WOLF CREEK
NUCLEAR OPERATING CORPORATION

Otto L. Maynard
Vice President Plant Operations

June 2, 1993
WO 93-0114

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Subject: Docket No. 50-482: Licensee Event Report 93-010-00

Gentlemen:

The attached Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) corcerning violations of the Wolf Creek Generating Station Technical Specifications.

Very truly yours,

Otto L. Maynard
Vice President
Plant Operations

OLM/jan

Attachment

cc: W. D. Johnson (NRC), w/a
J. L. Milhoan (NRC), w/a
G. A. Pick (NRC), w/a
W. D. Reckley (NRC), w/a

IE22

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Wolf Creek Generating Station	0 5 0 0 0 4 8 2	1 OF 0 6

TITLE (4)

Mode Change with the Motor-driven Auxiliary Feedwater Pumps in "Pull-to-Lock"

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 NAMES	DOCKET NUMBER(S)
												0 5 0 0 0
0 5	0 8	9 3	9 3	-	0 1 0	-	0 0	0 6	0 2	9 3		0 5 0 0 0

OPERATING MODE (8)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
	3	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
	1 0	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Kevin J. Moles - Manager Regulatory Services	3 1 6 3 6 4 - 8 8 3 1

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)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On May 8, 1993, at 1838 CDT, Wolf Creek Generating Station (WCGS) entered Mode 3 (HOT STANDBY) from Mode 4 (HOT SHUTDOWN) with both Motor-Driven Auxiliary Feedwater Pumps (MDAFWP's) [BA-P] rendered inoperable by their handswitches being in "pull-to-lock". Placing the handswitches in "pull-to-lock" prevents pumps from automatically starting. This situation remained uncorrected until May 9, 1993, at 0753 CDT, when the handswitches were returned to NORMAL to comply with Technical Specification 3.7.1.2.

WCGS Technical Specification Limiting Condition for Operation (LCO) 3.7.1.2 requires that these pumps be operable in Modes 1, 2, and 3. The appropriate Action Statement, Action "b", was neither entered nor performed as required. Additionally, Technical Specification 3.0.4 was not adhered to as entry into an Operational Mode was made without all requisite LCO's being met.

The root cause of this event was failure of the Control Room Operating Crews to control plant work activity such that thorough consideration of administrative requirements could be made.

As an immediate corrective action management's expectations were clarified regarding turnovers, Control Room professionalism, and communications with the Operating Crews. Procedural changes were made to enhance the effectiveness of the Mode change review process.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Wolf Creek Generating Station	0 5 0 0 0 4 8 2	9 3	— 0 1 0	— 0 0	0 2 OF 0 6

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

PLANT CONDITIONS AT THE TIME OF EVENT

Plant Operational Condition: Mode 3
Reactor Coolant System Pressure: < 650 psig
Reactor Coolant System Temperature: 350 Degrees Fahrenheit

BASIS FOR REPORTABILITY

On May 8, 1993, at 1838 CDT, WCGS entered Mode 3 from Mode 4 with both Motor-Driven Auxiliary Feedwater Pumps (MDAFWP's) INOPERABLE. The MDAFWP's are required to be OPERABLE by Technical Specification Limiting Condition for Operation (LCO) 3.7.1.2, or a return to Mode 4 made within six hours under Action Statement "b". This condition went uncorrected for over 13 hours, constituting a failure to meet Technical Specification 3.7.1.2 Action Statement "b". Additionally, Technical Specification 3.0.4 prohibits entry into an Operational Mode unless all requisite LCO's are met without reliance on Action Statements. Deviation from these Technical Specifications are reportable pursuant to 10CFR50.73(a)(2)(i)(B) as conditions prohibited by Technical Specifications.

DESCRIPTION OF EVENT

On May 8, 1993, WCGS was in Mode ascension following the sixth refueling outage. The goal of the day shift Operating Crew was to clear the final restraints and make the Mode 4 to 3 transition per General Operating Procedure GEN 00-002, "Cold Shutdown to Hot Standby," Revision 25. The level of plant Mode ascension/restart activity was high and the Mode change effort was critical path.

