

LICENSEE EVENT REPORT

CONTROL BLOCK: (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1 | 0 H | D | B | S | 1 | 2 | 0 0 - 0 0 0 0 - 0 0 3 | 4 | 1 | 1 | 1 | 1 | 4 | 5

7 8 9 14 15 25 26 30 57 CAT 58

LICENSEE CODE LICENSE NUMBER LICENSE TYPE

CON'T
0 1 | REPORT SOURCE | L | 6 | 0 5 0 0 0 3 4 6 7 | 0 5 1 1 8 3 | 8 | 0 6 0 9 8 3 | 9

7 8 60 61 68 69 74 75 80

DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | (NP-33-83-31) On 5/11/83 while the unit was in the process of starting up from a reac-

0 3 | tor trip on 5/10/83, the quadrant power tilt (QPT) in the "YZ" quadrant reached 3.06,

0 4 | which exceeds the steady state tilt limit (3.03) of Tech Spec 3.2.4 There was no

0 5 | danger to the health and safety of the public or station personnel. The QPT was far

0 6 | below the transient limit of 8.53 and the maximum tilt limit of 20.0.

0 7 |

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7 8 9 80

0 9 | SYSTEM CODE | R | A | 11 | CAUSE CODE | B | 12 | CAUSE SUBCODE | Z | 13 | COMPONENT CODE | Z | Z | Z | Z | Z | Z | 14 | COMP. SUBCODE | Z | 15 | VALVE SUBCODE | Z | 16 |

7 8 9 10 11 12 13 18 19 20

17 | LER/RO REPORT NUMBER | 8 | 3 | 21 | 22 | SEQUENTIAL REPORT NO. | 0 | 2 | 4 | 24 | 26 | OCCURRENCE CODE | 0 | 3 | 28 | 29 | REPORT TYPE | L | 30 | REVISION NO. | 0 | 32 |

ACTION TAKEN | X | 18 | FUTURE ACTION | Z | 19 | EFFECT ON PLANT | Z | 20 | SHUTDOWN METHOD | Z | 21 | HQ JRS | 0 | 0 | 0 | 22 | ATTACHMENT SUBMITTED | Y | 23 | NRPD-4 FORM SUB. | N | 24 | PRIME COMP. SUPPLIER | Z | 25 | COMPONENT MANUFACTURER | Z | 9 | 9 | 9 | 26 |

33 34 35 36 37 40 41 42 43 44 47

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 | The cause is the inherent design of the B&W Nuclear Steam Supply System coupled with a

1 1 | large negative moderator temperature coefficient (MTC) at the end of core life. Dur-

1 2 | ing startup, the OTSG 1-2 lifted off low level limits ahead of OTSG 1-1 allowing the

1 3 | cold leg temperature in loop 2 to decrease slightly. The large negative MTC caused

1 4 | power to increase in the "YZ" quadrants. QPT was within steady state limits in 36 minutes.

1 5 | FACILITY STATUS | C | 28 | % POWER | 0 | 2 | 5 | 29 | OTHER STATUS | NA | 30 | METHOD OF DISCOVERY | A | 31 | DISCOVERY DESCRIPTION | Operator observation | 32 |

7 8 9 10 12 13 44 45 46 80

1 6 | ACTIVITY CONTENT | Z | 33 | RELEASED OF RELEASE | Z | 34 | AMOUNT OF ACTIVITY | NA | 35 | LOCATION OF RELEASE | NA | 36 |

7 8 9 10 11 44 45 80

1 7 | PERSONNEL EXPOSURES | 0 | 0 | 0 | 37 | TYPE | Z | 38 | DESCRIPTION | NA | 39 |

7 8 9 11 12 13 80

1 8 | PERSONNEL INJURIES | 0 | 0 | 0 | 40 | DESCRIPTION | NA | 41 |

7 8 9 11 12 80

1 9 | LOSS OF OR DAMAGE TO FACILITY | Z | 42 | TYPE | NA | 43 |

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2 0 | PUBLICITY | N | 44 | ISSUED | NA | 45 |

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NRC USE ONLY



June 9, 1983

Log No. K83-855
File: RR2 (NP-33-83-31)

Docket No. 50-346
License No. NPF-3

Mr. James G. Keppler
Regional Administrator, Region III
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

LER No. 83-024
Davis-Besse Nuclear Power Station Unit 1
Date of Occurrence: May 11, 1983

Enclosed are three copies of Licensee Event Report 83-024 which are being submitted in accordance with Technical Specification 6.9 to provide 30 day written notification of the subject occurrence.

