UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

July 15, 2002

David L. Wilson, Vice President of
Nuclear Energy
Nebraska Public Power District
P.O. Box 98
Brownville, Nebraska 68321

SUBJECT: COOPER NUCLEAR STATION - NRC INSPECTION REPORT 50-298/02-08 AND APPARENT VIOLATION

Dear Mr. Wilson:

This refers to the special inspection conducted from May 18-24, 2002, at the Cooper Nuclear Station. The purpose of the inspection was to evaluate multiple degraded conditions which were experienced during startup from a forced outage on May 14, 2002. The enclosed report presents the results of the inspection which were discussed on June 20, 2002, with Mr. Coyle and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection covered examination of selected procedures and representative records, observations of activities, and interviews with personnel.

This report discusses one issue that appears to have greater than very low safety significance. As described in Section 2.03 of this report, this issue involved the failure to take adequate corrective actions regarding instrument line snubber clogging, which resulted in a failure of the reactor core isolation cooling system on May 14. The issue was assessed, using the applicable significance determination process, as potentially being safety significant and, therefore, has been preliminarily determined to be greater than Green. Risk significant issues represent an increased importance to safety, which may require additional NRC inspection and potentially other NRC action.

The issue also appears to be an apparent violation of NRC requirements of 10 CFR Part 50, Appendix B, Criterion XVI. Title 10 of CFR Part 50, Appendix B, Criterion XVI, requires that a licensee establish measures to assure that conditions adverse to quality are promptly identified and corrected. The issue is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600.

Before the NRC makes a final decision on this matter, we are providing you an opportunity to request a Regulatory Conference where you would be able to provide your perspectives on the significance of the finding, the bases for your position, and whether you agree with the apparent violation. If you choose to request a Regulatory Conference, we encourage you to submit your evaluation and any differences with the NRC evaluation at least one week prior to the conference in an effort to make the conference more efficient and effective. If a Regulatory Conference is held, it will be open for public observation. The NRC will also issue a press release to announce the Regulatory Conference.

Please contact Jeff Clark at (817) 860-8166 within 7 days of the date of this letter to notify the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision and you will be advised by separate correspondence of the results of our deliberations on this matter.

Since the NRC has not made a final determination in this matter, no Notice of Violation is being issued for this inspection finding at this time. In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review.

Based on the results of this inspection, the NRC also identified a finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. Because the violation was of very low safety significance, and because it was entered into your corrective action program, the NRC is treating the finding as a noncited violation, in accordance with Section VI.A of the NRC's Enforcement Policy. If you contest this violation, you should provide a response with the basis for your denial within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Cooper Nuclear Station facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Jeffrey A. Clark, Chief
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Division of Reactor Projects

Docket: 50-298
License: DPR-46

Enclosure:
NRC Inspection Report
50-298/02-08

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-298
License:	DPR 46
Report:	50-298/02-08
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	May 18-24, 2002
Team Leader: Inspector:	Scott Schwind, Senior Resident Inspector J. Melfi, Reactor Inspector, Engineering Maintenance Branch
Approved By:	Jeffrey A. Clark, Chief, Project Branch F

SUMMARY OF FINDINGS

Cooper Nuclear Station
NRC Inspection Report 50-298/02-08

IR 05000298/02-08; on 5/18-24/2002; Nebraska Public Power District; Cooper Nuclear Station; Special Team Inspection Report. Corrective actions, event response.

The inspection was conducted by two team members consisting of one resident inspector and a region-based engineering and maintenance inspector. The inspection identified one Green issue. The significance of the issue is indicated by its color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process."

Cornerstone: Mitigating Systems

- TBD. The licensee failed to take corrective actions to prevent clogging of instrument line snubbers which resulted in the inadvertent isolation of the reactor core isolation cooling system on May 14, 2002. This was an apparent violation of 10 CFR Part 50, Appendix B, Criterion XVI.

  This finding was evaluated using the significance determination process. The clogging of instrument snubbers affected the ability of the reactor core isolation cooling system to perform its safety function. Instrument line snubbers were also installed in instrumentation for the main steam system, the high pressure coolant injection system, and the reactor recirculation system which could have affected the ability of those systems to perform their safety functions. Manual Chapter 0609 requires a Phase 3 determination whenever multiple equipment may be affected by a common cause. Therefore, further analysis of the safety significance is being performed (Section 2.03).

