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A012

February 26, 1980

Mr. Boyce H. Grier, Director
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: IE Bulletin No. 79-27, Loss of Non-Class-1-E Instrumentation and Control Power System Bus during Operation
R. E. Ginna Nuclear Power Plant, Unit #1
Docket No. 50-244

Dear Mr. Grier:

A review has been conducted at Ginna Station to identify the 120V AC buses supplying power to safety and non-safety related instrumentation and control systems, and to determine the effects, if any, on the ability to obtain a cold shutdown condition. The buses that were identified as a result of this review are the 1A, 1B, 1C and 1D instrument buses. Detailed description of these buses is as follows:

1A Instrument Bus:

Instrument Bus 1A is normally supplied from Safeguard Bus 14 MCC-1C via battery charger 1A, main D.C. distribution panel 1A, inverter 1A and static switch 1A. Instrument Bus 1A backup supply is supplied from Safeguard Bus 14 MCC-1C via a regulating transformer and static switch 1A. When the normal supply fails, the static switch automatically switches to the backup supply. When the normal supply returns, the static switch is manually switched from the backup supply to the normal supply. When inverter or static switch maintenance is required, Instrument Bus 1A can manually be switched to the maintenance supply, supplied from Bus 13 MCC-1A via a regulating transformer, by operating a mechanically interlocked breaker in the Instrument Bus 1A distribution panel located on the south wall of the main control room. The auto-static transfer switch is initiated by any of the following: inverter failure, overcurrent beyond the static switch, inverter output undervoltage, manually, or a failure of the static switch.

The computer will alarm on the operation of the auto-static transfer switch, fan failure, loss of regulated output, and manual transfer to alternate supply. The computer alarm directs the operator to check the inverter. There are two AC voltmeters and a frequency meter located on the 1A Instrument Bus distribution panel that indicates the 1A inverter output voltage and frequency and the 1A Instrument Bus output voltage. A main control board alarm will annunciate if the 1A Instrument Bus voltage drops below 100 vac.

1B Instrument Bus:

Instrument Bus 1B is normally supplied from Safeguard Bus 14 MCC-1C via a regulating transformer. The backup supply for Instrument Bus 1B is supplied from Bus 13 MCC-1A via a regulating transformer.

Operator action is required to switch to the backup supply by operating a mechanically interlocked breaker in Instrument Bus 1B distribution panel located on the south wall of the main control room. There is an AC voltmeter located on the 1B Instrument Bus distribution panel which indicates the 1B Bus voltage. A main control board alarm will annunciate if the 1B Instrument Bus voltage drops below 100 vac.

1C Instrument Bus:

Instrument Bus 1C is normally supplied from Bus 16 MCC-1D via battery charger 1B, main D.C. distribution panel 1B, inverter 1B, and static switch 1B. Instrument Bus 1C backup supply is supplied from Safeguard Bus 16 MCC-1D via a regulating transformer and static switch 1B. When the normal supply fails, the static switch automatically switches to the backup supply. When the normal supply returns, the static switch is manually switched from the backup supply to the normal supply. When inverter or static switch maintenance is required, Instrument Bus 1C can manually be switched to the maintenance supply, supplied from Bus 13 MCC-1A via a regulating transformer, by operating a mechanically interlocked breaker in the Instrument Bus 1C distribution panel located on the south wall of the main control room. The auto-static transfer switch is initiated by any of the following: inverter failure, overcurrent beyond the static switch, inverter output undervoltage, manually, or a failure of the static switch.

The computer will alarm on the operation of the auto-static transfer switch, fan failure, loss of regulated output, and manual transfer to alternate supply. The computer alarm directs the operator to check the inverter. There are two AC voltmeters and a frequency meter located on the 1C Instrument Bus distribution panel that indicates the 1B inverter output voltage and frequency and the 1C Instrument Bus output voltage. A main control board alarm will annunciate if the 1C Instrument Bus voltage drops below 100 vac.

1D Instrument Bus:

Instrument Bus 1D is normally supplied from Safeguard Bus 15 MCC-1B via a regulating transformer. The backup supply for Instrument Bus 1D is supplied from Bus 13 MCC-1A via a regulating transformer. Operator action is required to switch to the backup supply by operating a mechanically interlocked breaker in Instrument Bus 1D distribution panel located on the south wall of the main control room. There is an AC voltmeter located on the 1D Instrument Bus distribution panel which indicates the 1D Bus voltage. A main control board alarm will annunciate if the 1D Instrument Bus voltage drops below 100 vac.

The instrument and control system loads connected to the above buses are identified in the attached lists for each bus. The effects of the loss of power to these loads were evaluated. In no case did the postulated loss of power from one of the instrument buses leave the control room operator without adequate indication and control of the plant parameters, or prevent the ability of achieving a cold shutdown condition using existing approved procedures.

