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October 2, 1995

JSPLTR 95-0003

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

Licensee Event Report 95-003, Revision 1, Docket 50-237 is being submitted pursuant to 10CFR50.(a)(2)(i)(B), which requires reporting any operation prohibited by Technical Specifications.

This report is submitted to update the status of corrective actions taken for the Recirculation Pump start event which resulted in a Technical Specification violation.

Sincerely,

A handwritten signature in cursive script, appearing to read "J. Stephen Perry".

J. Stephen Perry
Vice President
BWR Operations

JSP/RF:pt

Enclosure

cc: H. Miller, Regional Administrator, Region III
NRC Resident Inspector's Office
File/NRC
File/Numerical

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Dresden Nuclear Power Station, Unit 2	DOCKET NUMBER (2) 05000237	PAGE (3) 1 OF 7
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TITLE (4)
Unit 2 Technical Specification Violation During Idle Reactor Recirculation Pump Start Due to Management Deficiency

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	10	95	95	-- 003 --	01	09	29	95	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
	20.2201(b)		20.2203(a)(3)(i)		50.73(a)(2)(iii)		73.71(b)			
POWER LEVEL (10) 031	20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(iv)		73.71(c)			
	20.2203(a)(2)(i)		20.2203(a)(4)		50.73(a)(2)(v)		OTHER			
	20.2203(a)(2)(ii)		50.36(c)(1)		50.73(a)(2)(vii)		(Specify in Abstract below and in Text, NRC Form 366A)			
	20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(viii)(A)					
	20.2203(a)(2)(iv)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(B)					
	20.2203(a)(2)(v)		50.73(a)(2)(ii)		50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)

NAME Ralph M. Fenili, Operations Staff	TELEPHONE NUMBER (Include Area Code) Ext. 2917 (815) 942-2920
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At 1051 on January 10, 1995, Unit 2 was operating at 31% rated core thermal power. Preparations to restart 2B Reactor Recirculation Pump were in progress. Dresden Operating Procedure (DOP) 0202-01, Reactor Recirculation System Startup, and Technical Specification (TS) 3.6.H.5. contained conflicting requirements concerning a 145 degree F maximum temperature differential that must be met prior to idle recirculation pump restart. The DOP specifies reactor bottom head metal temperature and the TS specifies reactor bottom head drain line coolant temperature. Operations decided to use an alternate indication to determine reactor bottom head drain line coolant temperature. The 2B pump was restarted using the alternate indication. Subsequent review of this event by station management determined that the restart of the idle recirculation pump under these circumstances constituted a failure to comply with TS. An engineering evaluation concluded that the safety significance of this event is considered minimal since the conditions necessary for thermal stratification did not exist at the time of recirculation pump start.

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

EVENT IDENTIFICATION:

Unit 2 Technical Specification Violation During Idle Reactor Recirculation Pump [AD] Start Due to Management Deficiency.

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: 01/10/95 Event Time: 1051 hours
 Reactor Mode: Run Mode Name: Run Power Level: 31%
 Reactor Coolant System Pressure: 920 psig

The reactor bottom head drain line was known to be inoperable at the start of the event. Since measurement of the coolant in this drain line is required to meet the Technical Specifications, this material deficiency contributed to the event. There were no other structures, systems or components that were inoperable at the start of the event which contributed to the event.

B. DESCRIPTION OF EVENT:

On January 10, 1995 at approximately 0800 hours, Unit 2 was in steady state operation at 665 MWe. The Instrument Maintenance Department (IMD) was expected to begin work on the 2A Reactor Recirculation Motor-Generator Set (MG set) fluid coupler oil temperature controller. At 0829 hours the Nuclear Station Operator (NSO) received a trip of the 2B Recirculation MG Set on High Oil Temperature (greater than 160 degrees). Actions were promptly taken to control the transient and the reactor was placed in a stable condition by 0900 hours. The trip of the 2B Recirculation MG Set and recirculation pump was caused by IMD personnel working on the 2B fluid coupler oil temperature controller instead of the 2A controller.

At 0930 hours, the operations team was preparing to restart the 2B (idle) recirculation pump. Preparation consisted of a Heightened Level of Awareness (HLA) briefing per Dresden Administrative Procedure (DAP) 07-37, Conduct of Heightened Level of Awareness Activities and High Impact Activities, containing review of the applicable procedures, review of the Technical Specifications, and assignment of NSOs to watch Feedwater Heater parameters, reactor vessel water level, reactor power, and recirculation system parameters. During restart preparations, the Unit NSO recognized that the requirements of DOP 0202-01, Unit 2 Reactor Recirculation System Startup, which states that the temperature difference between the reactor bottom head metal temperature and the reactor steam space temperature must be less than 145 degrees F prior to recirculation pump restart, could not be met. The reason for this limit is to minimize the thermal stresses on the penetrations of the bottom head, particularly the Control Rod Drive (CRD) stub tubes. The indicated temperature difference at the time was approximately 158 degrees F. Further investigation revealed that the temperature difference prior to the trip of the 2B recirculation pump was 150 degrees F. A comparison was made with the Unit 3 bottom head metal temperature reading from the previous evening. The Unit 3 thermocouple was reading approximately 20 degrees F higher than the Unit 2 thermocouple, indicating a potential problem with the accuracy of this indication and the appropriateness of it's use as a criteria for pump restart. Actions were taken by the team to

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minimize the thermal stress across the CRD stub tube welds. These actions included minimizing CRD flow and maximizing the flow of the operating recirculation pump.