- Green. Technical Specification 5.4.1(a) requires that the licensee establish, implement, and maintain written procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A recommends procedures for abnormal, off normal, or alarm conditions. The inspectors concluded that the guidance contained in the alarm response procedure for a diesel generator fuel oil day tank low level alarm was inadequate. Specifically, the procedure directed operators to perform incorrect actions under a postulated condition that could have resulted in both diesel generators being inoperable. This was determined to be a violation of Technical Specification 5.4.1(a). This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This issue was entered into the licensee's corrective action program as Notification 10163642.

  This finding was considered to have a potential impact on safety since the inadequate procedure could result in the failure of both diesel generators following a loss of one diesel fuel oil transfer pump. This finding was characterized by the significance determination process as having very low safety significance since credit for recovery was given, based on fuel consumption rates and adequate procedures to monitor fuel consumption if both diesels were running (Section 2.04).

Report Details

SPECIAL INSPECTION ACTIVITIES

01 Inspection Scope

On May 14, 2002, Nebraska Public Power District shut down Cooper Nuclear Station due to problems associated with the digital electrohydraulic (DEH) control system. Several other degraded conditions were experienced during the plant shutdown and the following 24 hours. These included an inadvertent isolation of the reactor core isolation cooling (RCIC) system and the failure of a diesel generator (DG) fuel oil transfer pump.

A preliminary risk evaluation, performed in accordance with NRC Management Directive 8.3, concluded that these concurrent conditions presented more than very low risk. Therefore, a special inspection was performed at Cooper Nuclear Station to evaluate the degraded conditions and immediate corrective actions and to determine whether any potential generic safety implications existed. Specifically, this inspection was conducted to:

1. Develop a sequence of events for the degradation/failure of each of the affected systems.

2. Determine the adequacy of the licensee's maintenance on the affected systems between the last outage and the current time.

3. Evaluate the effectiveness of the licensee's efforts in identifying and preventing the failures in these systems, including a review of recent corrective action program notifications.

4. Identify the extent of effects of the degraded systems, including similar equipment in redundant trains.

5. Identify system operability concerns that may be related to restart of the facility.

6. Assess whether the licensee's event reporting activities were in compliance with 10 CFR requirements.

7. Determine whether the conditions which existed on or about May 14, 2002, were linked to a common performance deficiency.

02 Special Inspection Areas

02.01 Overview and Sequence of Events

On May 14, 2002, Cooper Nuclear Station was operating at approximately 20 percent reactor power and was preparing to synchronize the main generator to the offsite transmission grid. DEH fluid Pumps A and B were running to support startup of the main turbine. The following sequence of events then occurred:

5/14/2002	08:24 p.m.	Control room operators latched the main turbine.
5/14/2002	09:05 p.m.	The control room received an annunciator alarm: "TURB EH FLUID HIGH TEMP." An operator was dispatched to investigate and found the local temperature indication to be reading normal (155°F).
5/14/2002	09:10 p.m.	The control room received an annunciator alarm: "TURB EH FLUID SUPPLY FILTER A HIGH D/P." An operator and engineering personnel responded to the turbine building and reported that the differential pressure on the DEH Pump A discharge filter was pegged high and the differential pressure on the DEH Pump B discharge filter was starting to increase.
5/14/2002	09:41 p.m.	The control room received an annunciator alarm: "TURB EH FLUID SUPPLY FILTER B HIGH D/P." Electrohydraulic (EH) pressure was observed lowering below 1800 psig and stabilized at 1550 psig. Engineering recommended tripping the main turbine.
5/14/2002	09:44 p.m.	The control room tripped the main turbine.
5/14/2002	09:48 p.m.	The control room entered Abnormal Procedure 2.4DEH, "DEH Abnormal"
5/14/2002	09:52 p.m.	Both DEH pump discharge filter differential pressure gages were observed to be pegged high.
5/14/2002	10:24 p.m.	An EH fluid leak was reported from Intercept Valve 1. An operator entered the area and isolated the leak by closing Valve TGF-V-54.
5/14/2002	10:41 pm.	DEH Pumps A and B discharge filter differential pressures were observed to have lowered to 100 psid.
5/14/2002	10:43 p.m.	The shift manager made the decision to perform a plant scram based on DEH system parameters.

