

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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FACILITY NAME (1)
WOLF CREEK GENERATING STATION

DOCKET NUMBER (2)
05000482

PAGE (3)
1 OF 4

TITLE (4)
Heavy Loads Moved in Containment Outside of Heavy Load Analysis Requirements

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	09	97	97	026	00	09	14	98	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	MODE 6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)																			
POWER LEVEL (10)	0 percent	20 402(b)	20 405(a)(1)(i)	20 405(a)(1)(ii)	20 405(a)(1)(iii)	20 405(a)(1)(iv)	20 405(a)(1)(v)	20 405(c)	50 73(a)(2)(i)	50 73(a)(2)(ii)	50 73(a)(2)(iii)	50 73(a)(2)(iv)	50 73(a)(2)(v)	50 73(a)(2)(vi)	50 73(a)(2)(vii)	50 73(a)(2)(viii)(A)	50 73(a)(2)(viii)(B)	50 73(a)(2)(ix)	73 71(b)	73 71(c)	OTHER

LICENSEE CONTACT FOR THIS LER (12)

NAME
Michael J. Angus
Manager, Licensing and Corrective Action

TELEPHONE NUMBER (Include Area Code)
316-364-8831 Extension-4077

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (16):

During a review of Wolf Creek Nuclear Operating Corporation's (WCNOC) heavy load report, WCNOC personnel identified that during past outages heavy loads were moved in the Containment Building in a manner that was inconsistent with the heavy load analysis assumptions. Specifically, WCNOC's analysis assumes that both trains of Residual Heat Removal (RHR) will be operable in Modes 5 and 6, yet WCNOC Technical Specifications allows one train to be operable in Mode 5 if the loops are filled, and secondary side water level of at least two Steam Generators is >10% of the wide range. WCNOC met the Technical Specification requirements, but did not recognize the analysis assumptions for RHR when moving heavy loads in Containment. A review of the Control Room logs from Refuel IX, Fall 1997, confirmed that with one train of RHR inoperable in Mode 6, heavy loads were moved over the one operable train of RHR. The root cause is procedural inadequacy. Corrective action included revision of the controlling procedure to be consistent with the analysis.

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		97	026	00	

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

Plant Conditions Prior to the Event:

Refueling Outage IX
MODE = 6
Reactor vessel refueled and upper internals in place

Basis for Reportability:

During a review of Wolf Creek Nuclear Operating Corporation's (WCNOC) heavy load report (WCNOC-4), WCNOC engineering personnel identified that during past outages heavy loads were moved in the Containment Building [NH-BLDG] in a manner that was not consistent with the heavy load analysis assumptions. Specifically, WCNOC's analysis assumes that both trains of Residual Heat Removal (RHR) [BP] will be operable in Modes 5 and 6, yet WCNOC Technical Specifications allows one train to be operable in Mode 5 if the loops are filled, and secondary side water level of at least two Steam Generators [AB-SG] is >10% of the wide range. WCNOC met the Technical Specification requirements, but did not recognize the analysis requirements for RHR when moving heavy loads in Containment. A review of the Control Room logs from Refuel IX, Fall 1997, confirmed that with one train of RHR inoperable in Mode 6, heavy loads were moved over the one operable train of RHR. Had the heavy load dropped during this move it could have presented a condition which alone could have prevented the fulfillment of a safety function of structures or systems (RHR) needed to remove residual heat. This condition is reportable pursuant to 10 CFR 50.73 (a)(2)(v).

WCNOC made an ENS notification on August 14, 1998. In that notification, WCNOC indicated that the event constituted a condition outside the design basis of the plant. Further evaluation concluded that this event did not result in a condition outside the design basis of the plant. Our evaluation concludes, as noted above, that it represents a condition which could have prevented the fulfillment of a safety function. Therefore we are annotating the correct notification required in this report.

The event occurred in 1997 and in accordance with NUREG-1022, Revision 1, Section 5.2.2, this report was given the next sequential LER number for 1997.

Event Description

In August 1998, WCNOC Engineering personal identified that during past refueling outages heavy loads were moved in the Containment Building in a manner that was not consistent with the requirements of WCNOC's analyses as documented in WCNOC-4, "Report on the Control of Heavy Loads." WCNOC-4 was developed from WCNOC's response to NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." Specifically, the analyses assumes both trains of Residual Heat Removal (RHR) to be operable when moving heavy loads in Modes 5 and 6. However, WCNOC Technical Specifications allow one train to be operable in Mode 5 if the loops are filled, and secondary side water level of at least two Steam Generators is >10% of the wide range. WCNOC met the Technical Specification requirements, but did not recognize the analysis assumptions for RHR when moving heavy loads in Containment. There

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were four instances in which heavy loads were moved over the operable RHR train during the last refueling outage. The most significant event occurred on October 17, 1997, when a reactor coolant pump (RCP) motor was moved over the operable RHR train. The last occurrence occurred on November 9, 1997, when a concrete hatch cover was moved.

