

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Meeting No. EA 88-182

Docket No. 50-289

License No. DPR-50

Licensee: GPU Nuclear Corporation

Facility Name: TMI-1

Conference At: NRC Region I, King of Prussia, Pennsylvania

Conference Date: August 24, 1988

Approved by: J. P. Durr
J. P. Durr, Chief, Engineering Branch, DRS

9/20/88
date

Conference Summary:

Environmental Qualification (EQ) enforcement conference held to discuss the significance of concerns about the environmental qualification of emergency fan cooling cable.

DETAILS

1. Conference Attendees

GPJ Nuclear Corporation

H. D. Hukill, Vice President and Director of TMI-1
R. Wilson, Technical Functions Vice President
J. Sullivan, Regulatory Affairs Director
L. Lanese, Safety Analysis Plant Control
J. Auger, PWR Licensing Engineer
R. McGoey, PWR Licensing Engineer
E. Pagan, Senior Engineer
D. Croneberger, Engineering Projects Director
J. Mancinelli, EQ Manager

NRC

W. Johnston, Acting Director, DRS
J. Durr, Chief, Engineering Branch
R. Conte, Senior Resident TMI-1
C. Cowgill, Chief, RPS 1A
R. Anand, NRR, Plant Systems Branch
C. Li, NRR, Plant Systems Branch
P. Bissett, Operations Engineer
C. Anderson, Chief, Plant Systems Section
R. Pan'no, Sr. Reactor Engineer

2. Conference Scope

The enforcement conference considered the following potential EQ violation:

- Emergency fan cooling cable (289/86-06)

The scope of the discussions included:

- Safety significance of the potential violation, number of deficiencies and number of systems and components affected
- Specific and underlying cause of each potential violation
- Actions taken or planned to correct the potential violation to ensure overall compliance
- A discussion of the potential violation in light of the Modified Enforcement Policy for EQ Requirements, GL88-07

3. Licensee Presentation

The licensee presented their position on the EQ issues of concern. The licensee presentation is outlined in their handout which is provided as Attachment A to this document.

4. Conclusion

The NRC staff stated that the licensee input will be considered in assessing NRC handling of the potential enforcement item. The licensee will be notified of appropriate enforcement actions in the future.

