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November 3, 1983

Mr. Robert Gilbert, Project Manager
Operating Reactors
U.S. Nuclear Regulatory Commission
Washington D.C. 20555

Subject: Integrated Plant Safety Assessment
SEP Topic III-10.A, Section 4.12.1
Thermal Overload Protection for Motors
Motor Operated Valves
Dresden Unit 2
Docket No. 50-237

Dear Mr. Gilbert:

This letter addresses the concerns of SEP Topic III-10.A, Section 4.12.1. The following summarizes the staffs concern as expressed in the IPSAR.

SEP Concern

It is the staff's position that the licensee either bypass thermal overloads with an emergency core cooling system signal or ensure the adequacy of the setpoints for unbypassed thermal overloads.

INTRODUCTION

This response intends to show that the thermal overloads for the Dresden Unit #2 Motor Operated Valve Motors are adequate and do not require bypassing during emergency conditions. At Dresden Station, it has been chosen to retain the thermal overload devices since it is believed that bypassing them significantly reduces overall nuclear plant safety.

To ensure the adequacy of the thermal overload setpoints we have adopted Criteria 2 of Regulatory Guide 1.106. The following describes our conformance with each item of Criteria 2.

CRITERIA 2, ITEM a

"Consideration should be given to variations in the ambient temperature at the installed location of the overload protection device and valve motors."

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SYSTEM REVIEW

Variations in motor ambient temperature will have little affect on the motor since it was designed to operate at temperatures greater than that to which it is exposed. Changes in current due to the increased resistance of ambiently heated motor windings is negligible therefore the affects on the thermal overload at the Motor Control Center (MCC) is also negligible. In addition, all overload relays are ambiently compensated and are located in the MCC, which means that temperature changes in the MCC should not influence the proper functioning of these overload relays.

CRITERIA 2, ITEM b

"Consideration should be given to inacccuracies in motor heating data and the overload protection device trip characteristics and the matching of these two items."

SYSTEM REVIEW

The trip setpoint established by the selection of the thermal overloads is critical. At Dresden Station, thermal overloads have been sized in favor of completing the safety-related action. Thermal overload devices have time-current characteristics that are expressed by a band or range of values rather than a precise value. When selected, the most conservative value of the band is utilized. This yields a trip setpoint high enough to prevent spurious trips due to design inaccuracies, trip setpoint drift and the minor variations of ambient temperature changes. Thermal overload settings have been proven through the course of time, and modified where necessary.

CRITERIA 2, ITEM c

"In order to ensure continued functional reliability and the accuracy of the trip point, the thermal overload protection device should be periodically tested."

SYSTEM REVIEW

To insure that all safety related thermal overload devices are tested, a Dresden Maintenance Procedure, DMP 7300-5, (copy attached) has been enacted. This procedure calls for testing one third of the safety related thermal overload devices during each refueling outage. Item F.11 of the procedure defines the acceptance criteria, page 4 provides documentation and sign-off and pages 5 and 6 gives the test schedule for safety related thermal overloads.

In summary, we believe that:

- The bypassing of thermal overloads would be detrimental to overall plant safety. They should be left intact.
- The concerns in Regulatory Guide 1.106 for proper selection of thermal overload elements and stability of setpoints have been met.
- Periodic testing of the thermal overload devices will be performed to keep them at their proper setpoints.

We consider the above information adequate to resolve the concerns of SEP Section 4.12.1. If you have any questions concerning, this please contact this office.

One signed original and forty (40) copies of this transmittal and the attachment are enclosed for your use.

Sincerely,

B. Rybak
Nuclear Licensing Administrator

mnh/lm

cc: RIII Resident Inspector, Dresden (w/a)
Don Chery, SEP Integrated Assessment Project Manager (w/a)
D.J. Scott, Superintendent - Dresden (w/a)

Attachments: Dresden Maintenance Procedure (DMP) 7300-5, Rev. 1 (8-1-83).