5/14/2002	10:51 p.m.	A manual reactor scram was inserted by control room operators. The plant entered Mode 3. Main turbine bypass valves responded as required to control reactor pressure.
5/14/2002	11:10 p.m.	The control room received an annunciator alarm: "RCIC STEAM LINE HIGH FLOW CHANNEL A." RCIC-MO-16 isolated on a ½ Group V isolation signal. RCIC was declared inoperable.
5/14/2002	11:20 p.m.	An operator was dispatched to the Reactor Building to check for evidence of an RCIC steam line break. No evidence of a break was found.
5/15/2002	03:47 a.m.	Control room operators reset the ½ Group V isolation signal.
5/15/2002	04:47 a.m.	The control room declared the main steam bypass valves inoperable due to degraded conditions on the DEH system.
5/15/2002	08:05 a.m.	The control room established shutdown cooling using residual heat removal Loop B.
5/15/2002	11:00 a.m.	Reactor temperature was reduced below 212^{o} F and Mode 4 was declared.
5/15/2002	04:10 p.m.	The control room issued Surveillance Procedure 6.2DG.101, "Diesel Generator 31 Day Operability Test (IST)(DIV 2)."
5/15/2002	10:44 p.m.	While performing Procedure 6.2DG.101, the DG 2 fuel oil transfer pump failed to start as required by step 4.86. The thermal overloads for the pump motor were found to be tripped.
5/16/2002	01:17 a.m.	Condition Report 10163513, "DGDO XFER P B Overloads Tripped," was initiated.
5/16/2002	02:27 a.m.	The thermal overloads were reset and the fuel oil transfer pump restored level to the day tank. The overloads tripped a second time during this evolution.
5/16/2002	02:59 a.m.	SP 6.2DG.101 was logged as complete.

5/16/2002	10:10 a.m.	The control room issued a Caution Order for DGDO-2-XFER PUMP A, to place the switch in the AUTO position to ensure that the Division 1 had an adequate fuel oil supply if needed.
5/16/2002	05:07 p.m.	The control room issued Caution Order for DGDO-12-DGDO-V-19 to close the valve to ensure that the Division 1 DG has adequate fuel oil supplied, if needed.
5/16/2002	09:34 a.m.	Condition Report 10163642 was written on the DG fuel oil transfer pump capacity, questioning if one pump could supply both diesels.
5/17/2002	07:00 a.m.	A modification package was initiated to replace the 1.5 horsepower motor on Transfer Pump 2 with a 3.0 horsepower motor, due to difficulties in procuring 1.5 horsepower motor.
5/18/2002	12:00 p.m.	The new pump motor was tested satisfactorily and the Division 2 DG was declared operable.

2.02 Digital Electrohydraulic Control System failure

a. Inspection Scope

The inspectors reviewed operator logs and interviewed station personnel to develop a sequence of events for the DEH Pump A failure and subsequent system degradation. Maintenance work orders generated since the last refueling outage and corrective action program notifications for the past 12 months were reviewed to assess the effectiveness of the licensee’s maintenance and corrective action program in identifying and preventing failures in this system. In addition, the inspectors reviewed the licensee’s apparent cause determination and immediate corrective actions for the pump failure.

b. Findings

No findings of significance were identified.