Technical Specification 3.7.1.2 requires at least three independent Steam Generator Auxiliary Feedwater Pumps and associated flow paths to be OPERABLE in Modes 1, 2, and 3. The MDAFWP handswitches had been in "pull-to-lock" (manually blocked from starting by pulling and turning the Control Room handswitch) throughout most of the refueling outage to prevent spurious actuations. The handswitches are then returned to NORMAL just prior to the Mode change as directed in "Checklist GEN 00-002-1B, (Mode 4 to Mode 3 CKL)."

A second checklist, "Surveillance Mode 4 to 3 Checklist," had been worked on extensively during the shift. Its completion was verified by the Shift Supervisor who then signed-off GEN 00-002, step 5.30.1. Step 5.31 of procedure GEN 00-002 directs continuation of the heatup following verification of "Checklist GEN 00-002-1B." The Supervising Operator initialed step 5.31 without referring to and completing the required actions of "Checklist GEN 00-002-1B, (Mode 4 to Mode 3 CKL)". The Mode change was made at 1838 CDT on May 8, 1993, with both MDAFWP's INOPERABLE in violation of Technical Specification 3.0.4. This situation remained uncorrected until May 9, 1993, at 0753 CDT, when the handswitches were returned to NORMAL to comply with Technical Specification 3.7.1.2.

Administrative Procedures ADM 02-010 "Shift Relief and Turnover", Revision 18, steps 7.6 and 7.7, and ADM 02-040 "Conduct of On Duty Operations Personnel", Revision 9, step 4.4, deal with control board walkdowns and shift turnovers. The intent of these steps were not met as two shift changes occurred without adequate discussion of the requirements for this safety-related equipment.

Both Control Room Operating Crews were aware of the availability of the MDAFWP's. They had recently performed various Auxlliary Feedwater System [BA] Surveillances and had run the MDAFWP's at various times during the outage to provide makeup water to the Steam Generators. All personnel involved knew that the handswitches were in "pull-to-lock" from their control board walkdowns and turnovers, but failed to recognize that this condition was prohibited in Mode 3.

ROOT CAUSES AND CONTRIBUTING FACTORS

The underlying root cause of this event was failure of the Operating Crews to adequately control plant work activity in the Control Room just prior to and during the decision to transition from Mode 4 to 3. While all personnel were aware of physical plant status (i.e., that the handswitches were in pull-to-lock), the broader procedural and Technical Specification context was not adequately considered. Therefore, the necessary level of awareness of these requirements relative to plant status and the impending Mode 4 to 3 transition was neither maintained nor brought out in shift turnover discussions.

Contributing factors to this event include:

- The onshift Operating Crew should have taken more time to more thoroughly assess Mode 3 restraints and related equipment status prior to transitioning. This was especially important given the high level of plant outage activity in progress.

- Procedural confusion created by existence of two checklists (GEN 00-002-1B and the Surveillance Mode 4 to 3 Checklist) caused the Supervising Operator to initial step 5.31 thinking "Checklist GEN 00-002-1B" had been completed when it had not. The Shift Supervisor's signing off of the "Surveillance Mode 4 to Mode 3 Checklist" instead of allowing the Supervising Operator to do it may have contributed to the Supervising Operator's oversight.

- There was a desire on the part of the crew and management to complete the mode transition prior to shift turnover since the oncoming crew had been off for two days.

CORRECTIVE ACTIONS

Corrective Actions Completed:

A memo from the Manager Operations to Licensed Operators, issued on May 11, 1993, emphasized taking the necessary time for thorough turnovers and properly prioritizing concerns dealing with safety related equipment and Technical Specification requirements.

The Vice President Plant Operations issued three memos on May 13, 1993, that addressed:

- Restricted activities which may distract from proper Control Room turnovers.
- The requirements for Shift Supervisors to maintain Control Room professionalism, formality, and work controls.
- Communications from various managers with the Control Room must be carefully worded and avoid unrealistic expectations. The memo also discussed personnel performance expectations.