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UNIT 2(3)
INSPECTION AND MAINTENANCE OF
480V MCC BREAKERS AND CONTACTORS

A. PURPOSE

This procedure will be used to assist the Maintenance Department in inspecting and maintaining Unit 2(3) 480v Motor Control Center (MCC) breakers and contactors. The procedure will be followed and a checklist completed and signed by the Maintenance Representative performing the inspection. The completed checklist will be filed and all pertinent information entered in the Kardex file.

B. REFERENCES

Manufacturer's Books, GEH 2406D and GEH 2614B in shop 7800 file.

C. PREREQUISITES

Have all necessary equipment properly out of service.

D. PRECAUTIONS

Check for voltage at the 480v MCC breaker or contactor with a voltmeter before proceeding with the inspection, as it is possible to have a feed from another source through an interlock.

E. LIMITATIONS AND ACTIONS

One third of the safety-related 480v MCC breakers and contactors will be inspected each outage. All other services will be inspected per this procedure as conditions warrant. The safety-related breakers to be checked are divided into three groups. One of these groups will be inspected each outage. These groups are shown on the attached safety-related MCC group lists.

F. PROCEDURE

RECORD equipment identification numbers and, for the following steps, RECORD data or check step complete on the attached 480v Breakers and Contactors Inspection Documented Checklist. The contactor should be given a general inspection and overhaul. All excessively worn parts and contacts should be replaced.

1. Remove pole piece and contact carrier.

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2. Clean contacts and check contact springs.

3. Clean contact carrier of all dirt and dust.

4. Clean pole pieces.

5. Clean and check auxiliary contacts for binding and wipe. Ensure that when the contacts are operated that they exhibit zero resistance when contacts are CLOSED and infinite resistance when contacts are OPEN.

6. For reversing contactors, check for proper operation and binding of mechanical interlocks. Lubricate pin with S.A.E. 20 oil.

7. Replace pole piece and contact carrier.

8. Check position of overload reset spring. RECORD on the checklist if the position is MANUAL or AUTO and the overload relay trip adjustment percent setting.

9. Manually operate the 480v MCC contactor several times to verify that the contactor is functioning properly and is free of obstruction and excessive friction.

10. Check all wiring connections for loose connections and loose screws. Repair any wiring and tighten screws as needed.

11. Test the overload relay at 300 percent of heater size. Trip times should be between 8.5 and 18 seconds for a quick trip overload (one that uses CR123L G.E. heaters) and between 23.5 and 35 seconds for a standard trip overload (one that uses CR123K G.E. heaters). RECORD trip times for both overloads on the checklist. For overload relays other than the G.E. CR124 series, contact the Staff Engineer for instructions.

12. Test the molded case circuit breaker. For a magnetic trip only breaker (such as a TEF 136M series), check the tripping current of each phase and RECORD this value along with the trip dial setting on the checklist. For a long time delay and instantaneous type breaker, test the long time delay at 300 percent of breaker rating. (Refer to the breaker trip curves in the Master Electrician's Office for tripping time range). RECORD on the checklist tripping time for each phase and the acceptable range of trip times from the curves.

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13. Megger motor and control wiring.

14. Bridge the three phases of motor.

15. After installing MCC unit in cubicle, visually check for full engagement of all terminal block male clips on the unit with adjacent fixed block female clips.

16. Clear outage and inform Operations that equipment is available for testing.

G. CHECKLISTS

480v Breakers and Contactors Inspection Documented Checklist (attached).

H. TECHNICAL SPECIFICATIONS REFERENCES

None.

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480V BREAKERS AND CONTACTORS
INSPECTION DOCUMENTED CHECKLIST

Step

F. Unit_____ Date_____

Equipment_____

Breaker Type_____ Size_____

Contactor Type_____ Size_____

Overload Number_____

F.2. Clean Contacts_____ Check Contact Springs_____

F.3. Clean Contact Carrier_____

F.4. Clean Pole Pieces_____

F.5. Clean Aux. Contacts_____ Check for Wipe_____

Contact Resistance Check (OPEN)_____ (CLOSED)_____

F.6. Mech. Interlocks Binding (Reversing Contactors ONLY)_____

Mech. Interlocks Lubricated (Reversing Contactors ONLY)_____

F.8. Position of Overload Reset Spring (MAN or AUTO)_____

Percent_____

F.9.&10. Manually Operate Contactor_____ Check Connections_____

→ F.11. Overload Relay Trip Test Times AØ_____ BØ_____ CØ_____ Sec.

