



## Nebraska Public Power District

COOPER NUCLEAR STATION  
P.O. BOX 98, BROWNVILLE, NEBRASKA 68321  
TELEPHONE (402) 825-3811

NLS940107

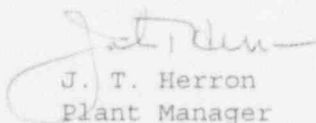
November 4, 1994

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 94-025 is forwarded as an attachment to this letter.

Sincerely,

  
J. T. Herron  
Plant Manager

JTH/nr

Attachment

cc: L. J. Callan  
G. R. Horn  
J. H. Mueller  
R. G. Jones  
R. A. Sessoms  
K. C. Walden  
INPO Records Center  
NRC Resident Inspector  
R. J. Singer  
CNS Training  
CNS Quality Assurance

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PDR ADOCK 05000298  
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## LICENSEE EVENT REPORT (LER)

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

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  
(MNB 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) COOPER NUCLEAR STATION						DOCKET NUMBER (2) 05000298			PAGE (3) 1 OF 4		
TITLE (4) Improper installation and calibration of Kaman normal and high range gaseous activity detectors due to personnel error.											
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
9	30	94	94	-- 025 --	00	11	04	94	FACILITY NAME		DOCKET NUMBER
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)		0	20.402(b)			20.405(c)			50.73(a)(2)(iv)		73.71(b)
			20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)		73.71(c)
			20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)		<input checked="" type="checkbox"/> OTHER
			20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
			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)		
Voluntary											
LICENSEE CONTACT FOR THIS LER (12)											
NAME Alan J. Horn Staff Support Engineer, Nuclear Licensing and Safety						TELEPHONE NUMBER (Include Area Code) (402) 825-3811					
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	
N/A	N/A	N/A	N/A	NO							
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 15 single-spaced typewritten lines) (16)											
<p>Information obtained at a Kaman Users Group meeting indicated that the positioning of the gaseous activity detectors affects their accuracy. Plant staff subsequently determined that these detectors have been improperly installed in monitors in various process system sample flow paths. Preliminary information from the current equipment vendor indicates that the as-found detection error ranges up to approximately 55 percent. As a result of further discussions with the current equipment vendor it was also determined that an improper method has been used for calibration of most Kaman detectors. The source used in the calibration device has been used with its storage planchet, whereas, the manufacturer's procedure uses the source without the planchet. The vendor has indicated that this discrepancy may result in approximately a 5 to 9 percent non-conservative calibration error. This report is being made for potential generic implications.</p> <p>The root cause of these deficiencies is personnel error in not fully understanding system configuration needs and not properly translating vendor requirements into station procedures. (NUREG-1022, Cause Code A, "Personnel Error")</p> <p>Corrective action planned includes proper installation and calibration of these detectors (including appropriate procedure changes) and a review of other Kaman detector installation and calibration procedures for proper implementation of vendor requirements. Additionally, generic implications for other systems will be investigated.</p>											

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
COOPER NUCLEAR STATION		05000298		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
				94	-- 025 --	00	

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

Plant Status

The plant was in Cold Shutdown with the Reactor Coolant System temperature approximately 110 degrees Fahrenheit and the Residual Heat Removal system in the Shutdown Cooling mode of operation when the improper installation and calibration was identified.

Event Description

On September 24, 1994, after attending a Kaman Users Group meeting that provided information that detector positioning affects their accuracy, it was discovered that Kaman gaseous activity high range detectors (EIIS: RE) were not properly installed. The high range G-M tubes are required to be positioned accurately in order to produce an appropriate response. The effect on the detector output could be in either the conservative or non-conservative direction. This condition was not considered reportable since the effect on these detectors from this condition would result in no significant decrease in detector efficiency. However, as discussed below, the subsequent investigation into this deficiency revealed other potential problems that the District considered reportable as an indication of potential generic implications.

On September 30, 1994, it was discovered that Kaman normal range detectors have been improperly installed in the process system sample chambers. In particular, the normal range detectors have been inserted into the chambers too far resulting in a lower sensitivity to any activity present in the system. The lower sensitivity means that a higher activity concentration is required to produce the same output as for the detector installed in the correct position. This is in the non-conservative direction. Preliminary information from the current equipment vendor (Kaman no longer sells or supports this equipment) revealed that the indication error ranges from approximately 20 percent to 55 percent for the as-found configuration. However, it is not possible to exactly quantify the error for past installation configurations.

On October 18, 1994, as a result of discussions with the current vendor, it was determined that an improper method has been used for Kaman normal and high range detector calibration. The source has been used in the calibration device with its storage planchet, whereas, the present manufacturer's procedure places the source in the calibration device without the planchet. A report produced by the current vendor in July 1992 regarding another utility's calibration anomalies determined that this discrepancy may result in approximately a 5 to 9 percent non-conservative calibration error.

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FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
COOPER NUCLEAR STATION		05000298		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
				94	-- 025 --	00	

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

Safety Significance

The Kaman radiation detectors affected by the installation and calibration deficiencies are part of the gaseous effluent monitoring (EIIIS: IL,IP) of plant ventilation and exhaust systems, including the Elevated Release Point (ERP) for the plant. The safety function of these monitors is to provide indication to the operator whenever limits on the release of radioactive material to the environs are reached or exceeded. The monitoring systems affected by these deficiencies are not essential to any transients or accidents although a backup means to take representative samples exists.

The installation and calibration deficiencies do not prevent the monitors from operating, but do affect their accuracy. Also, each Kaman normal range monitor has an alert alarm setpoint that is 10 percent of the Technical Specification alarm setpoint. The errors associated with the installation and calibration deficiencies would cause an alert alarm to be received at a higher activity value than expected, but the District determined it would still be below the Technical Specification release limit since the errors are not of a sufficient magnitude to exceed the difference between the alert alarm value and the Technical Specification release limit value.

The high range detectors are affected by the installation and calibration errors to a lesser extent than the normal range detectors. As such, the detectors would be useable, but any readings obtained for accident monitoring would be subject to the approximate 5 to 9 percent non-conservative calibration error and an unknown, though small, installation error.

In addition, Technical Specifications allow the use of alternate methods of monitoring each parameter when the monitors are determined to be inoperable. Also, the Technical Specifications require monthly grab samples of all effluents. Gross inconsistencies between the monitors and the grab samples would have been identified and investigated. No inconsistencies have been observed, which gives reassurance that no safety significant issues existed.

Therefore, the safety significance of these deficiencies is minimal.

Past semiannual radioactive material release reports that are based, in part, on records provided by the Kaman detectors have been considered for possible revision due to these potential errors. However, past releases have been a small fraction of Technical Specification limits, and, therefore, the District will not revise these release reports.

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

Cause

The root cause for these deficiencies is personnel error in not fully understanding system configuration needs and not properly translating vendor requirements into plant installation (maintenance) and calibration procedures. The deficiencies were exacerbated by a lack of detail in the Kaman information available and Kaman no longer supporting this equipment.

Corrective Action

Corrective action planned includes proper installation and calibration of these detectors (including procedure changes). This corrective action for the normal range detectors has been completed. Corrective action for the high range detectors will be completed prior to startup, when they will be required to be operable.

Also, a review of other Kaman detector installation and calibration procedures for proper implementation of vendor requirements will be completed.

Additionally, generic implications for other systems will be investigated.

Similar Events

LER 94-003      Missing o-ring in high range gaseous radiation monitors could have caused an inaccurate sample when the monitors were required to operate.