In order to prevent a similar occurrence during the Mode 2 transition, a temporary/permanent change was issued on May 14, 1993, to General Operating Procedure GEN 00-003, "Hot Standby to Minimum Load," Revision 29. This change requires either the Manager Operations or the Supervisor Operations to review the Equipment Out of Service Log, Temporary Modifications Log, Clearance Order Log, Work Request Log, and Surveillance Mode change Checklist prior to entering Mode 2. The Manager Operations also discussed Technical Specification items during the Mode 3 to Mode 2 change with the Operating Crew.

On May 24, 1993, another memo was issued by the Manager Operations delineating his expectations of the Operating Crews in regards to turnovers and controlling the number of activities allowed to proceed at once.

Future Corrective Actions:

Operations is re-evaluating the use of "pull-to-lock" to render safety-related components inoperable, and the need for formal procedural control if "pull-to-lock" is used as a method for making safety-related components inoperable. This will be done, with appropriate guidance implemented, by June 30, 1993.

To avoid the confusion generated by two checklists, GEN 00-002 will be revised to change the title of GEN 00-002-1B and GEN 00-002-1A, "Mode 5 to Mode 6 CKL" checklists to "Attachments." "Perform" steps from the checklists will be moved to the body of the procedure. Additionally, a list of items to be reviewed by the Manager Operations or Supervisor Operations prior to Mode changes will be developed and incorporated as it was for GEN 00-003. The procedure will be revised by June 30, 1993.

The other General Operating Procedures will be reviewed for similar problems. These revisions will be completed by September 30, 1993.

The applicable Technical Specifications which become effective when Mode changes are made will be itemized and the Shift Supervisor will discuss them with the Operating Crew before a Mode change is made. The itemization of Technical Specification Systems will be completed and incorporated in the appropriate General Operating Procedures by September 30, 1993.

SAFETY ANALYSIS

The Auxiliary Feedwater (AFW) System is an Engineered Safety Feature (ESF) System which provides a safety-grade water supply to the Steam Generators (S/G's) for removal of reactor decay heat following scenarios in which Main Feedwater [SJ] is isolated or lost. The AFW system ensures adequate makeup to the S/G's to prevent the Reactor Coolant System (RCS) [AB] pressure from increasing and causing release of coolant through the Pressurizer code safety or relief valves per Updated Safety Analysis Report (USAR) Chapter 15 analyses.

The AFW System consists of two 100 percent capacity motor-driven pumps and one 200 percent capacity turbine-driven pump with associated valves, piping and instrumentation. The source of water is normally the non-safety grade Condensate Storage Tank (CST) [KA-TK] with backup supply from the safety grade Essential Service Water (ESW) [BI] System.

The MDAFWP's start automatically on low-low level in any steam generator, any safety injection signal, loss of offsite power, or can be manually started. The Turbine-Driven Auxiliary Feedwater Pump (TDAFWP) starts automatically on low-low level in any two steam generators or loss of offsite power, or can be manually started.

At the time of the event, surveillance test procedure STS AL-003, "Auxiliary Feedwater System Valve Status Verification" Revision 6, had been performed ensuring proper Auxiliary Feedwater valve alignment. The turbine-driven pump was functional, at the existing 560 psig steam pressure, and would have auto-started as designed providing in excess of 800 gpm flow. This flow is more than would have been required to remove the decay heat of a new reactor core.

Additionally, the MDAFWP's were available for manual actuation. Operators would have been directed to verify Auxiliary Feedwater flow early in any of the Emergency Operating Procedures (EMGs), and at that time could have

taken the pumps out of "pull-to-lock." The pumps would then have been fully capable of performing their intended safety function.

Based on the low reactor heat load, the functional TDAFWP, the manual actuation availability of the MDAFWP's, and the fact that no loss of offsite power or loss of Main Feedwater System [SJ] flow occurred, there were no adverse consequences to the plant. Plant safety and public health and safety were assured throughout the event.

OTHER SIMILAR OCCURRENCES

Licensee Event Reports 91-004-00, 90-006-00, and 87-061-00 describe other events in which system handswitches were left in "pull-to-lock". However, none of these events took place during an Operational Mode change transition.