During review of the Technical Specifications (TS) prior to the HLA brief, the Shift Manager (licensed senior reactor operator) recognized that the procedure and the TS specify different temperature indications to be used to evaluate the 145 degree F differential temperature requirement. TS 3.6.H.5 specifies comparison between bottom head drain line coolant temperature and reactor steam space coolant temperature as opposed to DOP 0202-01, which compares bottom head metal temperature and reactor steam space coolant temperature. The bottom head drain line coolant temperature indication at the time was reading about 126 degrees F, or approximately equal to drywell ambient temperature. In order for this indication to be an accurate indication of drain line coolant temperature, there must be flow in the line. The Shift Manager knew that this line was clogged and that the thermocouple was not a reliable indication of the coolant temperature in the bottom head region of the vessel. Amendment 127 to the TS, added the 145 degree F differential temperature requirement, was not implemented until July 19, 1994. This was the first idle recirculation pump recovery while operating since the implementation of Amendment 127.

Faced with the decision to start the pump in the midst of this procedural uncertainty or shut down the Unit, the team decided to use alternate temperature indication to attempt to meet the intent of the requirements of DOP 0202-01 and TS 3.6.H.5. The alternate indication used was active recirculation loop discharge temperature with an 8 degree offset for conservatism (8 degrees being the difference between reactor vessel bottom head metal temperature before and after the pump trip). The use of this alternate indication, when combined with the actions taken earlier to minimize thermal stress across the CRD stub tube welds, was considered by the team to be a conservative approach to meeting the 145 degree F differential requirement of both DOP 0202-01 and TS 3.6.H.5. The team also believed they were following the administrative procedures for procedure adherence, which in some cases allow the procedure to be performed differently than written, although these administrative procedures were not referenced during the event.

An Independent Safety Engineering Group (ISEG) staff member was present in the control room observing the team's recirculation pump start preparation activities. Prior to the recirculation pump start the ISEG engineer questioned the Unit Supervisor (licensed senior reactor operator) as to how the differential temperature requirements of DOP 0202-01 were being met. When the alternate temperature indications were mentioned, the ISEG engineer recommended delaying pump start until an engineering evaluation could be performed. Shift Management considered his recommendation and also considered submitting a temporary procedure change to use alternate indication. It was believed that a temporary procedure change would alter the intent of the existing procedure, which is not allowed for temporary procedure changes. The Unit Supervisor explained to the ISEG engineer the logic the team was using to justify pump start. After this rationale was explained to the ISEG engineer, he did not pursue this line of questioning.

The 2B recirculation pump was restarted at 1051 hrs on 01/10/95.

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The participating ISEG engineer brought the event to the attention of senior station management on the afternoon of January 10, 1995. Subsequent review of this event by station management determined that the restart of the idle recirculation pump under these circumstances constituted a failure to comply with TS.

C. CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(i)(B), which requires reporting any operation prohibited by Technical Specifications.

Root Causes

1. Knowledge Deficiency

A knowledge deficiency in that the licensed operators who participated in this event believed that the requirements of the technical specification were being met. The preliminary General Electric (GE) analysis concluded that the 145 degree F temperature difference was not exceeded. However, the operators had no way of definitively measuring the temperature of the bottom head drain line coolant prior to starting the recirculation pump. (See corrective actions 2, 3, and 14)

2. Procedural Inadequacy

Low station standards in procedural/TS quality, adherence and change implementation. The acceptance of these standards has resulted in procedures that cannot be followed as written, vague procedural guidance which allows non-compliance with procedures under certain conditions, and at least one procedure that does not satisfy TS requirements. Training on procedural changes consists primarily of a required reading program of questionable effectiveness. (See corrective actions 4, 5, 7, 8, 9, 10, and 15)

3. Judgement Error

Non-conservative decision making by the operations team to restart the 2B pump. The crew recognized that the TS, applicable procedures, and plant configuration were not in agreement, but used poor judgement in continuing with the restart of the 2B recirculation pump using alternate methods and without pursuing additional guidance. (See corrective actions 1, 2, 4, 7, 11, 12, and 13)

Contributing Causes

1. Material Condition Deficiency

The reactor vessel drain line is clogged, and has been for many years. (See corrective action 6)

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2. Inadequate Engineering Support

The engineering evaluation conducted to justify the use of the reactor bottom head metal temperature to meet the requirements of GE SIL 251 (the document discussing idle recirculation pump start issues) when the drain line became unavailable was inadequate. (See corrective action 6)

D. SAFETY ANALYSIS:

The safety significance of this event is considered minimal due to the absence of the conditions necessary to create thermal stratification in the reactor bottom head region prior to the restart of the pump. This determination was made with the assistance of GE and is documented in J. D. Williams to E.D. Eenigenburg letter dated January 30, 1995 (CHRON # 0305731).