As a result of this review and evaluation, no potential problems have been identified and therefore no design modifications are planned.

The present existing procedures regarding the electrical supplies to the safety and non-safety related instrument and control systems have been reviewed and have been found to provide the control room operators with the necessary direction to cope with loss of power to any instrument bus.

IE Circular No. 79-02, failure of 120 volt vital AC power supplies, was again reviewed. Based on this re-review and past operating experience, no design modifications or administrative control changes are planned.

Very truly yours,

L. D. White, Jr.

L. D. White, Jr.

Attachments

xc: U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Division of Reactor Operations Inspection
Washington, D. C. 20555

INSTRUMENT BUS 1A

1. Main control board (right section)
2. Instrument rack R-1 (Red)
3. Instrument rack R-2 (Red)
4. Steam dump rack (SD)
5. Pressurizer level and pressure rack (PLP)
6. Feedwater control loop B (FW)
7. Chemical and volume control rack (CVCS-2)
8. Nuclear Instrumentation System Rack #1
9. Rod speed control rack (RSC)
10. Relay rack RR-1 (Red)
11. Relay rack RR-2 (Red)
12. Fire control panel and smoke detector
13. Main control board (center section) heater drain pump and auxiliary feedwater pump transmitters and square root extractors
14. First stage pressure, reheat pressure transmitters
15. Secondary instruments supply (instrument air pressure, screen house level, etc.)
16. Evacuation flashers
17. RMS Rack #1 (outside temperature indication)
18. Undervoltage alarm/Voltmeter on top of panel)
19. Main steam header annunciator panel
20. Spare
21. Twinco regulator MQ-400A
22. Twinco regulator MQ-400E
23. Spare
24. Power to SAFWP-C

Main - Normal - Inverter 1A - MCC-1C
Maintenance - Emergency Instrument Transformer MCC-1A

Twinco Unit MQ400-A

1. Instrument Rack R-2 (Red)
2. Instrument Rack R-1 (Red)
3. Steam Dump Rack (SD)
4. Rod Speed Control Rack (RSC)
5. Feedwater Control Loop B (FW)
6. Pressurizer Pressure and Level Rack (PLP)
7. Chemical and Volume Control Rack (CVCS-2)
8. Reactor Coolant System Rack (RCS-2)
9. Spare
10. Spare
11. Spare

Twinco Unit MQ400-E

1. Radiation Monitoring System Rack #1
2. Nuclear Instrumentation System Rack #1
3. E SAT Foxboro Rack 1
4. Spare
5. Spare
6. Spare
7. Spare
8. Spare
9. Spare
10. Spare
11. Spare

INSTRUMENT BUS 1B

1. Main Control Board (Right Section)
2. Instrument Rack W-1 (White)
3. Instrument Rack W-2 (White)
4. Rod insertion limit rack (RIL)
5. Reactor Coolant System Rack (RCS-2)
6. Nuclear Instrumentation System Rack #2
7. Reference Junction Box incore thermocouples
8. Safeguard Rack (S1A1)
9. Reactor Protection Rack (RLTR1)
10. Miscellaneous Rack (M1)
11. Relay rack (RW-1)
12. Relay rack (RW-2)
13. L1T 1090 and L1T-1093
14. Instrument Shop 5% Regulated Power
15. Spare
16. Spare
17. Spare
18. Under voltage alarm/voltmeter on top of panel
19. Spare
20. Spare
21. Twinco Regulator MQ-400-B
22. Twinco Regulator MQ-400-F
23. Spare
24. Spare

Main - Normal - Instrument Transformer 1A - MCC-1C
Maintenance - Emergency Instrument Transformer MCC-1A

Twinco Unit MQ400-B

1. Instrument Rack W-2 (White)
2. Instrument Rack W-1 (White)
3. Reactor Coolant System Rack (RCS-2)
4. Rod Insertion Limit Rack (R1L)
5. Spare
6. Spare
7. Spare
8. Spare
9. Spare
10. Spare
11. Spare

Twinco Unit MQ400-F

1. Radiation Monitoring System Rack #2
2. Nuclear Instrumentation System Rack #2
3. Meter Shop 2% Power
4. Spare
5. Spare
6. Spare
7. Spare
8. Spare
9. Spare
10. Spare
11. Spare