2.03 RCIC System Isolation

a. Inspection Scope

The inspectors reviewed operator logs and interviewed station personnel to develop a sequence of events for the isolation of the RCIC system. Maintenance work orders generated since the last refueling outage, corrective action program notifications for the past 12 months, and industry operating experience related to this failure were reviewed to assess the effectiveness of the licensee’s maintenance and corrective action program in identifying and preventing failures in this system. In addition, the inspectors reviewed the licensee's apparent cause determination and immediate corrective actions for this failure.

b. Findings

Description of the Event

On May 14, 2002, the licensee performed a reactor scram and plant cooldown following a failure in the DEH system. During cooldown and depressurization of the reactor coolant system, a containment isolation signal was received which caused the RCIC steam supply line to isolate. There was no demand for RCIC at that time. The isolation signal was generated by an RCIC high steam flow signal from Differential Pressure Switch RCIC-DPIS-83. The high steam flow signal cleared in approximately 6 seconds. The control room dispatched an operator to the reactor building to check for indications of a steam line break and none were found. Control room operators reset the RCIC isolation signal approximately 4.5 hours after the high steam flow signal cleared.

Apparent Cause and Corrective Actions

The licensee concluded that the apparent cause for the spurious isolation signal was a clogged snubber in the instrument line for Differential Pressure Switch RCIC-DPIS-83. The licensee determined that these snubbers (small, flow restricting orifices) were installed in both instrument lines for Switch RCIC-DPIS-83 in order to dampen pressure perturbations during RCIC turbine starts. One of these snubbers had apparently become clogged with debris which trapped high pressure fluid in one side of the pressure switch. Thus, during the plant cooldown and depressurization, the switch erroneously indicated a differential pressure, indicative of a steam line break.

As an immediate corrective action, the instrument lines for RCIC-DPIS-83 were flushed and the water was collected for analysis. It contained approximately 19.3 mg of debris which was determined to be typical carbon steel corrosion products ranging in size up to 0.05 inches. The orifice diameter of the snubbers is only .002 inches. Therefore, clogging of the snubber by corrosion products was likely the cause of the invalid isolation signal. In addition, all other safety-related instrument lines containing snubbers were flushed.

The potential for instrument line snubbers to become clogged and affect instrument response was communicated to licensees in NRC Information Notice 92-33, "Increased Instrument Response Time When Pressure Dampening Devices Are Installed." This Information Notice was reviewed by the licensee in 1993 and determined to be applicable at Cooper Nuclear Station since multiple safety-related pressure instruments, including instruments in the main steam system, reactor recirculation system, high pressure coolant injection (HPCI) system, and RCIC system have snubbers installed in them. This condition was never entered into the corrective action program. Rather, an action item was generated in the Nuclear Action Item Tracking System (NAITS 92-0430). As a result, a maintenance work request (MWR 93-1993) was generated to flush all the affected instrument lines and record as-found conditions. The as-found conditions were evaluated qualitatively rather than quantitatively, so the exact amount and size of the debris particles was unknown. However, of the 26 instruments that were flushed in 1993, 12 were reported to have had debris in them similar to that which was flushed from RCIC-DPIS-83 in 2002. The licensee concluded that there were no immediate operability concerns based on these as-found conditions but determined that a preventive maintenance procedure should be developed to periodically flush these instruments. Over the course of the next 4 years, this action item was granted multiple extensions to its due date and responsibility was transferred between multiple departments until it was finally closed in 1997 with no further actions taken.

Title 10 of CFR Part 50, Appendix B, Criterion XVI, states that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The failure to complete corrective actions identified through the review of Information Notice 92-33 led to the isolation of the RCIC system which was considered a condition adverse to quality. This is an apparent violation of 10 CFR Part 50, Appendix B, Criterion XVI (50-298/0208-01). This issue was entered into the licensee's corrective action program as Resolved Condition Report 2002-0895.

Potential for Common Mode Failure

The same instrument line snubbers found in the RCIC differential pressure switches were also installed in other safety-related instrument lines. Other safety functions potentially affected by snubber clogging included: main steam line isolation on high differential pressure or low steam line pressure, HPCI pump trip on low suction pressure, HPCI turbine lube oil cooler flow, and the flow biased scram setpoints. Therefore, this issue presented a potential common mode failure for several other systems. The instruments providing input into the above list of safety functions have varying instrument line configurations and operating conditions and may not be as susceptible to clogging by corrosion products as the RCIC instruments. However, the as-found conditions from the instrument flushes conducted in 1993 noted that corrosion products were flushed from several of these instruments.