E. CORRECTIVE ACTIONS:

Immediate Corrective Actions

1. The Shift Operations Supervisor informed operating team members via the Operations Orders that the units will be shut down if a recirculation pump trip occurs until there is consistent documentation to support restart of an idle recirculation pump. (This action has been completed)
2. The Unit 2 Operations Manager discussed the event with the Operations Management Team involved and coached them on conservative decision making. The team now understands that the decision to restart the 2B recirculation pump under these circumstances was a non-conservative decision. (This action has been completed)
3. Each Shift Manager and Unit Supervisor has signed a statement that they understand that literal compliance with TS is required except under emergency situations defined by 10CFR 50.54(x). (This action has been completed)
4. All-station meetings have been conducted by the station managers concerning the importance of procedural adherence. Discussion included recent instances of procedural non-compliance and the importance of the involvement of each employee in improving station performance in this area. (This action has been completed)

Follow-On Corrective Actions

5. A review team has been assembled and started a document review and evaluation of the Upgraded Technical Specifications on August 14, 1995. This action will prevent occurrences related to failure to comply with the TS as a result of inappropriate procedure implementation or misinterpretation of the TS. The evaluation will include a comprehensive review of the Technical Specifications, their bases, operability evaluations, and lower-tier documents with the Technical Specifications to identify deficiencies (errors, omissions, document conflicts or unclear language) which might lead to non-compliance. This item is Open and continues to be tracked by NTS Item #237-180-95-00301.

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6. An Engineering evaluation was conducted to determine how to comply with TS 3.6.H.5 and GE SIL 251 with the drain line clogged, or if compliance is possible in this degraded condition. The Engineering Evaluation concluded that verbatim compliance with T.S. 3.6.H.5 is not possible with the reactor vessel bottom head drain line plugged. During the D2R14 refueling outage, Dresden Station successfully unplugged the reactor vessel bottom head drain line for Unit 2. The resolution/corrective action for the Unit 3 plugged drain line will be scheduled to be performed during the next refuel outage (D3R14). This will continue to be tracked by NTS Item #237-180-95-00302.
7. Operations senior management has reinforced the roles and responsibilities to the Shift Managers. This included that their primary roles are the overview of plant operations, ensuring compliance with safety requirements and operational standards and reinforcing the importance of conservative decision making.
8. Station Management has and continues to show their commitment to support and enforce high standards of procedural quality, knowledge and adherence. As a result of these meetings to implement higher standards, change has been noted in the form of increased temporary procedure changes and procedural inquiries.
9. The Operations Team has continued to implement changes within the department to improve the knowledge, standards, and awareness of the operators on the importance of conservative decision making.
10. Dresden Administrative Procedure (DAP) 02-24 Revision 3 has incorporated a requirement to provide formal training for the operators prior to implementation of TS amendments. This revision also requires an operational readiness review of TS amendments prior to implementation. The revision was distributed on August 10, 1995.
11. All Licensed Operators completed a Conservative Decision Making (CDM) Seminar by May 22, 1995. The CDM Seminars were conducted offsite with operating personnel from Dresden, LaSalle and Quad Cities. The Corporate BWR and Site Vice Presidents discussed the definition of conservative decision making and the importance of the issue in light of selected operational experience reports, including INPO Significant Operating Experience Report (SOER) 94-01 regarding Salem. Other issues addressed included workarounds, procedure usage, regard for TS, Nuclear Work Request backlog, longterm equipment problems and plant line-up. Other industry experiences, including airlines and NASA, were used as examples.
12. Dresden Senior Management CDM training was conducted on March 7, 1995, by the ComEd BWR Vice President, covering similar items to those identified in item 11.
13. All Licensed Operators have attended Simulator Training which centered around CDM. Events, including loss of a Reactor Recirculation Pump, were presented to the operators, allowing them to demonstrate the ability to apply the lessons learned from SOER 94-01 to the scenario.

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14. Regulatory training emphasizing TS, reportability, 10CFR50.54(x) and other pertinent regulatory issues was completed on April 26, 1995.
15. An Operating Order was created and distributed which directs the operator to follow the actions, as delineated in the applicable Dresden Operating Abnormal procedure (DOA 0202-01). The order further states, that upon completion of the DOA, an orderly shutdown will be initiated, bringing the reactor to less than 25 psi. This order will remain in effect until a TS and procedural change can be put in place that will allow the restart of a Recirculation pump with available instruments.

F. PREVIOUS OCCURRENCES:

LER/Docket Number Title

05000237/94-018 Unit 3 Reactor Scram on Low Level Due to Programmatic Deficiency and Human Error

The above event identified the existence of low standards in unit operation. The corrective actions for the above event included a reevaluation of operational standards at Dresden. This effort has been effective in many ways, however, this most recent event is an indication of the need for further improvements.

G. COMPONENT FAILURE DATA:

There were no component failures associated with this event.