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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9104230235 DOC.DATE: 91/04/15 NOTARIZED: NO DOCKET #
 FACIL:50-220 Nine Mile Point Nuclear Station, Unit 1, Niagara Powe 05000220
 AUTH.NAME AUTHOR AFFILIATION
 CARSON,M. Niagara Mohawk Power Corp.
 FIRLIT,J.F. Niagara Mohawk Power Corp.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-004-00:on 910315,determined that plant operated w/
 lake temps above max allowable lake temp of containment
 spray.Caused by inadequate design basis & configuration
 control.Procedures & instructions revised.W/910415 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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	BRINKMAN, D	1 1		
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	AEOD/ROAB/DSP	2 2	NRR/DET/ECMB 9H	1 1
	NRR/DET/EMEB 7E	1 1	NRR/DLPQ/LHFB11	1 1
	NRR/DLPQ/LPEB10	1 1	NRR/DOEA/OEAB	1 1
	NRR/DREP/PRPB11	2 2	NRR/DST/SELB 8D	1 1
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	NRR/DST/SRXB 8E	1 1	REG FILE 02	1 1
	RES/DSIR/EIB	1 1	RGN1 FILE 01	1 1
EXTERNAL:	EG&G BRYCE, J.H	3 3	L ST LOBBY WARD	1 1
	NRC PDR	1 1	NSIC MAYS, G	1 1
	NSIC MURPHY, G.A	1 1	NUDOCS FULL TXT	1 1

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A0 4/44

Joseph F. Firlit
Vice President
Nuclear Generation

NMP77393

April 15 , 1991

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

RE: Docket No. 50-220
LER 91-04

Gentlemen:

In accordance with 10CFR50.73, we hereby submit the following Licensee Event Report:

LER 91-04 Which is being submitted in accordance with 10CFR50.73 (a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications".

This report was completed in the format designated in NUREG-1022, Supplement 2, dated September 1985.

Very truly yours,

K A Dahlby for JFF

Joseph F. Firlit
Vice President - Nuclear Generation

JFF/MC/lmc

ATTACHMENT

xc: Thomas T. Martin, Regional Administrator Region I
William A. Cook, Sr. Resident Inspector

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Nine Mile Point Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 2 2 0				PAGE (3) 1 OF 0 5		
TITLE (4) Operation of NMP1 Above Maximum Lake Temperature of Containment Spray due to Inadequate Design Basis and Configuration Control																
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	3	1	5	9	1	9	1	0	0	4	1	5	9	1	N/A	0 5 0 0 0
OPERATING MODE (9) N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)														
POWER LEVEL (10) 0 10 1 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)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
		20.405(a)(1)(iii)				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)(ix)						
LICENSEE CONTACT FOR THIS LER (12)																
NAME Michael Carson, Regulatory Compliance NMP1										TELEPHONE NUMBER AREA CODE 3 1 5 3 4 9 - 1 4 8 2						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS						
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO				

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

On March 15, 1991, while Nine Mile Point Unit 1 (NMP1) was in Cold Shutdown it was determined that NMP1 has operated in the past with Lake Temperatures above the maximum allowable lake temperature. Also, the values for maximum lake temperature, flow rate and fouling factor used for calculating the heat removal capacity of the Containment Spray Heat Exchangers may have been non-conservative.

The cause of the events were Standards, Policies and Administrative Controls that in the past, were less than adequate to implementing Design Basis Information and Configuration Control.

Actions taken were to write and issue a Technical Specification Interpretation on Maximum Lake Temperature and the required action should that temperature limit be exceeded. Procedures and instructions were revised to reflect this limit. Shift briefings were used to inform Control Room Operators of the new maximum lake temperature. The long term corrective action will be to complete the Design Basis Reconstitution for the Containment Spray system and to incorporate that basis in the required documents. This will ensure that all of the required values for the Containment Spray System are known and are being met.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 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.

FACILITY NAME (1) Nine Mile Point Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 2 0	LER NUMBER (6)			PAGE (3)		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

I. DESCRIPTION OF EVENT

On March 15, 1991, while Nine Mile Point Unit 1 (NMP1) was in Cold Shutdown it was determined that NMP1 had operated when Containment Spray was required to be "operable" and lake temperature was above the maximum limit of 77 degrees Fahrenheit (°F). Those periods of operation were:

- July 18, 19, 21, 26, 1977
- July 24-27, 29-31, 1979
- August 8, 1979
- July 28, 29, 1983
- August 6-10, 1983
- August 5-11, 15-17, 1984
- July 11-31, 1987
- August 4, 1987

On March 14, 1991, Safety Evaluation 91-008 titled "Short Term Lake Temperature Limit to Assure Required Heat Removal Capacity of the Containment Spray System" was issued. The issues addressed by Safety Evaluation 91-008, that were of an operability concern are:

1. Power Ascension Test (N1-PAT-7) Containment Spray Heat Exchanger performed on 12/4/90 the results of which indicate that the performance of Containment Spray Heat Exchanger #111 is slightly below its design basis. It is suspected that this degraded performance is due to excessive fouling in the heat exchanger.

