



July 13, 1973

Mr. John F. O'Leary
 Directorate of Reactor Licensing
 U. S. Atomic Energy Commission
 Washington, D. C.



TURKEY POINT UNIT NO. 3
 DOCKET No. 50 - 250
 ABNORMAL OCCURRENCE NO. 3-73-5
FAILURE TO AUTO TRANSFER AUXILIARY POWER
 TO STARTUP TRANSFORMER

Dear Mr. O'Leary:

I. INTRODUCTION

This report is submitted in accordance with Technical Specification 6.6.2a for Turkey Point Unit No. 3, Operating License No. DPR-31. This Abnormal Occurrence Report No. 3-73-5, describes an abnormal occurrence which was identified on July 4, 1973. The Directorate of Regulatory Operations, Region II, was notified on July 4, 1973.

II. DESCRIPTION OF OCCURRENCE

On July 4, 1973, Turkey Point Unit No. 3, was operating at a power level of 600 mwe while calibration of steam line pressure transmitters was being performed in accordance with approved test and calibration procedures. About 4:12 a.m., Unit No. 3 reactor and turbine-generator tripped as a result of Safety Injection System actuation caused by coincident trips of two out of three channels No. 3C steam line high differential pressure. One steam line differential pressure channel was in the trip position for calibration of the associated steam pressure transmitter. One of the other steam line differential pressure channels in service received a transient or spurious signal to trip and this provided the necessary coincident two out of three channels to trip. Following the trip, all of

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the Engineered Safeguards Systems were verified to be operating normally. Automatic transfer to auxiliary power supply from No. 3 auxiliary transformer to No. 3 startup transformer did not occur. Nuclear Control Operators performed the immediate operator actions specified in approved emergency operating procedures for a controlled shutdown of the unit and with a complete loss of off-site power thus placing the reactor in a safe condition. Observation of significant nuclear steam supply system parameters indicated that symptoms of an incident which would have caused a Safety Injection System actuation were not present. Accordingly, subsequent operator action was directed toward shutdown of all Engineered Safeguard System equipment not required for a controlled shutdown of the reactor.

About 4:25 a.m., Nos. 3A and 3B startup transformer breakers were manually closed to supply Unit Nos. 3A and 3B, 4160 volt buses. Unit No. 3 was then placed in hot shutdown condition pending review, analysis and evaluation of the cause of the reactor trip and failure to automatically transfer auxiliary power supply to the startup transformer.

III. ANALYSIS OF THE OCCURRENCE

An investigation by plant personnel to determine the cause of the failure to automatically transfer auxiliary power supply to the startup transformer, revealed that the circuitry to the relay that closes Nos. 3A and 3B startup transformer breaker had not been completed.

The original circuit design was changed during construction of Unit No. 3 to provide for automatic transfer of auxiliary power supply to the startup transformer when the Safety Injection System was actuated.

IV. CORRECTIVE ACTION TO PREVENT RECURRENCE

The immediate corrective action was to install the connecting wire to complete the automatic circuitry that closes Nos. 3A and 3B startup transformer breakers. The completed circuit was then tested to demonstrate continuity.

The circuit revision that was involved in this occurrence was made prior to licensing and implementation of the Quality Assurance Program for Operating Nuclear Power Plants. The presently implemented procedures would prevent a repetition of this type of occurrence. This program provides a means for documenting proposed plant changes and modifications from initial proposal to completed installation including the utilization of approved procedures, in-progress inspections and a final functional verification by test. This program is implemented by Administrative Procedure 0190.15.

V. ANALYSIS AND EVALUATION OF SAFETY IMPLICATIONS OF THE OCCURRENCE

Unit Nos. 3 and 4 are designed to accept a reactor trip while operating at power levels up to 100% of full power without adversely affecting the safe operation of the reactor. Further, Unit Nos. 3 and 4 are designed to accept a complete loss of off-site power supply and a turbine trip at full power operation without adversely affecting the safe operation of the reactor. These analyses are presented in FSAR, Section 14.1.10.

The reactor was protected by prompt insertion of the control rods to reduce reactor power. Trip of reactor coolant pumps did not adversely affect the safe operation of reactor due to the continued circulation of reactor coolant as a result of the inertia of the coolant and the reactor coolant pumps. Natural circulation maintained an adequate coolant flow through the core. Prompt closure of the turbine main steam stop valves and control valves, prevented an undesirable cooldown of the reactor coolant. Automatic start and continued operation of the steam driven auxiliary feedwater pumps provided assurance that the steam generators were available as a heat sink if required.

Comparison of the actual conditions during the incident described above, with the analysis presented in the Turkey Point Unit Nos. 3 and 4 Final Safety Analysis Report shows that the condition assumed for Loss of External Load Incident and the Complete Loss of Off-Site Power Incident are significantly more conservative than the conditions described above. Based on this comparison, the failure of the automatic transfer of auxiliary power supply to the startup transformer did not adversely affect the safe operation of Unit No. 3.

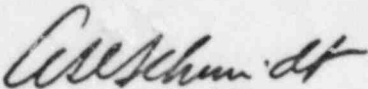
VI. CONCLUSIONS

- a. The failure of the automatic transfer of auxiliary power supply to the startup transformer was the result of a connecting wire in the automatic circuitry between the Safety Injection System actuation relay and the relay that closes the Nos. 3A and 3B startup transformer breakers not being installed.

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- b. The circuit change involved in this occurrence was made prior to licensing the unit. Strict adherence to the program established for processing plant changes and modifications implemented by Administrative Procedure 0190.15 will prevent recurrence of this and similar incidents.
- c. The Safety Injection System nozzles and piping were not subjected to thermal stresses since no flow occurred in this system.
- d. Operation of the Engineered Safeguards System equipment to provide emergency power to Unit No. 3 ensured that the unit was shutdown in a controlled manner and the reactor was placed in a safe condition during the loss of off-site power.
- e. This failure to automatically transfer auxiliary power supply to No. 3 startup transformer did not adversely affect the safe operation of Unit No. 3.
- f. This abnormal occurrence did not present any danger to the public health or safety.

Very truly yours,



A. D. Schmidt
Director of Power Resources

ADS/VTC/GEL/WNP/paz

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