

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Fort St. Vrain, Unit No. 1 DOCKET NUMBER (2) 0 5 0 0 0 2 6 7 1 OF 0 5 PAGE (3)

TITLE (4) Reheat Steam Temperature Scram While Performing T-306

Table with columns: EVENT DATE (5), LER NUMBER (6), REPORT DATE (7), OTHER FACILITIES INVOLVED (8). Includes sub-columns for month, day, year, sequential number, revision number, facility names, and docket numbers.

Table for regulatory requirements: OPERATING MODE (9), POWER LEVEL (10), and checkboxes for 20.402(b), 20.405(c), 50.73(a)(2)(iv), etc.

LICENSEE CONTACT FOR THIS LER (12) NAME: Jim Eggebroten, Superintendent, Technical Services Eng. TELEPHONE NUMBER: 3 0 3 7 8 5 - 1 2 2 1 3

Table for component failures: COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13). Columns include CAUSE, SYSTEM, COMPONENT, MANUFACTURER, REPORTABLE TO NRPDS.

SUPPLEMENTAL REPORT EXPECTED (14) YES (if yes, complete EXPECTED SUBMISSION DATE) [] NO [XX] EXPECTED SUBMISSION DATE (15)

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On January 17, 1986, with the reactor shutdown and a manual scram already in effect, a reactor scram actuation occurred. During performance of test T-306, a Results Engineer lifted a thermocouple lead, as directed by the procedure, causing a single channel scram on High Reheat Steam Temperature. This Channel B scram combined with a high reactor pressure Channel A scram, which was already actuated due to Environmental Qualification testing, completed the two out of three logic, causing a reactor scram actuation. This actuation was due to personnel error, as the Results Engineer did not realize that lifting the thermocouple lead would cause a single channel scram. The control rod brakes were already de-energized due to the manual scram and reactor mode switch position; therefore, completion of the logic only resulted in alarm and light actuations. The reactor scram circuitry actuated as designed. The Results Engineer was cautioned that a more detailed system review is required whenever testing or maintenance is being performed on the Plant Protective System. The Results Engineer and department Supervisor will conduct department training on this event, stressing the importance of performing detailed system reviews.

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NOTE: If more space is required, use additional NRC Form 366A's (17)

EVENT DESCRIPTION:

On January 17, 1986, the reactor was shutdown with the Reactor Mode Switch (RMS) in the "OFF" position, a manual scram in effect, and all control rod drive breakers open. High Reactor Pressure module PT-1108 had been removed from service for Environmental Qualification (EQ) testing and consequently a Channel A scram alarm/trip was in effect.

At approximately 1645 hours, a Results Engineer requested permission from the Reactor Operator to perform test T-306. The Results Engineer explained that he would be lifting some high reheat steam temperature scram thermocouple leads to verify circuit continuity. The Reactor Operator asked if the testing would initiate any alarms, as he already had a Channel A scram actuated. The Results Engineer stated that the test would only lift one thermocouple lead at a time and that the two thermocouples transmit signals to a high select auctioneer. Therefore, no alarms were expected to occur and the Reactor Operator granted permission to run the test.

At approximately 1715 hours, as the first thermocouple wire was lifted, a Channel B High Reheat Steam Temperature scram alarm was received and the two out of three scram logic was actuated causing an audible siren alarm.

CAUSE DESCRIPTION:

Personnel Error

Each channel of the high reheat steam temperature monitoring system consists of a temperature switch fed by a temperature transmitter, which is fed by four thermocouples (Figure 1). The temperature transmitter averages the two thermocouples from each loop and then an auctioneer passes the higher signal to the temperature switch, which trips at a nominal setpoint of 1075°F. Lifting the lead to one thermocouple would appear to be of no consequence due to the high select feature. However, the preamplifier in the temperature transmitter contains an upscale burnout circuit, which generates a high signal on abnormally low input signals. This protective feature provides for conservative channel actuation upon postulated thermocouple or wiring failures.

The resulting Channel B scram, combined with the Channel A scram already present, correctly completed the two out of three scram logic. As shown in Figure 1, two single channel scrams will cause a reactor scram actuation even though the single channel scrams are due to unrelated monitoring parameters (i.e. High Reheat Steam Temperature and High Reactor Pressure).

The reactor scram actuation occurred as the result of personnel error. The Results Engineer was relatively inexperienced with the Plant Protective System and did not realize that lifting the thermocouple lead would actuate a single channel scram.

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SAFETY ANALYSIS:

The reactor scram circuitry actuated as designed, but no control rod action was initiated since all control rods were fully inserted and a manual scram was already in effect. Both the RMS position and the manual scram switch de-energize the control rod brakes independent of any Plant Protective System action. This actuation was conservative and not due to abnormal reactor conditions.

CORRECTIVE ACTION:

The Results Engineering Supervisor cautioned the Results Engineer that a more detailed system review is required whenever testing is performed on the Plant Protective System.

The Results Engineer and department Supervisor will conduct department training on this event. This training will stress the importance of reviewing all detailed system design features prior to performing maintenance or testing on the Plant Protective System. System actuations should be recognized and then identified in the test procedure.