A historical review of procedure AP 14-001, "Control of Heavy Loads," the Technical Specifications and WCNO-4 revealed that discrepancies between the operating parameters allowed by Technical Specification in Mode 5 and 6, and assumptions made in the analyses had existed from the inception of the heavy loads program. No administrative controls were included in procedure AP 14-001 to require two RHR trains to be operable or to restrict movement of heavy loads if this condition was not met.

Root Cause:

The cause of this event is inadequate procedural guidance. Procedure AP 14-001 lacked adequate restrictions in that it did not reflect the analyses assumption that both trains of RHR would be available. The discrepancies between AP 14-001 and WCNO-4 were not identified by any of the parties involved in the development, review, or handling of these documents. The cause of these discrepancies are historical in nature and could not be determined.

Immediate corrective actions taken:

AP 14-001 was revised to reflect that heavy loads can only be moved in the Containment Building during Modes 5 and 6 when both trains of RHR are operable. On-the-spot-change (OTSC) 98-0325 was approved by the Plant Safety Review Committee August 27, 1998.

Corrective actions to be completed:

Review WCNO-4 with operational documents such as the Technical Specifications, Updated Safety Analysis Report (USAR), and applicable procedures to identify any other potential discrepancies. Revision of WCNO-4 is expected to be completed by November 13, 1998.

Revise AP 14-001 as necessary to enforce requirements based on the findings from this review. This corrective action is contingent upon the review of WCNO-4. Therefore, the expected due date for this action is November 27, 1998.

The long term corrective actions listed below are related to WCNO-4 and will be completed by Refueling Outage X, currently scheduled to begin April 10, 1999.

- Review WCNO-4 for consistency of assumptions with current operating conditions in all modes of operation.

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Safety Significance:

There were four instances in which heavy loads were moved over the operable RHR train during the last refueling outage. The most limiting lift occurred on October 17, 1997, when a reactor coolant pump (RCP) motor was moved over the operable "A" RHR train. Fuel offload was in progress with 102 assemblies removed and Reactor Coolant System water level was 23 feet above the flange. The postulated drop of a heavy load (e.g., RCP motor weighs approximately 105,000 pounds including rigging) onto the operable RHR "A" train suction piping and its associated injection piping with the "B" RHR train out of service would cause significant damage to equipment important to safety, but would not result in catastrophic consequences. The drop onto the operating "A" RHR train piping would cause the "A" RHR pump to lose suction and seize. In the unlikely event that the load drop caused a loss of the only operable RHR pump and piping, the result could be the loss of a safety function, specifically residual heat removal, during plant shutdown or refueling modes of operation (Modes 5 or 6), and boiling may occur within an hour. However, alternate cooling mechanisms are available to ensure core cooling capability and should preclude the onset of boiling. Procedures exist for mitigating the affects of the loss of RHR cooling while in Mode 5 or 6. These procedures, OFN BB-031, "Shutdown LOCA," and OFN EJ-015, "Loss of RHR Cooling," provide the means and strategy to maintain the core in a coolable geometry and ensure containment closure. Therefore, no significant radiological release would be expected and public health and safety would have been assured.

In addition to the mitigating procedural controls available, the heavy load lifts were very thoroughly planned and executed by qualified personnel using rigging equipment controlled and inspected in conformance with the applicable procedures. The polar crane was maintained and inspected at the beginning of the outage, and the hoist has redundant limit switches that are verified to be operational to prevent two-blocking accidents (a significant cause of load drops). Therefore, even though the procedure allowed carrying heavy loads over the only operable RHR train in RF IX and previous outages, the likelihood of a load drop remained very low as evidenced by the design of the crane and the carefully planned execution of lifts by qualified personnel that are associated with Reactor Coolant Pump replacement work. The other lifts of heavy loads that are likely to have passed over the RHR suction piping areas are much less significant in weight and judged to not have the potential to penetrate the three levels of floors over the subject RHR piping.

Other Previous Occurrences:

There have been no previous occurrences of heavy load analysis assumption/procedure inconsistencies associated with the polar crane usage in the Containment Building.

LIST OF COMMITMENTS

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation (WCNOC) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please notify the Manager Licensing & Corrective Action at Wolf Creek Nuclear Generating Station of any questions regarding this document or any associated commitments.

COMMITMENT	Date/Event
Review WCNOC-4 with operational documents such as the Technical Specifications, Updated Safety Analysis Report (USAR), and applicable procedures to identify any other potential discrepancies. Revision of WCNOC-4 is expected to be completed by November 13, 1998.	Expected due date: November 13, 1998
Revise AP 14-001 as necessary to enforce requirements based on the findings from this review. This corrective action is contingent upon the review of WCNOC-4. Therefore, the expected due date for this action is November 27, 1998.	Expected due date: November 27, 1998
<ul style="list-style-type: none">Review WCNOC-4 for consistency of assumptions with current operating conditions in all modes of operation.Review WCNOC-4 against definition of "Miscellaneous Documents" to see if it should be re-classified to a higher tier document, as it provides the basis for procedural controls for heavy loads.Review other WCNOC series documents to ensure they are properly classified and do not contain information that could affect procedural controls of activities.	April 10, 1999