



April 27, 2000
NMP2L 1958

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Docket No. 50-410
Licensee Event Report 00-05

Gentlemen:

In accordance with 10 CFR 50.73(a)(2)(ii)(B), we are submitting Licensee Event Report 00-05,
"Service Water System Does Not Meet Single Failure Requirement."

Sincerely,

A handwritten signature in black ink, appearing to read "M. Peckham".

Michael F. Peckham
Plant Manager - NMP2

MFP/KLE/tmk
Attachment

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

Handwritten initials "JE22" in black ink.

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-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 2

DOCKET NUMBER (2)

05000410

PAGE (3)

01 OF 04

TITLE (4) Service Water System Does Not Meet Single Failure Requirement

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	28	00	00	005	00	04	27	00	N/A	
									N/A	

OPERATING MODE (9)

5

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10) 000	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input 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)	(Specify in Abstract below and in Text, NRC Form 366A)
	<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

Stephen E. Geier, Manager Engineering Unit 2

TELEPHONE NUMBER

(315) 349-7887

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)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO		06	16	00

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

On March 28, 2000, with the plant shutdown for refueling, a root cause team investigating a loss of Division II service water initiated a Deviation/Event Report to have engineering evaluate whether the service water system met single failure requirements during a loss of coolant accident. On March 30, 2000, an engineering evaluation determined that a single failure would result in the closing of the non-essential service water isolation valves. This could result in the loss of running service water pumps due to low discharge flow trips.

On April 15, 2000, a modification to the control circuitry logic of the non-essential service water isolation valves corrected the single failure condition. Niagara Mohawk Power Corporation is continuing to investigate the cause of the single failure susceptibility and will submit additional information in a supplement to this report by June 16, 2000.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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		YEAR		SEQUENTIAL NUMBER		
					REVISION NUMBER	
Nine Mile Point Unit 2	05000410	00	-	05	- 00	02 OF 04

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

I. DESCRIPTION OF EVENT

On March 28, 2000, with the plant shutdown for refueling, a root cause team investigating a loss of Division II service water initiated a Deviation/Event Report to have engineering evaluate whether the service water system met single failure requirements. The root cause determination was in response to a loss of Division II service water that occurred on March 17, 2000, which is described in Licensee Event Report 00-04. On March 30, 2000, an engineering evaluation determined that service water did not meet the single failure requirement, in that a single failure could lead to the loss of all running service water pumps during a loss of coolant accident. A single failure would result in the closing of the non-essential service water isolation valves. With the isolation of the non-essential service water loads, system flow paths would be reduced resulting in reduced flow that could result in the loss of all running service water pumps due to low discharge flow trips.

On March 30, 2000 the control room was informed of the service water single failure susceptibility and declared service water inoperable and entered the action statement of Technical Specification 3.7.1.2.a.

On April 1, 2000, engineering provided a further evaluation to support the operability of service water in Modes 4 and 5 with the single failure condition present.

Non-essential service water loads may be isolated by either of two valves in series, a Division I isolation valve and/or a Division II isolation valve. Division I isolation valves would automatically close on logic of EITHER of two conditions: (1) loss of off-site power to Division I, OR (2) a loss of all Division II service water pumps. A design change was implemented on April 15, 2000 that modified this logic. As modified, the Division I isolation valves will still automatically close on a loss of off-site power to Division I. However, the second closure condition now requires (1) a loss of all Division II service water pumps AND (2) a loss of power to Division II. A parallel logic modification was installed for Division II. This corrected the service water single failure condition for the postulated loss of coolant accident.

A root cause team was established to determine the cause of the single failure condition and is continuing its investigation.

II. CAUSE OF EVENT

Niagara Mohawk Power Corporation is continuing to investigate the cause of the event and will submit additional information in a supplement to this report.

NRC FORM 366A	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150-0104 EXPIRES:
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-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 366A's) (17)

III. ANALYSIS OF EVENT

This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(B), "Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or that resulted in the nuclear power plant being: (B) In a condition that was outside the design basis of the plant." The service water system design basis requires that single failure criteria be met. An engineering review determined that the service water system did not meet single failure criteria during a loss of coolant accident.

The service water system is designed with suitable redundancy to provide a reliable supply of cooling water during and following a design basis loss of coolant accident for essential components and systems. For the single failure identified, the non-essential valves will close, isolating the non-safety related service water loads that comprise the major flow demand on the service water system. All operating pumps will run back on their operating curves reducing flow through each pump. Each pump has a low discharge flow trip for equipment protection. The reduced flow will approach the low discharge flow trip setpoint. Whether an individual pump reaches the low discharge flow trip setpoint depends on several factors. These factors are (1) the number of pumps running and the balance of flow among the pumps, (2) the flow paths available and (3) the instrument uncertainty associated with the trip setpoint. At low flow conditions, the flow instrument uncertainty is significant. The setpoint for tripping the pump is flow less than 1000 gallons per minute for a period of 10 seconds. However, engineering has determined that due to instrument uncertainty, an actual flow of less than 2100 gallons per minute may cause a trip. With the variability of flow paths and pump configuration and the degree of instrument uncertainty, it is conservative to conclude that closure of the non-essential isolation valves could have resulted in the tripping of all running service water pumps.

The low flow trip logic does not lock out the pump following a trip and the pump can be manually restarted as soon as the low flow condition is resolved. Procedures are in place to monitor and take manual action to manage service water flow. If the non-essential service water isolation valves should close, training and procedural guidance would direct operators to promptly restore service water flow.

A probabilistic assessment that estimated the risk impact of a scenario involving single failure that can cause a loss of service water concluded that the scenario at Nine Mile Point Unit 2 has very low risk significance. The annual Core Damage Frequency associated with a single failure event that can cause a loss of service water was calculated to be 1.9E-07/yr.

Based on the above, this event did not pose a threat to the health and safety of the public or plant personnel.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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

IV. CORRECTIVE ACTIONS

1. A design change was implemented to the control circuitry logic for the non-essential service water isolation valves correcting the single failure susceptibility.
2. Corrective actions resulting from the root cause investigation will be included, as appropriate, in a supplement to this report.

V. ADDITIONAL INFORMATION

A. Failed components: none

B. Previous similar events:

This information will be provided in a supplement to this report.

C. Identification of components referred to in this LER:

Component	IEEE 803A Function	IEEE 805 System ID
Service Water System	N/A	BI
Pumps	P	BI
Valves	ISV	BI