DUKE POWER COMPANY
POWER BUILDING
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WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

TELEPHONE: AREA 704
373-4083

October 22, 1981

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-369/81-160. This report concerns T. S. 3.5.1.2, "Each upper head injection accumulator system shall be operable with:. . . c. The nitrogen bearing accumulator pressurized to between 1206 and 1264 psig." 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.

William O. Parker, Jr.

PBN:ls
Attachment

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

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

Records Center
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McGUIRE NUCLEAR STATION
REPORTABLE OCCURRENCE

REPORT NUMBER: 81-160

REPORT DATE: October 22, 1981

OCCURRENCE DATE: September 22, 1981

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

IDENTIFICATION OF OCCURRENCE: The nitrogen over pressure on the upper head injection (UHI) accumulator dropped below 1206 psig.

CONDITIONS PRIOR TO OCCURRENCE: Mode 1, 31% power

DESCRIPTION OF OCCURRENCE: On September 22, 1981, the "UHI Surge Tank Hi/Lo Pressure" alarm was received in the control room. When an unsuccessful attempt to pressurize the UHI nitrogen accumulator using the nitrogen bulk storage cylinders was made, it was discovered that the nitrogen cylinders' pressures were between 1200 and 1250 psig. Repressurization of the nitrogen cylinders was begun using the liquid nitrogen storage unit, and power was reduced to comply with the action statement in Technical Specification 3.5.1.2 since the UHI nitrogen accumulator had not been repressurized. A Safety Injection pump was operated to add water to the water accumulator. After the nitrogen header had been repressurized to between 1300 and 1350 psig and the UHI low pressure alarm had cleared, the turbine-generator load was increased back to about 260 MWe. This incident was reportable pursuant to the above Technical Specification.

APPARENT CAUSE OF OCCURRENCE: A design inadequacy resulted in the nitrogen low header pressure alarm in the control room being energized continuously. Thus, the operators were not aware that the header pressure was low and that they would not be able to repressurize the UHI nitrogen accumulator. A drain valve on the UHI nitrogen accumulator was found to be "weeping". Packing leakoffs on the UHI hydraulic block valves also contribute to water and eventually pressure decreases in the UHI system.

ANALYSIS OF OCCURRENCE: A nitrogen heater is installed on the 1550 psig header because of the high flowrate required for pressurizing the UHI nitrogen accumulator. A vendor supplied relief valve is attached to the nitrogen heater and is set for 1450 psig. A pressure switch on the nitrogen header feeds a "N_2 System Distribution Header Low Pressure" alarm in the control room. The pressure switch is set to alarm at 1450 psig, which is the same setpoint as the relief valve on the nitrogen heater. The switch also has a reset band of normally 200 psig (alarm clears at 1650 psig). To prevent lifting the relief valve which discharges at the heater in the auxiliary building, the header has been maintained at 1300-1350 psig. Thus, the nitrogen low header pressure alarm light has been energized continuously.

Nitrogen had been used in various plant systems during the previous twenty-four hours and the nitrogen cylinders' pressures had decreased to 1200-1250 psig. Thus, when the UHI low surge tank pressure alarm was received, the operators were unable to immediately repressurize the UHI nitrogen accumulator and clear the alarm. After the cylinders were repressurized from the liquid nitrogen storage unit the UHI low pressure alarm was cleared by adding nitrogen to the accumulator. Water was also added to the UHI water accumulator to increase the surge tank level. A 3/4 inch Kerotest drain valve on the nitrogen accumulator was found to be "weeping". The valve handwheel was tightened down and joint sealing compound applied to the pipe cap. Packing leakoffs on the four UHI hydraulic block valves also contribute to water and eventually pressure decreases in the UHI system.

SAFETY ANALYSIS: The UHI system is passive and is only used if a large reactor coolant system break occurs. Even though the UHI pressure decreased to the Technical Specification limit of 1206 psig, the system would have functioned properly if it had been needed. Thus, safe plant operation and the health and safety of the public were not affected by this incident.

CORRECTIVE ACTION: Plant power was reduced to comply with the Technical Specification action statement until the UHI low pressure alarm cleared. The alarm setpoint on the pressure switch has been reduced to 1250 psig (minimum required for repressurizing the UHI nitrogen accumulator), and the reset band to about 130 psig. The resulting reset (low header pressure alarm clears) pressure of 1380-1400 psig is still considered to be too close to the 1450 psig relief valve setpoint for personnel safety. Duke Power Company is trying to obtain a suitable pressure switch which has an adjustable reset band of approximately 50 psig. This would allow the low header pressure alarm to clear with 1300-1350 psig header pressure. The "weeping" drain valve was tightened and its pipe cap sealed with joint compound. Two of the nitrogen cylinders have been White Tagged with the stubs held by the Shift Supervisor and will be used for emergency purposes.