

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9904150202 DOC.DATE: 99/04/05 NOTARIZED: NO DOCKET #
 FACIL:50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
 AUTH.NAME AUTHOR AFFILIATION
 BOSNIC,D. Niagara Mohawk Power Corp.
 PALEOLOGOS,N. Niagara Mohawk Power Corp.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 99-003-00:on 990312,experienced two events where leakage from ADS nitrogen storage tanks exceeded design basis leak rates & resulted in TS violations.Caused by util failed to identify causes.Util repaired several leaks.With 990405 ltr.

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Niagara Mohawk

April 5, 1999
NMP2L 1859

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Docket No. 50-410
LER 99-03

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i)(B) and 10CFR50.73(a)(2)(ii)(B), we are submitting LER 99-03, "ADS Nitrogen Leakage in Excess of NMP2 [Nine Mile Point Unit 2] Technical Specifications Surveillance Limits."

Very truly yours,



Nick Paleologos
Plant Manager - NMP2

NCP/KLL/kap
Attachment

xc: Mr. H. J. Miller, Regional Administrator, Region I
Mr. G. K. Hunegs, Senior Resident Inspector
Records Management

9904150202 990405
PDR ADOCK 05000410
S PDR



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 RECORDS AND REPORTS MANAGEMENT BRANCH (P-330), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1)

Nine Mile Point Unit 2

DOCKET NUMBER (2)

05000410

PAGE (3)

01 OF 07

TITLE (4)


ADS Nitrogen Leakage in Excess of NMP2 Technical Specifications Surveillance Limits

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)	
03	05	99	99	03	00	04	05	99	N/A		
									N/A		

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) 100%	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<i>(Specify in Abstract below and in Text, NRC Form 366A)</i>
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

Mr. D. Bosnic, Manager Operations

TELEPHONE NUMBER

(315) 349-7952

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)

NO

EXPECTED SUBMISSION DATE (15)

MONTH

DAY

YEAR

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

Between March 5 and March 12, 1999, Nine Mile Point Unit 2 (NMP2) experienced two events where leakage from the Automatic Depressurization System (ADS) nitrogen storage tanks exceeded the design basis leak rates and resulted in Technical Specification violations.

Operations personnel determined that the root cause of both events was that NMPC failed to identify the causes and significance of previous events and, therefore, implemented inadequate corrective actions from those events.

Corrective actions will include repairing the leaks, providing procedural guidance concerning identification of off-normal conditions, and reviewing this event with technical support and operations shift personnel.



LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1) Nine Mile Point Unit 2	DOCKET NUMBER (2) 05000410	LER NUMBER (6)			PAGE (3) 02 OF 07
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		99	- 03	- 00	

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

I. DESCRIPTION OF EVENT

Between March 5 and March 12, 1999, the Nine Mile Point Unit 2 (NMP2) experienced leakage from automatic Depressurization System (ADS) nitrogen storage tanks 2IAS*TK4 and 2IAS*TK5 in excess of the design basis leak rates. Niagara Mohawk Power Corporation (NMPC) is reporting these events as violations of NMP2 Technical Specification (TS) 3.5.1, and also as conditions outside the design basis of the plant. NMPC believes that the condition of excessive leakage has occurred at other times and was not recognized as exceeding the TS or design basis leakage limit.

Event #1

On March 5, 1999, NMP2 operators performed quarterly operations surveillance test N2-OSP-GSN-Q002, Nitrogen System Check Valves Exercise Test. During the test, operators performed reverse and forward flow exercise testing of selected Nitrogen System (GSN) check valves and exercise testing of some manual GSN valves. As required by the test procedure, operators removed blank flanges on the GSN emergency truck fill connections and attached a test assembly. During restoration from the test, operators reinstalled the gasket and the blank flange and verified that tanks 2IAS*TK4 and 2IAS*TK5 were both pressurized. Operators satisfactorily completed the test approximately 1700 hours on March 5, 1999.

Over the next day, operators repressurized 2IAS*TK5 several times. At approximately 1100 hours on March 6, 1999, operators identified the primary leakage source as the emergency truck fill connection flange gasket, and subsequently replaced the gasket. Operators noted that the pressure in 2IAS*TK5 stabilized, and initiated Deviation/Event Report (DER) 2-1999-0682 to evaluate the event.

During the DER 2-1999-0682 investigation, engineering and operations personnel determined that leak rate from 2IAS*TK5 and associated piping exceeded that allowed by TS without taking the required actions.