**NRC ENFORCEMENT CONFERENCE
KING OF PRUSSIA, PA
AUGUST 24, 1988
AGENDA**

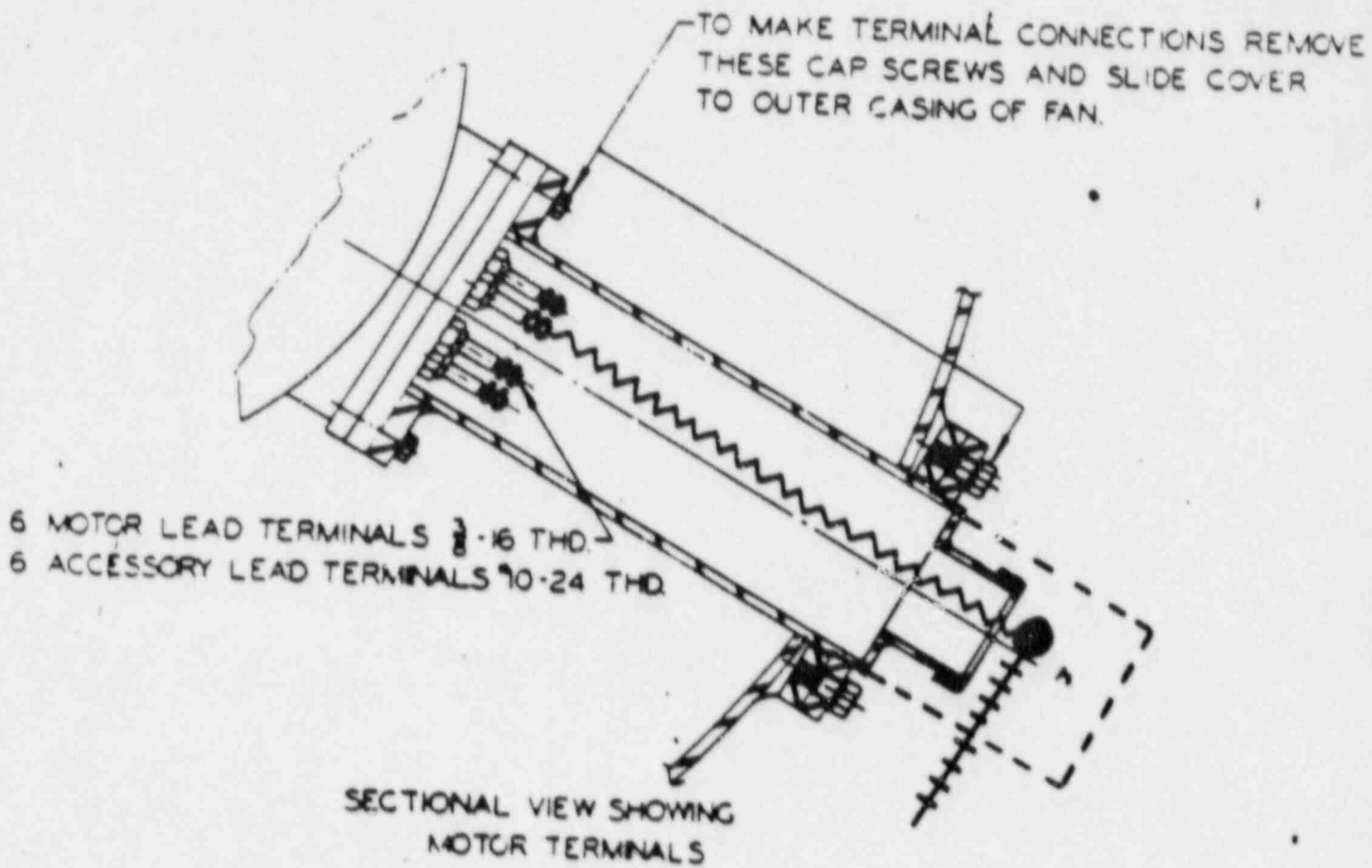
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|-------------|---|--------------------|
| I. | INTRODUCTION | R.J. McGOEY |
| II. | BACKGROUND | E.J. PAGAN |
| III. | CHRONOLOGY OF EVENTS | E.J. PAGAN |
| IV. | SAFETY SIGNIFICANCE | E.J. PAGAN |
| V. | CORRECTIVE ACTIONS TAKEN | E.J. PAGAN |
| VI. | AWARENESS PRIOR TO NOVEMBER 30, 1985 | E.J. PAGAN |
| VII. | SUMMARY | E.J. PAGAN |

EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS

BACKGROUND

- PLANT STATUS - COLD SHUTDOWN FOR EDDY CURENT TESTING.
- EQ SECTION CONDUCTING A "COMMON ITEM" REVERIFICATION INSPECTION.
- APRIL 17, 1986, 3 PAIRS OF MOTOR JUMPER LEADS (~5' LONG, EACH) WERE IDENTIFIED AS BEING OF A TYPE NOT ON OUR EQ MASTER LIST. (SEE FIG. 1)
- JUMPER LEAD WIRES ASSOCIATED WITH REACTOR BUILDING EMERGENCY FAN COOLING UNIT MOTORS AH-E-1A, 1B, 1C.
- FUNCTION OF FAN COOLING UNITS - TO REMOVE HEAT FROM THE REACTOR BUILDING IN THE EVENT OF A LOCA OR HELB TO REDUCE THE PRESSURE AND THUS THE DRIVING FORCE FOR BUILDING LEAKAGE.

