



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AEOD/E210

FEB 23 1982

MEMORANDUM FOR: Ronald C. Haynes, Regional Administrator
Region I

FROM: Carlyle Michelson, Director
Office for Analysis and Evaluation
of Operational Data

SUBJECT: INADEQUATE SWITCHGEAR COOLING AT BEAVER VALLEY, UNIT 1

Two events occurred at Beaver Valley during the past summer of potential safety significance regarding adverse environmental effects on safety-related equipment. The enclosed LERs (81-59/03L and 81-71/03L) report that the Number 2 battery charger output breaker tripped on thermal overload during surveillance testing. The switchgear rooms are provided with the same flow-through ventilation system circulating outside air. The chargers are located in the switchgear rooms and contribute to increasing the room temperature when operating. Similar breakers in the rooms have not tripped. Portable fans have been used to increase the airflow around the battery charger.

The potential for tripping the output breaker would increase if more than one battery charger is operating during elevated ambient temperatures because of increased heat load. For a loss-of-offsite power event, the heat contribution of the operating battery charger could potentially affect other safety-related switchgear equipment. The ventilation system is not safety related and would not be available during this event.

Corrective actions taken by the licensees include rebalancing the ventilation flow in the switchgear rooms and revising the surveillance procedure for testing the battery chargers, to prevent more than one charger operating at the same time. In addition, a station modification request has been made to increase the ventilation flow in the switchgear rooms. The licensee has tested the breakers under full load (without high ambient temperatures) and believes that there is no problem with the breakers.

Our evaluation of the events indicated that the licensee had not expanded his investigation to verify the environmental qualification of the breaker. Since the breaker was not found defective, the qualification of the breaker for mild environments should be evaluated by the licensee to ascertain the root cause for the failures.

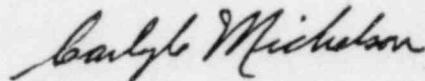
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We recommend that the licensee complete the appropriate analyses and modifications to prevent recurrence of this type of failure before the summer of 1982. The current refueling outage may be an appropriate time for modifications. The resident inspector is following the licensee's investigations into the problem.

The implications of this event suggest that the loss of the ventilation system could have potential safety significance requiring additional generic review by the NRC. Operational occurrences at other plants have already attuned this office to possible inadequate ventilation design and performance situations which could result in subjecting electrical equipment to adverse mild environmental conditions. As a result of IE Bulletin 79-01, 79-01B and others related to environmental qualification of electrical equipment, it is our understanding that the staff is reviewing in detail the adequacy of equipment to withstand accident environments. We were not able to confirm that the same level of review will be performed for non-accident conditions exemplified by the Beaver Valley events and events involving inadvertent actuation of the fire protection system addressed in another AEOD memorandum. In responding to the Bulletin, it may not be apparent to the licensees to address qualification of electrical equipment which are required to operate, but not exposed to postulated accident conditions. These occurrences may be useful in evaluating the scope of the licensee's response to the bulletins.

This effort has been coordinated with the Environmental Qualification Branch, Division of Engineering, NRR. The AEOD contact is Wayne Lanning.



Carlyle Michelson, Director
Office for Analysis and Evaluation
of Operational Data

Enclosures:
As stated

cc w/enclosures:
HDenton, NRR
DBeckman, RI, Beaver Valley
ZRosztoczy, NRR
RDeYoung, IE
VStello, CRGR

CONTROL BLOCK: | | | | | ①

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

1 | 2 | P | A | B | V | S | 1 | 2 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 3 | 4 | 2 | 2 | 1 | 1 | 1 | 4 | 5
8 9 LICENSEE CODE 14 15 LICENSE NUMBER 25 26 LICENSE TYPE 37 CAT 58 38

CON'T
0 | 1 | REPORT SOURCE L 6 0 | 5 | 0 | 0 | 0 | 3 | 3 | 4 | 7 | 0 | 6 | 1 | 5 | 8 | 2 | 3 | 0 | 7 | 1 | 3 | 8 | 1 | 9
80 81 DOCKET NUMBER 66 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES ⑩

0 | 2 | On 6/15/81 at 0730 hours with reactor power at 95%, the battery charger supply to
0 | 3 | 125 VDC bus No. 1-2 was lost when the No. 2 battery charger output breaker tripped
0 | 4 | open. The charger was declared inoperable while power operation continued within
0 | 5 | the limitations of Technical Specification 3.8.2.3. The health and safety of the
0 | 6 | public was not jeopardized as the No. 2 battery remained operational.
0 | 7 |
0 | 8 |
7 8 9

SYSTEM CODE: E C ⑪
CAUSE CODE: X ⑫
CAUSE SUBCODE: Z ⑬
COMPONENT CODE: Z Z Z Z Z Z ⑭
COMP. SUBCODE: Z ⑮
VALVE SUBCODE: Z ⑯
LER RC REPORT NUMBER: 81 ⑰
EVENT YEAR: 81 21 22
SEQUENTIAL REPORT NO.: 059 23 24 26
OCCURRENCE CODE: 03 18 19
REPORT TYPE: L 30 31
REVISION NO.: 0 32 33
ACTION TAKEN: X ⑱
FUTURE ACTION: F ⑳
EFFECT ON PLANT: Z ㉑
SHUTDOWN METHOD: Z ㉒
HOURS: 0000 ㉓
ATTACHMENT SUBMITTED: Y ㉔
NPRM FORN I SUB: N ㉕
PRIME COMP. SUPPLIER: Z ㉖
COMPONENT MANUFACTURER: Z99 ㉗

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS ㉚

1 | 0 | Excessive heat in the emergency switchgear area caused the breaker to trip on
1 | 1 | thermal overload. A portable fan was placed in the vicinity of the battery char
1 | 2 | to cool the breaker. At 1120 hours the charger was returned to service. Futur
1 | 3 | actions will be to investigate improvements to the ventilation system on the
1 | 4 | battery charger:
7 8 9

FACILITY STATUS: E ㉘
% POWER: 095 ㉙
OTHER STATUS: N/A ㉚
METHOD OF DISCOVERY: A ㉛
DISCOVERY DESCRIPTION: Control Room Alarm ㉜
ACTIVITY CONTENT RELEASED: Z ㉝
AMOUNT OF ACTIVITY: N/A ㉞
LOCATION OF RELEASE: N/A ㉟

PERSONNEL EXPOSURES NUMBER: 000 ㊱
TYPE: Z ㊲
DESCRIPTION: N/A ㊳
PERSONNEL INJURIES NUMBER: 000 ㊴
DESCRIPTION: N/A ㊵
LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION: Z ㊶
DESCRIPTION: N/A ㊷

PUBLICITY ISSUED DESCRIPTION: N/A ㊸
NAME OF PREPARER: W. S. Lacey
8107240335 810713 PDR ADDOCK 05000334 S PDR

*Several Times
N. A/C
Leaky...
S.T. when...
...high...
...4KV...
...cooling...
...vent...*

→ *From Sany Split Tail inv.*