Significance Determination Process

This finding had an actual impact on safety because it rendered the RCIC system inoperable. RCIC is considered a mitigation system; therefore, the finding was more than minor and the safety significance was evaluated using Manual Chapter (MC) 0609, "Significance Determination Process." MC 0609, Appendix A, requires a Phase 3 determination whenever multiple equipment may be affected by a common cause. Therefore, further analysis of the safety significance is being performed. Nevertheless, an analysis using the Phase 1 and 2 worksheets was performed to preliminarily characterize the safety significance. This analysis assumed that there were no common cause affects on other systems and that the condition of the clogged snubber developed sometime between the last successful surveillance test and May 14, 2002. The last surveillance was performed 34 days prior to the event; therefore, t/2 (or 17 days) was used as the exposure time. No credit was given for recovery of RCIC since recovery from and erroneous isolation signal would involve lifting leads in a panel located outside of the control room. There was no specific procedure to identify the leads to be lifted nor would there be sufficient personnel onsite at all times to complete this task in a timely manner. This resulted in greater than very low safety significance with the dominant sequence being high pressure injection during a loss of service water event.

2.04 Emergency DG Fuel Oil Transfer Pump Failure

a. Inspection Scope

The inspectors reviewed operator logs and interviewed station personnel to develop a sequence of events for the failure of the Division II emergency DG fuel oil transfer pump. Maintenance work orders generated since the last refueling outage, corrective action program notifications for the past 12 months, and industry operating experience potentially related to this failure were reviewed to assess the effectiveness of the licensee's maintenance and corrective action program in identifying and preventing failures in this system. In addition, the inspectors reviewed the licensee's apparent cause determination and immediate corrective actions for this failure.

b. Findings

Diesel Fuel Oil Transfer System General System Description

The diesel fuel oil system is a required subsystem for the DG that provides for the storage and transfer of clean fuel oil to be used by the DG. For each DG, the system has a storage tank, transfer pump, day tank, engine-driven fuel oil pump, electric-driven fuel oil booster pump, injection pumps, and fuel injection nozzles. The fuel oil transfer pumps move oil from the storage tanks to the day tanks. The diesel fuel oil transfer system has a normally open crosstie valve (DGDO 19), enabling either fuel oil transfer pump to supply either day tank. Level switches in the day tanks control the start and stop of each pump. A float admission valve on the day tank inlet prevents the overfilling of the day tanks. The licensing and design basis for the DG fuel oil system is to provide one diesel fuel for 7 days operation under postulated accident loads.

Description of the Event

On May 15, 2002, the licensee was performing a routine monthly surveillance test on the Division II emergency DG. Following completion of the test, operators attempted to start the Division II fuel oil transfer pump in order to completely fill the Division II day tank, but the pump failed to start. The thermal overloads in the supply breaker for the pump motor were found to be tripped. The thermal overloads were reset and the pump was started; however, the motor tripped again due to a thermal overload condition. The Division II emergency DG was declared inoperable but was considered available for use. Therefore, during a loss of offsite power, it would have started and loaded as designed.

Apparent Cause and Corrective Actions

The licensee concluded that motor winding degradation was the most likely cause for the Division II fuel oil transfer pump motor failure. This conclusion was supported by troubleshooting which identified a measured current imbalance, loss of motor efficiency, and the lack of a motor bearing degradation. This was a reasonable explanation and was supported by a sufficient level of detail.

The inspectors reviewed industry operating experience, preventive maintenance records, and vendor recommended maintenance for this pump and found no previous opportunities to identify degraded conditions on the pump motor. The only routine predictive maintenance item performed on the motor was vibration monitoring per the licensee's in-service testing (IST) program. A review of the IST results for the transfer pump did not reveal any adverse trends in performance. There were no previous corrective maintenance items or problem identification reports which would indicate electrical problems with the motor.

As an immediate corrective action, the licensee replaced the Division II fuel oil transfer pump motor with a new motor and restored the DG to operability within the allowed outage time required by the Technical Specification (TS). The licensee performed an extent of condition inspection on the Division I fuel oil transfer pump motor on May 19, 2002 (Notification 1014224), and found a slight phase imbalance. The licensee found that Phase B was approximately 2.2 amps, while Phases A and C were 2.5 to 2.6 amps. After running several minutes, all phases of the motor equalized at approximately 2.3 to 2.4 amps. This was lower than the thermal overload setting of 2.95 amps. As a preventive maintenance item, the licensee scheduled replacement of the Division I motor in mid-June. The inspectors concluded that these corrective actions were reasonable.