FIGURE 1
EMERGENCY FAN COOLING UNIT
MOTOR JUMPER LEAD CONFIGURATION



LEGEND

- MOTOR TERMINAL BOX
- ~~~~~ MOTOR JUMPER LEAD
- + + + + + FIELD CABLE

● SPLICE

EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS
CHRONOLOGY OF EVENTS

- APRIL 17, 1986 (THURSDAY): GPUN DISCOVERS DISCREPANT MOTOR JUMPER LEADS.
- APRIL 18, 1986 (FRIDAY): SITE MEETING WITH NRC TO DISCUSS EQ COMMON ITEM REVERIFICATION PROGRAM.

NRC GIVEN NOTIFICATION OF GPUN DISCOVERY OF DISCREPANT MOTOR JUMPER LEADS.
- APRIL 21, 1986 (MONDAY): INFORMAL TELEPHONE CALL TO NRC TO FURTHER DISCUSS DISCOVERY OF MOTOR JUMPER LEADS.
- APRIL 22, 1986 (TUESDAY): OPERABILITY DETERMINATION NOT VERIFIED. GPUN CONSERVATIVELY CONSIDERED MOTOR JUMPER LEADS INOPERABLE, NEED TO REPORT TO NRC, AND REPLACED LEADS ON 2 OF 3 MOTORS.
- APRIL 23, 1986 (WEDNESDAY): TMI-1 WENT CRITICAL.
- APRIL 24, 1986 (THURSDAY): MOTOR JUMPER LEADS ON THIRD MOTOR WERE REPLACED.

EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS

CHRONOLOGY OF EVENTS

- APRIL 25, 1986: COMPLETED OPERABILITY DETERMINATION. CONCLUDED DISCREPANT MOTOR LEADS CAPABLE OF FUNCTIONING.

- APRIL 25, 1986: GPUN LETTER TO NRC DOCUMENTING MINUTES OF 4/18/86 EQ MEETING. LETTER IDENTIFIES MOTOR JUMPER LEAD CONCERN AND STATUS OF ACTIONS.

- APRIL 26, 1986: TMI-1 AT 100% POWER.

- MAY 1, 1986: INDEPENDENT GPUN TECHNICAL REVIEWER COMPLETED HIS REVIEW OF OPERABILITY DETERMINATION AND CONCLUDED IT WAS SATISFACTORY.

- MAY 16, 1986: GPUN NOTIFIED NRC VIA TELEPHONE THAT EQ EVALUATION OF "AS FOUND" MOTOR JUMPER LEADS CONCLUDED LEADS WERE CAPABLE OF FUNCTIONING IN A HARSH ENVIRONMENT.

- MAY 16, 1988: INSPECTION PERIOD FOR INSPECTION REPORT 86-06 ENDED. REPORT IDENTIFIED CONCERN WITH MOTOR JUMPER LEAD OPERABILITY (OPEN ITEM 86-06-07).

EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS

