



Commonwealth Edison

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June 29, 1982

Mr. James G. Keppler, Regional Administrator
Directorate of Inspection and
Enforcement - Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Byron Station Unit 1
Synchroscope Wiring Error
50.55(e) Deficiency 82-02
NRC Docket No. 50-454

Dear Mr. Keppler:

On June 1, 1982, Commonwealth Edison Company notified Mr. D. Hayes of your office that a condition associated with the 4.16 KV bus system at Byron appeared to involve deficiencies reportable pursuant to 10 CFR 50.55(e). This letter fulfills the 30 day reporting requirement of 50.55(e) for that notification.

Description of the Deficiency

On May 28, 1982, during the performance of the diesel generator 1A (DGLA) preoperational test, DGLA was running and supplying power to 4.16 KV bus 141 which was isolated from the remaining 4.16 KV system. The preoperational test procedure required DGLA to be loaded to approximately 5500 KW. In order to achieve the additional electrical load, bus 141 was electrically being switched to interconnect bus 241 thru circuit breaker 1414. During the operation of synchronizing and closing of circuit breaker 1414, DGLA and its interconnecting circuit breaker 1413 tripped and the diesel generator shutdown.

Subsequent investigation revealed that DGLA was closed in sixty degrees out of phase due to the condition that 4.16 KV bus tie 141-241 reserve potential transformer in circuit breaker 1414 was connected to the wrong phase.

The primary connections of the potential transformer were found to be connected to C/B phases instead of A/B phases as designed, which resulted in a false indication on the synchroscope.

Analysis of the Safety Implications

The improper primary connection on 4.16 KV bus tie 141-241 reserve potential transformer failed to indicate the proper voltage phasing on the synchroscope at the main control board for the 4.16

KV bus tie 141-241 circuit breaker. A vector analysis of the improper voltages at the synchroscope determined the voltages across 4.16 KV bus tie 141-241 are 60° out of phase when the synchroscope meter indicates that they are in phase. This improper connection could have caused considerable damage to Diesel Generator 1A as a result of switching into an out of phase condition. Protective relaying functioned as designed to reopen the breaker.

If this wiring error had not been discovered in testing, it probably would not have compromised plant safety. This bus tie is not used routinely and is not relied upon for operation of engineered safeguards equipment. If the bus tie were needed in an emergency, it would be because either bus 141 or 241 was dead. The synchroscope would not be used in closing the bus tie breaker in such a situation.

Corrective Action Taken

The improper primary connection on 4.16 KV bus tie 141-241 reserve potential transformer were changed from C/B phase to A/B phase as required.

Diesel generator 1A was inspected for possible damage to the stator and rotor winding. In addition, electrical tests were made on these windings. All tests and inspections indicated no damage to diesel generator 1A. The inspection and test results are available for review (reference: Nonconformance Report F-712). Upon completion of corrective action, the preoperational test on DG1A was resumed.

Please address any questions that you may have regarding this matter to my office.

Very truly yours,



T. R. Tramm
Nuclear Licensing Administrator

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cc: Director of Inspection
and Enforcement

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