



May 1, 1975

Mr. Benard C. Rusche, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Rusche:

ABNORMAL OCCURRENCE NO. 251-75-6
MAY 1, 1975
OCCURRENCE DATE: APRIL 22, 1975
TURKEY POINT UNIT NO. 4

BREACH OF CONTAINMENT INTEGRITY
DURING REFUELING OPERATIONS

A. CONDITIONS PRIOR TO OCCURRENCE

The reactor was in refueling shutdown condition, reactor coolant temperature was approximately 105 F and the reactor vessel head was removed. The refueling cavity and the refueling canal were filled with borated water with a boron concentration of 2,180 ppm. All requirements for refueling operations were satisfied and movement of a fuel assembly from the spent fuel pit to the reactor core was in progress.

B. DESCRIPTION OF OCCURRENCE

Safety valve number RV-4-1403, located outside containment, was disassembled by maintenance personnel on April 22, 1975. The safety valve seating surface was being lapped with a lapping block. About the same time, maintenance personnel inside containment were removing steam generator No. 4A secondary side manway. When the lapping block was removed from the safety valve seat, about 11:45 A.M., April 22, 1975, a mixture of air and water vapor was observed escaping from the safety valve. Maintenance personnel notified the operators of this condition.

Immediate operator action was to verify the main steam line valve alignment to determine the source of the air and water mixture. The valve line-up was verified to be correct so it was concluded that the air and water mixture had been trapped in the horizontal section of the main steam line after the main steam valves were closed. About the same time, operating personnel inside containment found that steam generator No. 4A secondary side manway had been removed. As soon as it was recognized that containment integrity had been breached by a flow path through the secondary system, the nuclear plant supervisor ordered refueling operations stopped at 12:30 P.M., April 22, 1975.

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Steam generator No. 4A secondary side manway was reinstalled and containment integrity reestablished before refueling operations resumed.

C. DESIGNATION OF APPARENT CAUSE OF OCCURRENCE

After review, analysis, and evaluation, we concluded that procedure deficiencies were the cause of this occurrence. Procedures involved did not require that containment integrity through the secondary must be established and maintained during refueling operations.

D. ANALYSIS OF OCCURRENCE

During this occurrence, fuel handling operations were conducted under water with special fuel handling equipment. Continuous monitoring of reactor core conditions, containment environment gaseous and particulate samples, and background radiation levels would have detected off-normal conditions.

Fuel handling incidents are analyzed and presented in the Turkey Point Unit Nos. 3 and 4 Final Safety Analysis Report (FSAR) using conservative assumptions. The inventory of noble gas radionuclides and the predominant halogen radionuclides in a fuel assembly were evaluated and presented in the FSAR assuming 50 hours for radioactive decay. At the time of this occurrence, the reactor had been subcritical about 520 hours. If a fuel handling incident had occurred, the inventory of noble gas radionuclides available for release from a fuel assembly would have been reduced by a factor of nine by radioactive decay. Similarly, the halogen radionuclides would have been reduced by a factor of seven. Therefore, the calculated exposures presented in the FSAR would be reduced by the same ratios.

From the review, analyses, and evaluation of conditions during this occurrence, we concluded that neither reactor safety nor the health and safety of the public were jeopardized by this occurrence.

E. CORRECTIVE ACTION

Administrative and maintenance procedures will be revised to specify that secondary system integrity must be established and maintained when maintenance work on secondary systems is performed during refueling operations.

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F. FAILURE DATA

This is the first abnormal occurrence report from Turkey Point Unit Nos. 3 and 4 involving breach of containment integrity during refueling operations.

Very truly yours,

JR Benzen
for A. D. Schmidt
Vice President
Power Resources

VTC/df1

cc: Mr. Norman C. Moseley
Jack R. Newman, Esquire