CHRONOLOGY OF EVENTS

- MAY 21, 1986: GPUN CONSERVATIVELY SUBMITTED LER 86-009-00.
- JULY 7 - 9, 1986: NRC INSPECTOR REVIEWED DISCREPANT MOTOR JUMPER LEAD OPERABILITY DETERMINATION. AT EXIT, NO FINDINGS WERE REPORTED BY INSPECTOR WITH RESPECT TO THE OPERABILITY DETERMINATION.
- AUGUST 1, 1986: INSPECTION PERIOD FOR INSPECTION REPORT 86-10 ENDED. OPEN ITEM 86-06-07 LEFT OPEN ONE ITEM NOT RELATED TO THE MOTOR JUMPER LEAD ISSUE.
- JULY 28, 1988: GPUN RECEIVES NOTIFICATION OF ENFORCEMENT CONFERENCE ON MOTOR JUMPER LEADS

EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS

SAFETY SIGNIFICANCE

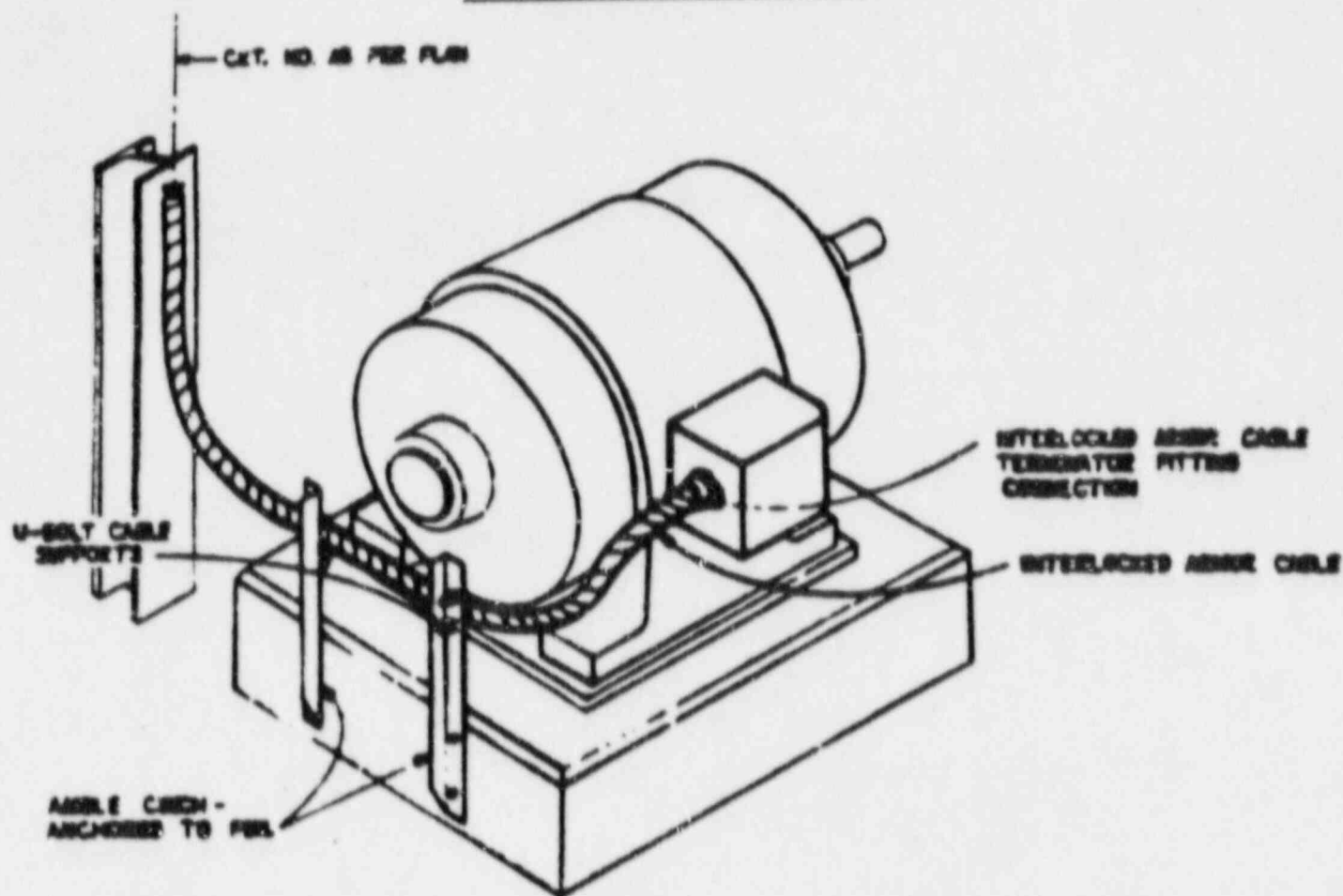
- EQUIPMENT FUNCTION - TO REMOVE HEAT FROM THE REACTOR BUILDING IN THE EVENT OF A LOCA OR HELB TO REDUCE THE PRESSURE AND THUS THE DRIVING FORCE FOR BUILDING LEAKAGE.
- EQUIPMENT NEEDED - TECH SPECS REQUIRE 2 OF 3 EMERGENCY COOLING UNITS TO BE OPERABLE.
- OPERABILITY OF COOLING UNITS - OPERABILITY DETERMINATION CONCLUDED "AS FOUND" JUMPER LEAD WIRES WOULD FUNCTION IN HARSH ENVIRONMENT..
- BASIS OF OPERABILITY DETERMINATION - ANALYSIS SUPPORTED BY TEST DATA ON SIMILAR MATERIALS.
- CONCLUSION - SAFETY FUNCTION WAS NOT IN QUESTION.

EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS

CORRECTIVE ACTIONS TAKEN

- UPON DISCOVERY OF DISCREPANCY ON ONE FAN COOLING UNIT, THE OTHER TWO WERE IMMEDIATELY INSPECTED.
- PROMPTLY REPLACED DISCREPANT MOTOR JUMPER LEADS ON ALL 3 UNITS.
- PROMPTLY REPORTED TO NRC.
- PERFORMED ROOT CAUSE DETERMINATION AND CONCLUDED THIS WAS AN ISOLATED SITUATION:
 - UNIQUE CONFIGURATION (SEE FIGURE 1)
 - CONFIRMED OTHER EQ MOTORS HAVE CONVENTIONAL TERMINATIONS (SEE FIGURE 2)
- COMPLETED OPERABILITY DETERMINATION.
- NO FURTHER ACTIONS WARRANTED.

FIGURE 2
TYPICAL MOTOR CABLE TERMINATION