<u>Potential for Common Mode Failure</u>

The Divisions I & II diesel fuel oil transfer subsystems are cross-connected through a normally opened valve (DGDO-19) that allows for the filling of either day tank from either fuel oil transfer pump. This valve remained open with no administrative controls following the failure of the Division II fuel oil transfer pump. Therefore, if a low level in the Division I tank occurred, the Division I pump would have started and supplied both day tanks.

Prior to replacement of the Division II pump motor, the inspectors questioned control room operators as to whether one transfer pump was sufficient to supply two fully loaded DGs. The operators were unsure. Upon further questioning by the inspectors, the licensee acknowledged that one transfer pump would not be sufficient to supply two fully loaded emergency DGs. As a result, Valve DGDO-19 was caution tagged closed to assure that the operable diesel would receive enough fuel.

The inspectors assessed the consequences of a failure of the Division II diesel fuel oil transfer pump if both DGs were fully loaded. Due to differences in the piping configuration between the Division I and Division II fuel oil transfer systems, the inspectors concluded that with only one pump running the Division II day tank would fill preferentially before the Division I day tank, and the Division I day tank low level alarm would be received prior to the alarm on Division II. In this situation, Alarm Response Procedure 2.3 DG-1, "Panel DG-1-Annunciator DG-1," directed operators to secure the

Division I fuel oil pump and isolate the day tank. This would have exacerbated the situation since both DGs would have been operating with no fuel supply from the storage tanks. The alarm response instructions were similar for the Division II pump as well.

TS 5.4.1(a) requires that the licensee establish, implement, and maintain written procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A recommends procedures for abnormal, off-normal, or alarm conditions. The failure to establish an adequate alarm response procedure for a DG fuel oil day tank low level alarm is a violation of TS 5.4.1(a). This violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy (50-298/0208-02). The licensee issued a procedure change request for both procedures and entered this into their corrective action system as Notification 10163642.

Significance Determination Process

This finding had a credible impact on safety since it could have led operators to perform inappropriate actions which could have rendered both emergency DGs inoperable. The emergency DGs are considered to be mitigation systems; therefore, the finding was more than minor and the safety significance was evaluated using MC 0609. The following assumptions were used during this evaluation:

- The condition affecting the fuel oil transfer pump motor was assumed to have existed for half of the time since the last successful surveillance test, or 15 days, which exceeded the allowed outage time for the DG in TSs.

- Credit was given for recovery of a failed train since calculations showed that both DGs could operate fully loaded for approximately 24 hours with only one diesel fuel oil transfer pump in operation. Furthermore, Emergency Procedure 5.3EMPWR, “Emergency Power,” required operators to monitor diesel fuel consumption to assure that enough fuel is available during the 7-day period that a DG is required to operate. Therefore, credit was given for recovery of a failed train, since it was reasonable to assume that operators would have recognized the need to secure the Division II diesel and would have had sufficient time to do so during an event prior to challenging the operability of both DGs.

- The emergency power system was treated as a single train system versus a multi-train system, since it was assumed that operators would have recognized the failed pump and secured the Division II DG.

The Phase 1 evaluation determined the need for Phase 2 since the finding represented an actual loss of safety function of a single train for greater than its TS allowed outage time. The Phase 2 evaluation resulted in very low safety significance (Green).

03 Meetings

03.01 Exit Meeting Summary

On June 20, 2002, the results of the inspection were discussed with Mr. M. Coyle and other members of the licensee's staff. The licensee acknowledged the inspection results and informed the inspectors that no proprietary information was discussed during the inspection.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

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NRC

D. Loveless, Senior Reactor Analyst, Region IV

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-298/0208-01	AP	Failure to take corrective actions for instrument line snubber clogging (Section 2.03)

Opened and Closed During this Inspection

50-298/0208-02	NCV	Inadequate procedure for response to a DG fuel oil day tank low level alarm (Section 2.04)

Discussed

None.