INSTRUMENT BUS 1C

1. Main control board (right section)
2. Instrument rack B-1 (Blue)
3. Instrument rack B-2 (Blue)
4. Pressurizer pressure and level rack (PLP)
5. Feedwater control loop A (FW)
6. Rod position indication (RP1)
7. Nuclear Instrumentation System Rack #3
8. Auxiliary coolant rack (SA)
9. Recirculation fans vibration switch cabinet
10. Smoke detector (emergency)
11. Relay rack RB-1 (Blue)
12. Relay rack RB-2 (Blue)
13. Condensate storage tank level transmitter
14. Spare
15. MCB Controllers and Recorders
16. Spare
17. Spare
18. Undervoltage alarm/Voltmeter on top of panel
19. Main steam heater annunciator panel
20. Power to SAFWP-D
21. Twinco Regulator MQ-400-C
22. Twinco Regulator MQ-400-G
23. Spare
24. Twinco Regulator MQ-400-H

Main - Normal - Inverter 1B - MCC-1D
Maintenance - Emergency Instrument Transformer MCC-1A

Twinco Unit MO400-C

1. Instrument Rack B-2 (Blue)
2. Instrument Rack B-1 (Blue)
3. Feedwater Control Loop A (FW)
4. Pressurizer Pressure & Level Rack (PLP)
5. Auxiliary Coolant Rack (SA)
6. Spare
7. Spare
8. Nuclear Instrumentation System Rack #3
9. E SAT Foxboro Rack - 2
10. Spare
11. Spare

INSTRUMENT BUS 1D

1. Main Control Board (Right Section)
2. Instrument Rack Y-1 (Yellow)
3. Instrument Rack Y-2 (Yellow)
4. Reactor Coolant System (RCS-1)
5. Chemical and volume control rack (CVCS-1)
6. Nuclear Instrumentation System Rack #4
7. Reference junction box incore thermocouples
8. Part-length rod control
9. Safeguard rack (S1 B1)
10. Reactor protection rack (RLTL-2)
11. Miscellaneous rack (M-2)
12. Relay Rack RY-1 (Yellow)
13. Relay Rack RY-2 (Yellow)
14. Spare
15. Turbine gauge panel
16. Feedwater transmitter panel
17. Turbine "E.H." panel
18. Undervoltage alarm/Voltmeter on top of panel
19. Spare
20. L1T 1091 and L1T 1092
21. Twinco regulator MQ-400-D
22. Spare
23. Spare
24. Spare

Main - Normal - Instrument Transformer 1B MCC-1B
Maintenance - Emergency Instrument Transformer - MCC-1A

Twinco Unit MQ400-D

1. Instrument Rack Y2 (Yellow)
2. Instrument Rack Y1 (Yellow)
3. Reactor Coolant System Rack (RCS-1)
4. Chemical & Volume Control Rack (CVCS-1)
5. Radiation Monitoring System Rack #3
6. Nuclear Instrumentation System Rack #4
7. Spare
8. Spare
9. Spare
10. Spare
11. Spare

Docket No. 50-244

FEB 25 1980

Mr. Leon D. White, Jr.
Vice President
Electric and Steam Production
Rochester Gas and Electric Corporation
89 East Avenue
Rochester, New York 14649

Dear Mr. White:

On December 28, 1979 the NRC Office of Inspection and Enforcement issued Information Notice No. 79-37 that presented information available to the staff related to the discovery of cracks in the keyway and bore sections of Westinghouse 1800 rpm low pressure turbines. A copy of this Information Notice with errata sheet is enclosed.

Westinghouse notified utility users of this potential problem on October 30, 1979 and was requested by the staff to present a similar briefing in Bethesda, Maryland on December 17, 1979. You were contacted on December 14, 1979 and invited to send representatives to the staff briefing and also were requested to advise the staff of the actions being taken in regard to this potential problem at your operating nuclear power plant. Westinghouse was later requested to meet again with the staff and licensee-users on January 8, 1980 to supplement the information provided in the earlier meeting and in interim correspondence with the staff.

On the basis of information provided by Westinghouse and recent indications from turbine disc inspections now underway at Arkansas Nuclear One Unit 1, Beaver Valley Unit 1 and Indian Point Unit 2, it is evident that the probability of crack formation in these turbine discs is significantly greater than previously assumed by the vendor. In light of this information and the actions being taken by the licensee-users, we consider this warrants your prompt full UT inspection of LP rotor discs, especially the keyways and bore areas, and documentation to the NRC of your justification for continued operation until such inspections are made and all defects thus identified are corrected. Therefore, in accordance with 10 CFR 50.54(f), you are requested to provide within 20 days of the date of this letter, or in any event prior to restart if your unit is not operating, written statements, signed under oath or affirmation, which will enable the staff to determine whether or not your license to operate R. E. Ginna Nuclear Power Plant should be modified, suspended, or revoked. As part of your statement, you should provide and address the safety significance of the information requested in Enclosure 2 to this letter.

OFFICE ▷						
SURNAME ▷						
DATE ▷						