



Consumers
Power

**POWERING
MICHIGAN'S PROGRESS**

Big Rock Point Nuclear Plant, 10269 US-31 North, Charlevoix, MI 49720

Patrick M Donnelly
Plant Manager

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Nuclear Regulatory Commission
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DOCKET 50-155 - LICENSE DPR-6 - BIG ROCK POINT PLANT - REPLY TO A NOTICE OF VIOLATION - NRC INSPECTION REPORT 96008.

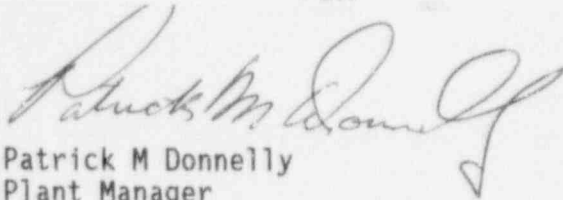
During a routine NRC inspection conducted from September 7, 1996, through October 8, 1996, a violation of NRC requirements was identified and forwarded by letter dated December 5, 1996.

The violation concerns a solenoid-pilot valve being declared operable, and the reactor depressurization system "B" train being returned to service following maintenance activities without performing sufficient post-maintenance and operability testing to detect a maintenance-induced ground on the solenoid-pilot valve.

Consumers Power Company agrees with the violation as stated.

Pursuant to the direction provided in the report, find attached a Reply to the Notice of Violation. The proposed corrective actions are intended to address the concerns identified by the violation, and to prevent recurrence of the violation.

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Patrick M Donnelly
Plant Manager

CC: Administrator, Region III, USNRC
NRC Resident Inspector - Big Rock Point

ATTACHMENT

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ATTACHMENT

CONSUMERS POWER COMPANY
BIG ROCK POINT PLANT
DOCKET 50-155

REPLY TO A NOTICE OF VIOLATION

INSPECTION REPORT 96008

SUBMITTED JANUARY 2, 1996

VIOLATION 96008

During an NRC inspection conducted from September 7, 1996, through October 18, 1996, an example of a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the example is listed below:

Technical Specification (TS) 6.8.1 requires that written procedures be established, implemented, and maintained for all structures, systems, components, and safety actions defined in the Big Rock Point Quality List. These procedures shall meet or exceed the requirements of ANSI N18.7, as endorsed by CPC-2A, "Quality Program Description for Operational Nuclear Power Plants." CPC-2A, Section 5.2 states, in part, that administrative procedures are used to control activities affecting the quality of safety related structures, systems, and components.

Administrative Procedure (AP) 3.2.1.1, "Performance of Maintenance," Revision 15 of May 6, 1996, Section 5.1, defines the following terms:

- 1) "DECLARED OPERABLE - A system or component is declared OPERABLE if it is capable of fulfilling its design function and is documented as such."
- 2) "POST MAINTENANCE TESTING - Testing performed following maintenance to verify that the equipment or system performs its intended function, that the original deficiency has been corrected, and that no new deficiency has been created."
- 3) "WORK REQUEST/WORK ORDER (WR/WO) - The WR/WO is the fundamental document for requesting and controlling maintenance services or maintenance work on plant equipment. The WR/WO serves as a permanent record for work involving power plant installed equipment."

WO-RDS-12612016, remove, inspect, and replace SV-4985; Job Plan Step 5, states, "Perform Post-Maintenance Testing."

Contrary to the above, on September 7, 1996, solenoid-pilot valve (SV-4985) was declared operable and reactor depressurization system train "B" was returned to service following maintenance activities without performing sufficient post-maintenance and operability testing to detect a maintenance induced ground on SV-4985.

This is a Severity Level IV violation (Supplement I).

Consumers Power Company's response is provided below.

1) Reason for the violation

Consumers Power Company agrees with the violation as stated.

On September 18, 1996, during surveillance test T30-59, Reactor Depressurization System (RDS) Channel Test at Power, an "Uninterruptible Power Supply (UPS) - B Abnormal" alarm annunciated. Maintenance troubleshooting of the alarm found RDS "B" train's solenoid pilot valve, SV-4985, coil terminal lug in contact with its conduit box. The terminal was touching against a raised portion of the box causing a circuit-to-ground connection. This ground caused the UPS Abnormal alarm. The grounded connection can be traced to September 7th and 8th maintenance activities.

The root cause analysis performed by the station concluded that the terminal lugs were oversized, and should have been replaced. The existing terminal lugs were slightly oversized for the terminal strip and had caused some minor

damage to the terminal strip inside the conduit. This action would also have allowed opposite lug tips to stack on one another and bend. The maintenance workers made the connections with the knowledge of the oversized lugs and with the electrical engineer recognizing that a permanent change was required. However, controls and verification of acceptability were performed with post-maintenance checks. The lug problem occurred when they were subsequently removed by a technician and reinstalled without an adequate post maintenance test.