Yours truly,

Terry D Murray

Terry D. Murray
Station Superintendent
Davis-Besse Nuclear Power Station

EDM/ljk

Enclosures

cc: Mr. Richard DeYoung, Director
Office of Inspection and Enforcement
Encl: 30 copies

Mr. Norman Haller, Director
Office of Management and Program Analysis
Encl: 3 copies

Mr. Tom Peebles
NRC Resident Inspector
Encl: 1 copy

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TOLEDO EDISON COMPANY
DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE
SUPPLEMENTAL INFORMATION FOR LER NP-33-83-31

DATE OF EVENT: May 11, 1983

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: The steady state quadrant power tilt limit was exceeded

Conditions Prior to Occurrence: The unit was in Mode 1, with Power (MWT) = 590 and Load (Gross MWE) = 230.

Description of Occurrence: The unit was in the process of starting up from a reactor trip which occurred on May 10, 1983 at 1027 hours. The operators were increasing reactor power to lift the once through steam generator (OTSG) water level off low level limit control at 35 inches. At 0119 hours, with the unit increasing from 25% power, the operators received an annunciator alarm "Tilt, Imbalance, Rod Insertion Limit". The Nuclear Steam Supply Summary on the computer showed a quadrant power tilt of 3.06 in the "YZ" quadrant. The steady state tilt limit of 3.03 per Technical Specification 3.2.4 was exceeded. The operators slowly increased power to get both OTSGs off low level limit control and thereby balance feedwater flows. The steady state quadrant power tilt was reduced to less than the steady state limit in 36 minutes, which complies with the Technical Specification action of 3.2.4 to restore the tilt to within limits within two hours.

Designation of Apparent Cause of Occurrence: The cause of this occurrence is the inherent design of the B&W Nuclear Steam Supply System coupled with the large negative moderator temperature coefficient at the end of core life. During a startup, the OTSG level is held at 35 inches up to approximately 25% power to allow T_{avg} to ramp from 532° to 582°. As power is increased from 25%, however, the Integrated Control System (ICS) holds T_{avg} constant and raises OTSG level. During this startup, the OTSG 1-2 lifted off of low level limits slightly ahead of OTSG 1-1 allowing cold leg temperature in loop 2 to slightly decrease. The large negative moderator temperature coefficient caused power to increase in the YZ and ZW quadrants. As power was increased a few percent, however, the OTSG 1-1 lifted off low level limit control thereby balancing the feedwater flows and the quadrant power tilt returned to normal.

Analysis of Occurrence: There was no danger to the health and safety of the public or station personnel. The quadrant power tilt of 3.06 exceeded the steady state limit by only 0.03 and was far below the transient limit of 8.53 and the maximum tilt limit of 20.0. The plant operators took the correct course of action to raise reactor power balancing the feedwater flows which in turn equalized the loop cold leg temperatures reducing the tilt to within limits.

Corrective Action: No definite additional corrective actions are required. The operators are well aware of the necessity to monitor feedwater flows to each OTSG. In addition to this, the ICS will perform this function automatically by the ΔT_c controller once both OTSGs are off low level limit control. The only time a minor upset occurs during a startup is at the instant the first OTSG lifts off of low level limit control. The correct action is to raise power and ensure the other OTSG level also increases. This action was properly performed by the reactor operators, therefore, no corrective action is required.

Failure Data: Although there have been previous occurrences during which quadrant power tilt exceeded the steady state limit of Technical Specification 3.2.4, none have occurred due to the inherent design of the B&W Nuclear Steam Supply System coupled with the large negative moderator temperature coefficient at the end of core life. Reference Licensee Event Reports NP-33-81-55 (81-047) and NP-33-83-61 (83-052) for a description of these occurrences.

LER #83-024