DOCUMENTS REVIEWED

The following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Procedures

Procedure Number	Title	Revision
2.3 DG1	Panel DB-1 Annunciator DG-1, pages 16&17	1
5.3EMPWR	Emergency Procedure, Emergency Power	3C1
6.1DG.401	Diesel Generator Fuel Oil Transfer Pump IST Flow Test (DIV I)	8C1
6.1DG.401	Diesel Generator Fuel Oil Transfer Pump IST Flow Test (DIV I)	9
6.2DG.401	Diesel Generator Fuel Oil Transfer Pump IST Flow Test (DIV II)	9
6.2DG.401	Diesel Generator Fuel Oil Transfer Pump IST Flow Test (DIV II)	10

Drawings

Drawing Number	Title	Revision or Date
2011, sheet 1	Flow Diagrams, Turbine Oil Purification & Transfer Systems & Diesel Oil System	N24
2077	Flow Diagram - Diesel Generator Buildings Service Water, Starting Air, Fuel Oil, Sump System and Roof Drains	N48
X2825-202	Isometric - DO-1 Piping Inside DO-1 Tank Access Housing	N01
X2825-201	Isometric - DO-1 Piping Inside DO-1 Tank Access Housing	N01

X-2300-200	Isometric - DO-1 Diesel Oil	N02
28239	2"-DO-1 Discharge Yard Piping	4
3006 SH 5	Auxiliary One Line Diagram Starter Racks LZ and TZ; MCC's K, L, LX, RA, RX, S, T, TX, X	N67

Work Orders

MWR 4242711
MWR 93-1993

Calculations

Number	Title	Revision
NEDC 97-012	Emergency Diesel Generator Fuel Oil On-Site Storage Technical Specification Requirements	2
NEDC 02-046	Seismic Analysis of Gould Model 3171 Pump for the Diesel Generator Fuel Oil Transfer Pumps	0
NEDC91-184	Motor Overload HeaterSizing	3
NEDC 86-105B	CNS Critical AC Bus Coordination Survey	7C2
NEDC 00-111	CNS Auxiliary Power System AC Loads	2C1
NEDC 00-004	Minimum MCC Voltage for Essential Loads	1C1
NEDC 87-047K	MCC K Load Summary	3C2
NEDC 87-047S	MCC S Load Summary	2C2
NRDC 91-146	Core Uncovery Analysis	0

Condition Reports

Number	Title	Date
10163486	Inadvertent DG Trip In Simulator I.C.20	5/15/02
10163513	DGDO XFER P B Overloads Tripped	5/16/02
10164123	1-CTP-DG-1B Inboard Seal Leaks	5/17/02
10163642	DG Fuel Oil Transfer Pump Capacity	5/16/02
10164235	On modification lessons learned for DG Fuel Oil Motor Replacement	5/19/02
10164180	Nonconforming material conditionally released for work on DG fuel oil motor.	5/17/02
SCR 2002-0815	TGF Discharge DP High Alarm	5/14/02
10163182	RCIC Steam Line High Flow Isolation	5/14/02
10165870	No Long Term Action Implemented as Required by NRC Information Notice 92-33	5/23/02
10163548	Evaluation for RCIC Half group 5 Isolation	5/15/02
10163182	RCIC-MO-16 Auto-Isolated on High Steam Line Flow Channel A	5/14/02

<u>Other Documents</u>

Doc Number	Title	Revision or Date
CED 6008866	DGDO-P-DOTA/B Motor Replacement	5/19/01
	Maintenance history listing for DGDO-MOT-DFOTA	

PRA02016	Risk Management input into 2.0.6 Evaluation for Forced Outage 02-01	5/20/01
Work Number 90-2017	While rebuilding pump under MWR 90-1684, noticed motor bearings were rough (canceled)	4/23/90
S2002037	SORC Meeting S2002-037	5/17/02
PSA-ES059	Risk Significance of Conditions Identified During the May 14, 2002 Forced Outage 02-01	1
	Turbine High Pressure Fluid System Anomalies Result in Manual Scram	5/17/02