In addition to the root cause, the following causes contributed to the violation:

INADEQUATE WORK CONTROL AND POST MAINTENANCE TESTING

After pilot valve installation the initial coil resistance read 158.1 ohms with a circuit resistance of 166.6 ohms. The 8.5 ohm difference exceeded the post maintenance test (PMT) acceptance criteria of two ohms or less. Maintenance stopped work and notified System Engineering.

A follow-up maintenance reading found coil resistance at 168.1 ohms with a circuit resistance of 168.3 ohms. The 0.2 ohms resistance difference met the PMT acceptance criteria of two ohms or less. Maintenance believed they misread the digital meter on the initial coil resistance reading.

Supervision directed workers to take additional resistance readings from the terminal strip connections inside the conduit to the conduit and read "O.L." (Over Load, infinite). Workers then took resistance readings from the terminal strip box connections to Terminal Box 241 and read "O.L." (Over Load, infinite). Both readings indicated the circuit was not grounded. Maintenance notified System Engineering of the follow-up coil resistance reading. The readings were not required by or documented on the work order.

Conclusion

The worker resistance-to-ground reading verified a proper connection; however, it was outside the steps of the procedure. The supervisor felt this resistance reading was non-intrusive and an acceptable method of self verification. Since this verification is not performed in MRDS-9, Remove and Replace Flanged Pilot Valve Assembly on RDS Target Rock Valve, the procedure PMT is considered inadequate.

INADEQUATE COMMUNICATION

Maintenance and System Engineer discussions raised an additional concern on higher than expected coil resistance values. The procedure notes the "coil resistance is approximately 157 ohms," there is no acceptance criteria listed. The System Engineer requested maintenance to stop until further information could be acquired.

Later that shift, an I&C technician and the System Engineer disconnected the coil leads at the conduit to verify resistance readings. (Work Request #112612). The I&C technician read coil resistance at 168.0 ohms disconnected and 168.1 ohms connected to the terminal strip. The WR comments said "leads, lugs looked good." After the resistance was verified, the System Engineer allowed maintenance to complete the installation.

Conclusion

Maintenance Supervision and Electrical Engineering did not communicate lug and terminal strip problem to the System Engineer and I&C Technician. The technician did not take connection to ground readings. Through discussion

with the I&C supervisor a visual inspection is the expected common practice. Worker performance could be questioned; however, discussions and a technique demonstration by the I&C Technician seemed to confirm supervisor expectations met. The technician's final resistance readings were on the backside of the lugs.

INADEQUATE PRE-OPERATIONAL TEST

The Operations department successfully valved in the pilot valve per ORPS-5 and it was verified through nondestructive testing. There was no visible leakage and VT-96-77 results were satisfactory.

On September 7, 1996 during the RDS Valve insulation work still on MRDS-9 a worker noticed the coil was missing a thread seal washer. Maintenance initiated Condition Report C-BRP-96-808 and the washer was replaced on Work Request #112613. The maintenance pre-operational test required an external system leak test. Once the paperwork was complete, Operations declared the valve operable.

On September 10, 1996 maintenance tried to stop a packing leak on RDS Isolation Valve CV-4183. The leak could not be diminished by tightening the packing gland. Management decided to shutdown the plant to replace the packing. On September 10 - 13 forced outage scope included re-packing of all four RDS Isolation Valves (CV-4180, 4181, 4182, and 4183) and replacement of the RDS 'A' train pilot valve (SV-4984).

On September 18, 1996 during monthly RDS T30-59 (RDS Channel Test at Power) testing a "UPS-B Abnormal" (ALP-1.15 #26) alarm annunciated. Maintenance troubleshooting of the alarm found RDS 'B' train's (SV-4985) coil terminal lug in contact with its conduit box.

Conclusions

The testing performed failed to verify the circuit as completely as the monthly RDS surveillance.

This grounded circuit did not make any RDS train inoperable.

2) The corrective steps that have been taken and the results achieved.

- a. The lug was straightened to remove the ground and clear the alarm.
- b. The work control processes were determined to be adequate. The violation concerns a compliance issue with those processes. Therefore, Big Rock Point management reviewed the specific non-conformances with the individuals involved to ensure their understanding of required processes and their future conformance.

3) The corrective steps that will be taken to avoid recurrence.

- a. The lug configuration for the system conduit boxes will be inspected; and repair/replacement will be performed as necessary.

THIS ACTION WILL BE COMPLETED DURING THE 1997 REFUELING OUTAGE

- b. Reactor Depressurization System procedures will be reviewed and revised as necessary with regard to post maintenance testing. Preoperational testing will also be revised to be consistent with system surveillance testing.

THIS ACTION WILL BE COMPLETE MAY 1, 1997

4) The date when the facility will be in full compliance.

The facility is currently in full compliance