Event #2

On March 9, 1999, at approximately 2030 hours, NMP2 operators responded to a low nitrogen pressure alarm on 2IAS*TK4 and manually repressurized the tank. From March 9 to March 12, 1999, operators searched for leaks and repressurized 2IAS*TK4 five more times. Station shift supervisors (SSSs) discussed the leakage from 2IAS*TK4 at shift turnovers and concluded that the leakage was of a similar magnitude as past leaks, and therefore, believed NMP2 was not exceeding the TS leakage rate of 3 SCFH.



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I. DESCRIPTION OF EVENT (Cont'd)

On March 12, 1999, the SSS used an equation to determine that NMP2 may have exceeded allowable leakage for 2IAS*TK4, and initiated DER.2-1999-0749. By 1400 hours on March 12, 1999, technical support, maintenance, and operations personnel, fixed a few small leaks and reduced the leak rate of 2IAS*TK4 to below the TS leakage limit. Operators later found normally closed Valve 2GSN*V73A still slightly open. Valve 2GSN*V73A was difficult to operate, and operators had believed the valve to be fully closed, when in fact the valve was not tightly closed. Incomplete closure of Valve 2GSN*V73A permitted leakage through the valve following each manipulation to refill the tank since first repressurization of 2IAS*TK4 on March 9, 1999.

NMP2 engineering personnel then determined that the leak rate from 2IAS*TK4 and associated piping exceeded that allowed by TS without taking the required actions.

II. CAUSE OF EVENT

The root cause was that NMPC failed to identify the causes and significance of previous events and, therefore, implemented inadequate corrective actions from those events. In both of the events reported in this LER, operations shift management was aware of the system leakage, but believed that this level of leakage was within the TS limit.

Contributing factors to this event were:

1. Relevant information was missing from procedures

NMPC Generation Administrative Procedure GAP-SAT-02, Pre/Post-Maintenance Test Requirements; requires a leakage test after breaking a system pressure boundary. That requirement was not included in Procedure N2-OSP-GSN-Q002. Procedure N2-OSP-GSN-Q002 also did not require operators to use a new gasket whenever reassembling the flange.

Operating Procedure N2-OP-34 (Nuclear Boiler, Automatic Depressurization and Safety Relief Valves) provides the directions for repressurizing 2IAS*TK4 and 2IAS*TK5. N2-OP-34 does not provide proper caution, or information to the operators regarding excessive leakage following repressurization, nor does it caution operators of the potential for exceeding TS leakage if recharging is frequently required.

2. Degraded subcomponent

The repair team determined that the major cause of the leakage from 2IAS*TK4 was 2GSN*V73A, which was difficult to operate. Incomplete closure permitted leakage through the valve.



LICENSEE EVENT REPORT (LER)
TEXT CONTINUATIONESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION.
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RECORDS AND REPORTS MANAGEMENT BRANCH (P-330), U.S. NUCLEAR REGULATORY
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

III. ANALYSIS OF EVENT

The NMP2 design basis assumes that 2IAS*TK4 and 2IAS*TK5 supply the ADS safety relief valves with sufficient pressure for one complete actuation following a period of 5 days with no makeup available. Engineering personnel calculated that the maximum observed leakage during these two events would have provided approximately 1.68 and 1.86 days of nitrogen for 2IAS*TK4 and 2IAS*TK5, respectively, without makeup. Therefore, NMPC is reporting these events in accordance with 10CFR50.73(a)(2)(ii), "Any event or condition that resulted in the condition of the nuclear power plant,...being:...(B) In a condition that was outside the design basis of the plant."

Operators did not recognize that they exceeded the TS leakage limits and, therefore, did not take the action required by Action Statement 3.5.1.e.2 during the period when leakage exceeded SR 4.5.1.e.2.e.1 or 4.5.1.e.2.e.2. Therefore, NMPC is also reporting these events in accordance with 10CFR50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications."

For the duration of both of these events, one ADS tank remained operable, supplying either 3 or 4 ADS valves. Calculation A10.1-P-045 determined that the ADS valves have 5 days supply of nitrogen with the assumed leak rate of 1 SCFH, which is 3 SCFH total for 2IAS*TK4 (3 ADS valves). The actual worst case leakage rate was determined to be 8.9 SCFH for 2IAS*TK4. This shortened the 5-day supply to 1.68 days for 2IAS*TK4 and 1.86 days for 2IAS*TK5. Based on a review of calculation PRC-24-G, engineering personnel determined that it is reasonable to assume that 1.5 days is sufficient time to allow for a nitrogen truck to arrive on site and resupply the nitrogen tanks. The NMP2 UFSAR states that the basis for the allowable leakage is to supply the accumulators for one ADS actuation during the 4 hours following an intermediate or small break, without recharging the accumulator. 2IAS*TK4 and 2IAS*TK5 would have had sufficient accumulator pressure for actuation for 40 and 44 hours, respectively.

