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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-014-00: on 921106, determined that an unmonitored release flowpath existed from waste gas decay tank due to component leakage & personnel error. Administrative actions will be taken w/regard to involved personnel. W/921204 ltr.

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Bridgman, MI 49106
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December 5, 1992

United States Nuclear Regulatory Commission
Document Control Desk
Rockville, Maryland 20852

Operating Licenses DPR-58
Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by
10 CFR 50.73 entitled Licensee Event Report System, the
following report is being submitted:

92-014-00

Sincerely,

A. A. Blind
Plant Manager

/sb

Attachment

c: D. H. Williams, Jr.
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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) D. C. Cook Nuclear Plant - Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 3 1 5 1 0 0 7				PAGE (3) 1 OF 0 7										
TITLE (4) Unmonitored Release of a Waste Gas Decay Tank Due to Component Leakage and 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 NAMES				DOCKET NUMBER(S)											
1	1	0	6	9	2	9	2	0	1	4	0	0	1	2	0	5	9	2	D. C. Cook - Unit 2				0 5 0 0 0 3 1 6	
OPERATING MODE (9) 1			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																					
POWER LEVEL (10) 0 7 0			20.402(b)				20.406(a)				60.734(a)(2)(iv)				73.71(b)									
			20.406(a)(1)(i)				60.364(e)(1)				X 60.734(a)(2)(v)				73.71(c)									
			20.406(a)(1)(ii)				60.364(e)(2)				60.734(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 365A)									
			20.406(a)(1)(iii)				60.734(a)(2)(i)				60.734(a)(2)(vii)(A)													
			20.406(a)(1)(iv)				60.734(a)(2)(ii)				60.734(a)(2)(vii)(B)													
			20.406(a)(1)(v)				60.734(a)(2)(iii)				60.734(a)(2)(viii)													
LICENSEE CONTACT FOR THIS LER (12)																								
NAME Joel S. Wiebe - Safety and Assessment Superintendent										TELEPHONE NUMBER														
										AREA CODE 6 1 6														
										4 6 5 - 5 9 0 1														
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																								
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC														
SUPPLEMENTAL REPORT EXPECTED (14)																								
YES (If yes, complete EXPECTED SUBMISSION DATE)										X NO		EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR								

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

On November 6, 1992 at 1010 hours it was determined that an unmonitored release flowpath existed from the waste gas decay tank via the steam generators during nitrogen sparging. Further investigation determined that similar releases had occurred on five occasions from November 1, 1992 to November 6, 1992 for a total release duration of five hours and nine minutes.

The cause of these events was determined to be seat leakage through the nitrogen isolation valve for the waste gas decay tank and the mispositioning of the nitrogen header isolation valve, which allowed the contents of the waste gas decay tank to enter the nitrogen header (used for sparging the steam generators) and subsequently exit through the steam generators.

Following discovery of this event, the nitrogen supply header isolation valve to the waste gas decay tanks was isolated, no further decrease in the waste gas decay tank was identified. Analysis of the gas decay tank contents determined that the release to the public was insignificant and well within the limits of Plant Technical Specifications.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 308A's) (17)

Conditions Prior To Occurrence

Unit One (U-1) in MODE One at 70% power.

Unit Two (U-2) in MODE Five (Cold Shutdown).

Description of Event

On November 6, 1992 at 1010 hours it was determined that an unmonitored release flowpath existed from the waste gas decay tank (EIIS-WE/TK) via the steam generators (EIIS-BA/HX) during nitrogen sparging.

The unmonitored releases occurred on the following dates for a total duration time of 5 hrs and 9 mins.:

- 11-1-92 for a duration of 1hr 10 min.
- 11-2-92 for a duration of 1hr 1 min.
- 11-3-92 for a duration of 1hr
- 11-5-92 for a duration of 1hr 13 min.
- 11-6-92 for a duration of 45 min

Steam generator sparging is performed to ensure the proper mixing of the chemicals added to the steam generators (EIIS-BA/HX) while the generators (EIIS-BA/HX) are in wet layup. The sparging activity consists of introducing nitrogen into the steam generators (EIIS-BA/HX) via connections in the steam generator blowdown lines (EIIS-BA/WI) upstream of the blowdown isolation valves (EIIS-WI/ISV). The nitrogen utilized for sparging is supplied by the auxiliary building nitrogen header (EIIS-LK).

