

DUKE POWER COMPANY

POWER BUILDING

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USNRC REGION II  
ATLANTA, GEORGIA

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WILLIAM O. PARKER, JR.  
VICE PRESIDENT  
STEAM PRODUCTION

November 20, 1981

TELEPHONE AREA 704  
373-4083

Mr. J. P. O'Reilly, Director  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Re: McGuire Nuclear Station Unit 1  
Docket No. 50-369



Dear Mr. O'Reilly:

Please find attached Reportable Occurrence Report RO-369/81-169. This report concerns T.S.3.3.1, "As a Minimum, the Reactor Trip System Instrumentation Channels and Interlocks of Table 3.3-1 Shall be Operable . . .". This incident was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

William O. Parker, Jr.

PBN/smh

Attachment

cc: Director  
Office of Management and Program Analysis  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Records Center  
Institute of Nuclear Power Operations  
1820 Water Place  
Atlanta, Georgia 30339

Ms. M. J. Graham  
Resident Inspector-NRC  
McGuire Nuclear Station

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McGUIRE NUCLEAR STATION

REPORTABLE OCCURRENCE

REPORT NUMBER: 81-169

REPORT DATE: November 20, 1981

OCCURRENCE DATE: October 21, 1981

FACILITY: McGuire Unit 1; Cornelius, N.C.

IDENTIFICATION OF OCCURRENCE: Channel 3 of the Reactor Protective System instrumentation monitoring loss of flow in Reactor Coolant loop C was declared inoperable on October 21, 1981.

CONDITION PRIOR TO OCCURRENCE: Mode 1; conducting low power (< 30%) operations tests.

DESCRIPTION OF OCCURRENCE: The Reactor Coolant Flow and Protective System monitors flow in the four reactor coolant loops by three differential pressure measurements in each loop. The channel 3 loop C flow indication appeared to be out of calibration when it did not agree with the other loop C flow channels within specified tolerance limits. Subsequently, the channel was placed in the tripped condition in accordance with the applicable Technical Specification Action Statement.

During the Investigation of the problem a leak was discovered at a loose fitting on the "hi leg" instrument root line common to the three loop C flow transmitters. Repair of the leak required isolation of all three loop C flow transmitters, which was contrary to the mode 1 conditions of operation of Technical Specification 3.3.1. It was determined (based on provisions in Technical Specification 3.0.3) that the loop flow transmitters could be isolated for a period up to one hour before initiation of reactor shutdown procedures was necessary.

At 1752 on October 21, the loop C flow transmitters were isolated and repair of the instrument root line was started. At 1820 the job was completed and the flow instrumentation was returned to service. All three flow monitors returned to their previous indications with channel 3 remaining out of tolerance.

APPARENT CAUSE OF OCCURRENCE: When the loose fitting on the instrument root line was discovered, it was thought to be the most probable cause for the variance of the channel 3 flow transmitter. It was later determined that the flow transmitter itself was malfunctioning (attempts to calibrate it could not bring it within limits).

ANALYSIS OF OCCURRENCE: Although the instance of the root line leak was eventually determined not to be the cause of the erroneous flow indication, its occurrence and repair were the more significant aspects of the incident. The occurrence of the faulty flow transmitter has not been a recurring problem and is considered an isolated instance of component failure.

SAFETY ANALYSIS: The isolation of the loop C flow transmitters left inoperable all three of the redundant flow measuring devices. However, reliable verification of loop flow was continuously available through diverse flow monitoring instrumentation, such as loop temperature indicators and the reactor coolant pump monitoring instruments.

Isolation of one loop's flow transmitters functions to trip that loop's low flow coincidence bistable; thus, a low flow condition sensed in any one of the remaining three loops will cause a protective trip. The reactor protective system, therefore, was in a more conservative mode of operation during the flow transmitters' isolation.

Thus, considering the conservative condition of the protection system and the availability of flow verifying instrumentation, safe plant operation and the health and safety of the public were unaffected by this incident.

CORRECTIVE ACTION: After the repair of the leaking instrument root line it was necessary to replace the loop C, channel 3 flow transmitter. The Veritrak, model 59 DP 4, transmitter was replaced and calibrated in accordance with the procedure, "Reactor Coolant System Flow Calibration". Proper operation was verified and the channel was declared operable on October 22, 1981.