F.12. Molded Case Breaker Trip Test (Magnetic Trip Type)

1) Magnetic Trip Dial Setting AØ_____ BØ_____ CØ_____

2) Magnetic Trip Current Test AØ_____ Amps BØ_____ Amps
CØ_____ Amps

Molded Case Breaker Trip Test (Long Time Delay Type)

1) 300% Trip Times AØ_____ BØ_____ CØ_____ Sec.

2) Acceptable Trip Time from Trip Curves _____ Sec.

F.13. Megger Motor_____ Megger Control Wiring_____

F.14. Bridge Motor AB_____ AC_____ BC_____

F.15. Engagement of Terminal Block Male and Female Clips_____

_____
Maintenance Representative

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Foreman

UNIT 2

Safety-related MCC group list for DMP 7300-5 (one group to be inspected each outage).

GROUP 1- LPCI SYSTEM

MCC 28-1- MO 1501-3A, MO 1501-5A, MO 1501-5B
MO 1501-27A, MO 1501-38A, MO 1501-20A
MO 1501-18A, MO 1501-19A, MO 1501-28A
MO 1501-32A, MO 1501-13A, MO 1501-11A

MCC 28-7- MO 1501-22A, MO 1501-21A

MCC 29-1- MO 1501-27B, MO 1501-28B

MCC 29-4- MO 1501-5C, MO 1501-5D, MO 1501-38B
MO 1501-20B, MO 1501-18B, MO 1501-19B
MO 1501-3B, MO 1501-32B
MO 1501-13B, MO 1501-11B

MCC 29-7- MO 1501-21B, MO 1501-22B

GROUP 2- C.S., RBCCW, RECIRCULATION AND ISO CONDENSER SYSTEMS

MCC 28-1- MO 3706, MO 3702, MO 1301-1, MO 1301-4
MO 1402-3A, MO 1402-4A, MO 1402-24A
MO 1402-25A, MO 1402-38A
LPCI/C.S. Area Cooling Unit, Safety System Jockey Pump

MCC 28-7- MO 202-4A, MO 202-5A, MO 202-6A
MO 202-7A, MO 202-9A

MCC 29-1- MO 3703, MO 1402-24B, MO 1402-25B

MCC 29-4- MO 1402-3B, MO 1402-4B, MO 1402-38B, LPCI/C.S. Area Cooling Unit

MCC 29-7- MO 202-4B, MO 202-5B, MO 202-6B
MO 202-7B, MO 202-9B

GROUP 3- SDC, CLEAN-UP, SBLC, "A" SBGT, HPCI AND CCSW CUBICLE COOLER FANS

MCC 28-1- MO 1001-1A, MO 1001-1B, MO 1001-5A
MO 1001-5B, MO 1201-1, MO 1201-7
SBLC Pump 2A

MCC 28-2- SBGT Damper 2-7503, SBGT Fan 2/3A,
SBGT Damper 2/3-7504A

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UNIT 2 (Cont'd)

GROUP 3- (CONTINUED)

MCC 28-2- (Cont.) CCSW 5700-30A Fan #1, CCSW 5700-30A Fan #2
CCSW 5700-30B Fan #1, CCSW 5700-30B Fan #2

MCC 28-3- SBGT Damper 2/3-7505A, SBGT Heater 2/3-7503A,
SBGT Damper 2/3-7507A

MCC 29-1- SBLC Pump 2B, SBLC Tank Heater, MO 2301-4

MCC 29-2- CCSW 5700-30C Fan #1, CCSW 5700-30C Fan #2
CCSW 5700-30D Fan #1, CCSW 5700-30D Fan #2

MCC 29-4 HPCI Aux. Coolant Pump, HPCI Area Cooling Unit,
HPCI Oil Tank Heater

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