(NO JUMPER LEADS)



EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS

AWARENESS PRIOR TO NOVEMBER 30, 1985

- VENDOR SUPPLIED INFORMATION DID NOT SPECIFICALLY IDENTIFY MOTOR JUMPER LEADS.
- ORIGINAL FIELD VERIFICATION IDENTIFIED MOTOR AND FIELD CABLE TERMINATION.
- FAN MOTORS UTILIZED IN ATYPICAL EQ MOTOR APPLICATION, ASSOCIATED WITH AIR HANDLING UNIT ASSEMBLIES, RESULTED IN NOT IDENTIFYING MOTOR LEADS.
- RESTRICTED PHYSICAL ACCESSIBILITY.
- GPUN NOT AWARE OF ANY INFORMATION PROVIDED TO LICENSEES BY NRC OR INDUSTRY ON DISCREPANT MOTOR JUMPER LEADS ASSOCIATED WITH EMERGENCY FAN COOLING UNITS.

EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS

SUMMARY

- DISCREPANCY IS ISOLATED AND AFFECTS A LIMITED NUMBER OF SYSTEMS AND COMPONENTS.
 - 1 TYPE OF JUMPER LEAD WIRE
 - 1 SYSTEM
 - 3 IDENTICAL COMPONENTS
- DISCREPANCY WAS IDENTIFIED BY GPUN AND PROMPTLY REPORTED TO NRC.
 - APRIL 18, 1986 SITE MEETING
 - APRIL 25, 1986 LETTER TO NRC
 - TELEPHONE CALLS
 - LER 86-009-00
- DISCREPANCY WAS CORRECTED WITHIN ONE WEEK OF DISCOVERY.
- OPERABILITY DETERMINATION CONCLUDED JUMPER LEAD WIRES CAPABLE OF PERFORMING FUNCTION.
- OPERABILITY DETERMINATION PRESENTED TO AND REVIEWED BY NRC DURING JULY 7-9, 1986 INSPECTION.

EMERGENCY FAN COOLING UNITS
MOTOR JUMPER LEADS

SUMMARY

- ° LICENSEE DEMONSTRATED BEST EFFORTS TO COMPLETE EQ FOR THIS EQUIPMENT WITHIN THE NOVEMBER 30, 1985 DEADLINE.
 - IDENTIFIED FAN UNIT MOTORS, FIELD CABLE AND SPLICE ON EQ MASTER LIST.
 - PREPARED EQ FILES AND SYSTEM COMPONENT EVALUATION WORK SHEETS FOR ABOVE.
 - CONDUCTED WALKDOWN OF THIS EQUIPMENT.
 - GPUN SHOULD NOT HAVE KNOWN.
- ° GPUN CONCLUDES THE ISSUE IS THE LACK OF DOCUMENTATION DEMONSTRATING ENVIRONMENTAL QUALIFICATION OF SPECIFIC MOTOR JUMPER LEADS FROM NOVEMBER 30, 1985 TO APRIL 22, 1986.