As a result of the measured performance of Heat Exchanger #111 Occurrence Report 90-148 was written and Technical Specification Interpretation 79 was issued to lower the maximum lake temperature to 71.2°F. With the issuing of Safety Evaluation 91-008 the maximum allowable temperature of the inlet lake water has been lowered further to 68.7°F at a maximum flow rate of 3000 gallons per minute (gpm). It is suspected that the lower than expected heat removal capacity of the heat exchangers is due to an increased fouling of the heat exchangers above the maximum design of 0.0006 hour-foot squared °F/British Thermal Unit (hr-ft² - °F/BTU) to an actual tested factor of 0.001 hr-ft² - °F/BTU. The new maximum lake temperature is being applied to all four of the Containment Spray Heat Exchanges, until all of the heat exchangers are cleaned and

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

I. DESCRIPTION OF EVENT (cont.)

tested to a fouling of less than $0.0006 \text{ hr-ft}^2 - ^\circ\text{F/BTU}$ at which time the maximum lake temperature limit may be raised to 72.4°F .

2. The issue of what Containment Spray torus water flow rate was used in the Loss of Coolant Accident (LOCA) Containment Response Analysis. Whether 3000 gpm per the Final Safety Analysis Report (FSAR) or 3600 gpm per Technical Specifications gpm was addressed.

There is insufficient documentation to conclusively determine the flow rate truly used in the NMP1 LOCA Containment Analyses. Currently, the NMP1 Inservice Testing Program is only capable of taking credit for 3000 gpm Torus water flow. Therefore, we may only take credit for 3000 gpm Torus water flow in determining the heat removal capacity of the Containment Spray System which was done in calculation S14-93HX06. This new calculation resulted in the maximum lake temperature being reduced from 77°F to 72.4°F . As a result of performance of N1-PAT-7 and the design basis investigations, the maximum lake temperature was reduced to 68.7°F . Technical Specification 79 was revised and procedures were changed to reflect this revised temperature limit.

II. CAUSE OF EVENT

The cause of these events was Standards, Policies and Administrative Controls that were less than adequate to implementing Design Basis Information and Configuration Control. Prior to July 1990 the operators were not aware of the maximum lake temperature limit for the Containment Spray System given in the design basis. Also, the actual flow rates that were used for Containment Spray Heat Exchangers Analysis were unclear, differing flow rates are given in the FSAR (3000 gpm) and Technical Specifications (3600 gpm). This results in different maximum lake temperatures for the Containment Spray System. The original calculations on the Containment Spray Heat Exchangers (S14-93HX06) made an assumption of a maximum fouling factor that may be non-conservative.

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 368A's) (17)

III. ANALYSIS OF CONDITION

This condition is reportable in accordance with 10CFR 50.73 (a)(2)(i)(b), "Any condition not allowed by Technical Specifications". When lake temperature was above 77°F the Containment Spray System was not operable and no compensatory actions were taken.

There were no significant consequences as a result of this condition since the maximum lake temperature for the Containment Spray Raw Water System would apply only during an accident that required the Containment Spray System to be placed in service. NMP1 has not experienced such an accident.

Prior to December 1987, only one train of Core Spray would be needed during an accident, therefore, two Containment Spray Trains would be available to remove the needed energy from the Containment. Since December 1987 two trains of Core Spray would be required during an accident. The Plant was shutdown from December 1987 until August 1990 so Containment Spray was not required. Since the plant restarted in August 1990, the lake temperature has been below 77°F. Currently, if lake temperature exceeds 68.7°F, the Containment Spray System would be declared inoperable and the appropriate Limiting Condition of Operation (LCO) would be entered.

IV. CORRECTIVE ACTIONS

The corrective actions implemented to assure Containment Spray Operability were:

- Revised Technical Specification Interpretation 79 (TSI 79) to reflect a maximum lake water temperature of 68.7°F for Containment Spray Raw Water at a maximum flow rate of 3000 gpm. If the Heat Exchangers are cleaned such that the tested fouling is less than 0.0006 hr-ft² - °F/BTU the maximum temperature may be raised to 72.4°F (per Safety Evaluation 91-008).
- Informed all Control Room Operators of the new maximum lake temperatures.
- Revised the following procedures to reflect a maximum lake temperature of 68.7°F.
 - ♦ N1-ST-DO Daily Checks
 - ♦ N1-ST-6A, 6B, 6C, 6D Containment Spray System Quarterly Operability Test
 - ♦ N1-OP-14 Containment Spray System

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

IV. CORRECTIVE ACTIONS (cont.)

- Incorporation of the results of calculation S14-93HX06 into the allowable raw water temperature curve in Mechanical Design Criteria 11 (MDC 11) until the design basis reconstitution of the Containment Spray System is completed.

Long term corrective actions:

- Complete the Design Basis Reconstitution for the Containment Spray System and incorporate the findings in the appropriate design and operating documents.

V. ADDITIONAL INFORMATION

A. Previous similar events:

LER 88-02 Plant potentially operated outside design basis due to deficiency of 125 vdc distribution system.

The corrective actions would not have prevented this condition due to the Design Basis Reconstitution for the Containment Spray System not being complete.

B. Failed components: none.