The generators (EIIS-BA/HX) are then vented via the power operated relief lines (EIIS-BA/RV) to the atmosphere. This is done to ensure that a 100 psi differential is not created between the generator (EIIS-BA/HX) being sparged and the other steam generators (EIIS-BA/HX) and to prevent a buildup of harmful levels of nitrogen in the steam generator's main steam isolation valve (EIIS-SB/ISV) area.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 800 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (IP-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 305A's) (17)

Description of Event (cont)

During sparging on November 6, 1992, it was noted, that the pressure in the number two waste gas decay tank (EIIS-WE/TK) was decreasing unexpectedly. Following an initial investigation it was determined that a small percentage of the content of the number two waste gas decay tank (EIIS-WE/TK) was believed to have leaked into the nitrogen header (EIIS-LK) as a result of backleakage through 2-N-156 (nitrogen supply to the number two waste gas decay tank isolation valve (EIIS-LK/ISV)) and the mispositioning of an upstream isolation valve (2-N-155, Nitrogen supply to the waste gas decay tanks header isolation valve (EIIS-LK/ISV)). The mixture of nitrogen and waste gas decay tank contents was subsequently released to the atmosphere via the established steam generator vent path (EIIS-BA/HX) (see attached diagram of the postulated flowpath (Figure 1)).

The investigation into the November 6th event determined that each time the steam generators (EIIS-BA/HX) were sparged on Unit Two, a similar phenomenon occurred. This was verified by review the waste gas decay tank recorder charts (EIIS-WE/PR). During each sparge, number two waste gas decay tank pressure was seen to decrease until the sparge was secured, at which time, number two waste gas decay tank pressure returned to a pressure approximately equivalent with nitrogen header pressure.

This event is considered reportable, since the flowpath out of the steam generator (EIIS-BA/HX) constituted an unmonitored release path. As described previously, steam generator power operated relief valves (PORVs) (EIIS-BA/RV) are routinely used to provide the vent path during steam generator sparging. The PORVs (EIIS-BA/RV) are equipped with radiation monitors (EIIS-IL/MON) and therefore provide a monitored pathway (though a release during sparging is not anticipated). At the time of this event, the steam generator PORVs (EIIS-BA/RV) were isolated and unavailable as a vent path, as a result, a decision was made to utilize the main steam isolation valve dump valves (EIIS-SB/RV) as a vent path. The dump valves EIIS-SB/RV do not contain a radiation monitor (EIIS-IL/MON). Therefore, when it was determined that the number two waste gas decay tank (EIIS-WE/TK) was leaking into the nitrogen header (EIIS-LK) supplying the sparging operations, it was realized that an unmonitored release was potentially in progress.

On November 6, 1992, this event was reported in accordance with 10CFR50.72(b)(2)(iii)(c), "Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to: control the release of radioactive material."

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

Cause of Event

There were two primary causes to this event. First, the nitrogen isolation valve (2-N-156) to the number two waste gas decay tank was determined to be leaking by. Proper seating of this valve, alone, would have prevented the release from occurring. Secondly, the failure to position the nitrogen header isolation valve (2-N-155) in accordance with procedures (12-OHP 4021.023.001, Operation of the Waste Gas System) prevented the potential "secondary" isolation of the waste gas decay tank from the nitrogen header.

Analysis of Event

This condition is being reported in accordance with 10CFR50.73(a)2(v), any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to: control the release of radioactive material.

An analysis was performed to determine the effects of the waste gas decay tank releases via the steam generators. The following conditions were determined to be present at the time of the event and served as the basis for this analysis.

- 1) The number two waste gas decay tank was inservice during the entire duration of the event. As a result, even though nitrogen was being added to the tank, there was also fresh off-gas being added to the tank. Therefore, no credit was taken for nitrogen dilution in the release calculations.
- 2) The release duration was determined to be 5 hours and 9 minutes with a total volume of 2981 cubic feet.
- 3) The post release sample results were back calculated to estimate the pre-release contents of the number two gas decay tank.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-430), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20548, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

Analysis (cont)

As a result of this analysis, the dose to the public at the site boundary was calculated to be:

Effluent	Site Boundary Dose	Quarterly Limit	Percent Technical Specifications
Gamma	1.79 E-05mrad	5 mrad/qtr	3.58 E-04
Beta	8.46 E-05mrad	10 mrad/qtr	8.46 E-04
Iodine & Particulate	1.12 E-07mr	7.5 mrad/qtr	1.49 E-06

Based on the above analysis, it is concluded that the waste gas decay tank releases did not impact public health and safety.

CORRECTIVE ACTION

Following discovery of this event, the nitrogen supply header isolation valve to the waste gas decay tanks (2-N-155) was isolated. No further decrease in number two waste gas decay tank was identified and sparging of the steam generators was resumed.

The nitrogen supply isolation valve to the number two waste gas decay tank (2-N-156-2) has been repaired. A review of system valve repair history concluded the valve leakage to be an isolated incident.

Appropriate administrative actions will be taken with regard to the involved personnel.

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 RECORDS AND REPORTS MANAGEMENT BRANCH (P-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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Failed Component Identified

None

Previous Similar Events

None

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 RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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FIGURE 1