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FACILITY NAME (1)

Fort St. Vrain, Unit No. 1

DOCKET NUMBER (2)

05000267

LER NUMBER (8)

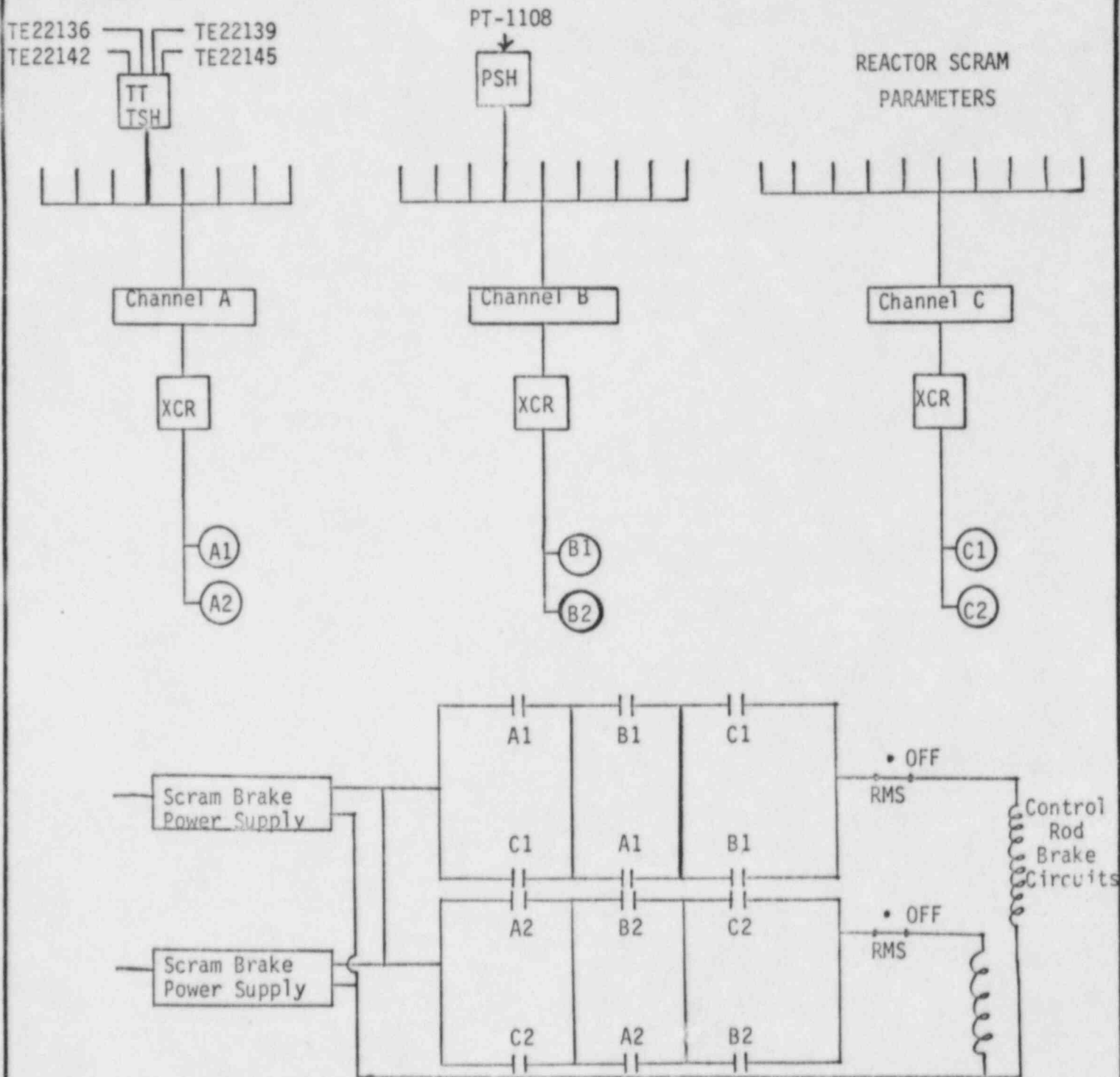
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

FIGURE 1



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**Public Service
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February 16, 1986
Fort St. Vrain
Unit No. 1
P-86110

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket No. 50-267

SUBJECT: Licensee Event Report
86-006, Final
Report

REFERENCE: Facility Operating
License No. DPR-34

Gentlemen:

Enclosed please find a copy of Licensee Event Report
No. 50-267/86-006, Final, submitted per the requirements of
10 CFR 50.73(a)(2)(iv).

Sincerely,

J. W. Gahm
Manager, Nuclear Production

Enclosure

cc: Regional Administrator, Region IV
Attn.: Mr. J. E. Gagliardo, Chief
Reactor Projects Branch

cc: Director of Nuclear Reactor Regulation
Attn.: Mr. H. N. Berkow, Project Director
Standardization and Special
Project Directorate

cc: Director, MIPC

JWG/djm

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