Further, if the main solenoids are not available for actuation of the ADS valves (there are three separate solenoids for each ADS valve), an additional solenoid is available that has a separate accumulator. In the case of 2IAS*TK4, power was available to power the additional solenoids throughout the duration of the event.

ADS functions as an alternate to the operation of the High Pressure Core Spray (HPCS) system for protection against fuel cladding damage during a LOCA. Since HPCS was available for the duration of the 2IAS*TK4 and 2IAS*TK5 events, the ADS function was redundant.

NMPC engineering services personnel performed the below Probabilistic Risk Assessments (PRAs) which assumed the associated nitrogen tank was at or below the low pressure setpoint. The results of the PRA were conservative since the tanks were above the low pressure setpoints for the periods evaluated.



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

III. ANALYSIS OF EVENT (Cont'd)

Event #1

2IAS*TK5 experienced excessive leakage for approximately 18 hours. Engineering services personnel determined that unavailability of 2IAS*TK5 would be non-risk significant for up to 23 hours. Therefore, the excessive leakage was not risk significant.

Event 2:

2IAS*TK4 experienced excessive leakage for approximately 65.5 hours (from approximately 2030 hours on March 9, to approximately 1400 hours on March 12, 1999). Engineering services personnel determined that the unavailability of 2IAS*TK4 would be non-risk significant (core damage probability less than 1.0E-06 per year) for up to 72 hours provided:

1. The time below the low pressure setpoint was minimized (i.e., operators repressurize the tanks as necessary).
2. Any work that could cause a loss of offsite power or the unavailability of the Division II Emergency Diesel Generator was suspended.
3. Any work that could cause the unavailability of HPCS or Reactor Core Isolation Cooling was suspended.

During the period of 2IAS*TK4 leakage from March 9 to March 12, 1999, NMP2 activities and testing met the above conditions. Therefore, NMPC determined that this event was not risk significant.

Based on the above, NMPC has concluded that these events had no adverse effect on the health and safety of the public or site workers.

IV. CORRECTIVE ACTIONS

1. NMPC repaired several small leaks and is ensuring that 2GSN*V73A is fully closed after every operation.
2. NMPC revised Operating Procedure N2-OP-34 to:
 - a. Add information regarding 2IAS*TK4 and 2IAS*TK5 pressure changes that may be indicative of a leak in excess of the TS limit.



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IV. CORRECTIVE ACTIONS (Cont'd)

- b. Require periodic monitoring of 2IAS*TK4 and 2IAS*TK5 following repressurization and leak checks at the packing of valves manipulated during repressurization.
3. NMPC will revise N2-OSP-GSN-Q002, on or before April 20, 1999, to:
 - a. Require a new gasket to be used when reinstalling the blank flange on the emergency truck fill connection, and that the flange and manipulated valves will be checked for leaks at the conclusion of the surveillance test.
 - b. Require periodic monitoring of 2IAS*TK4 and 2IAS*TK5 pressures following completion of the surveillance test.
4. NMPC will discuss the significant aspects of this event and the associated appropriate behaviors with all technical support department and operations personnel, on or before June 18, 1999.
5. NMPC will repair or replace Valve 2GSN*V73A during Refueling Outage 7.

V. ADDITIONAL INFORMATION

- A. Failed components: none.
- B. Previous similar events:

Similar nitrogen system leakage events were reported in DERs 2-1991-Q-0034, 2-1998-2602, and 2-1998-3402. These prior events were not recognized as meeting the criteria for reportability, and data is not available to determine the actual leak rates. As a result, the corrective actions from these events reflected this lack of recognition, and were narrowly focused. Corrective action system improvements and the corrective actions described in this LER will ensure that operations and technical support personnel understand the importance of leakage from 2IAS*TK4 and 2IAS*TK5 in the future.



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

V. **ADDITIONAL INFORMATION (Cont'd)**

C. Identification of components referred to in this LER:

COMPONENT	IEEE 803 FUNCTION	IEEE 805 SYSTEM ID
Tank	TK	LK
Accumulator	ACC	N/A
Check Valves	V	LK
Manual Valve	V	LK
Flange	N/A	LK

