintenance, Emergency Services Division

Others

F. Gowen, Site Representative, El Paso Electric

INSPECTION PROCEDURES USED

64704	Fire Protection Program
92903	Engineering Followup

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-528;-529;- 530/9921-01	NCV	Failure to adequately update the Updated Final Safety Analysis Report. Inconsistency existed between Chapters 8 and 15 and the specific design of the electrical system of the plant (Section E8.2).
50-528; -529; - 530/9921-02	IFI	NRC review of the fire protection system corrosion issues and the licensee's corrective actions (Section F8).

Closed

50-528;-529;- 530/98-003-01	LER	Unanalyzed condition existed when automatic fast bus transfer capability was blocked (Section E8.2).
50-528;-529;- 530/9921-01	NCV	Failure to adequately update Updated Final Safety Analysis Report. Inconsistency existed between Chapters 8 and 15 and the specific design of the electrical system of the plant (Section E8.2).

LIST OF DOCUMENTS REVIEWED

Miscellaneous

TRM 3.11.100	Fire Detection Instrumentation	Revision 4
Section 9.5	Updated Final Safety Analysis Report	Revision 10
Report IR-047	Fire Protection System Corrosion and Biological Control	Revision 0
13-MS-A59	Fire Protection Water System (FPWS) Corrosion Damage Assessment	August 1990
Calculation 13- EC-MA-232	Main Generator Reverse Power Relay Actuation Time	Revision 0
Audit Report 98-005	Fire Protection Program	June 19, 1998
Audit Report 99-007	Fire Protection Program Audit Report 99-007 and Integrated Self-Assessment	July 1, 1999

Design Master Work Orders

- |          |  |
|----------|--|
| 00687236 | Remove Check Valves Down Stream from Identified Steam Traps and Replace Identified Traps with Smaller Size and New Design      |
| 00699995 | Change the Style of Valve to a Tighter Sealing Valve at TCN-V0337  |
| 00702280 | Install New Isolation Valve  |
| 00722023 | Install a Tee and Valve on the Demineralized Water Line for Testing Resin Samples  |
| 00742262 | Change the Charging Pump Low Lube Oil Pressure Switch Set Point From 10 to 18 PSIG   |
| 00751659 | Main Feedwater Turbine Lube Oil Coolers  |
| 00770231 | Charging Pump Drain Wells  |
| 00708789 | Modify the Limatorque Model HBC Operator To Valve Yoke Adapter Plate To Allow Removal Without Removing the Stem Spline Adapter |
| 00741855 | Modification of Auxiliary Feedwater Valves (AF-V034/35/36/37)  |

Preventive Maintenance Work Orders

- |          |          |          |
|----------|----------|----------|
| 00730726 | 00776028 | 00749569 |
| 00740778 |          |          |

Condition Report/Disposition Requests

- |          |          |          |          |
|----------|----------|----------|----------|
| 9-8-Q143 | 1-9-0109 | 9-9-Q167 | 2-8-0074 |
| 9-9-Q145 | 9-9-Q148 | 9-8-Q160 |          |

Surveillance Tests (Fire Damper)

- |            |            |
|------------|------------|
| 14FT-1FP02 | 14FT-9FP24 |
| 14FT-9FP07 | 14FT-9FP69 |
| 14FT-9FP09 | 14FT-9FP54 |
| 14FT-9FP10 | 14FT-0FP05 |
| 14FT-9FP11 | 14FT-0FP06 |

Procedures

PD-0AP01	Fire Protection	Revision 2
14DP-0F40	Fire Protection Program Responsibilities	Revision 1
14DP-0FP09	Conduct of Fire Shift Operations	Revision 12
14DP-0FP33	Control of Transient Combustibles	Revision 4
14DP-0FP36	Hot Work Permit	Revision 2
14DP-0FP32	Emergency Notification and Response	Revision 9
14FT-0FP04	Annual Fire Water Loop Test	Revision 11
14FT-9FP07	CO <sub>2</sub> Suppression System Storage Tank Level	Revision 2
14FT-9FP22	Halon System Inspection	Revision 4
14FT-9FP04	Annual Fire Pump Test	Revision 5
14FT-9FP08	CO <sub>2</sub> Fire Suppression System Functional Test	Revision 6
14FT-9FP23	Fire Suppression Water System Flow Test	Revision 4
14FT-9FP24	Daily Appendix R and FTS Fire Door Position Verification	Revision 8
14FT-0FP05	Monthly Diesel Driven Fire Pumps Start and Run	Revision 8
14FT-10FP02	Motor Driven Fire Pump Start and Run	Revision 4
14FT-1FP04	Fire Protection Valve Cycling	Revision 6
14FT-1FP03	Fire Water Valve Verification	Revision 4
14FT-0FP06	Monthly Fire Department Equipment Inspection	Revision 3
14DP-0FP01	Firewatch Requirements	Revision 7
14DP-0FP34	Firewatch Duties	Revision 2
14DP-0TR01	Fire Department Training Program Description	Revision 9
14DP-0TR02	Fire Department Training Program Administration	Revision 12