

CATEGORY 1

REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

* ACCESSION NBR: 9703110153 DOC.DATE: 97/03/03 NOTARIZED: NO DOCKET #:
 FACIL: 50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester G 05000244
 AUTH.NAME AUTHOR AFFILIATION
 ST. MARTIN, J.T. Rochester Gas & Electric Corp.
 MECREDY, R.C. Rochester Gas & Electric Corp.
 RECIP.NAME RECIPIENT AFFILIATION

VISSING, G.S

SUBJECT: LER 97-001-00: on 970131, discovered service water temp was
 less than specified value. Caused by non-representative
 method of monitoring. Increased water temp in screenhouse bay
 to greater than 35 degrees F. W/970303 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 9
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: License Exp date in accordance with 10CFR2, 2.109(9/19/72). 05000244

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ROBERT C. MECREDY
Vice President
Nuclear Operations

March 3, 1997

U.S. Nuclear Regulatory Commission
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Attn: Guy S. Vissing
Project Directorate I-1
Washington, D.C. 20555

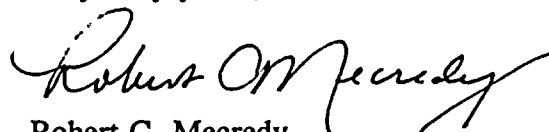
Subject: LER 97-001, Service Water Temperature Less Than Specified Value, Due to
Non-Representative Method of Monitoring, Resulted in Condition Prohibited by
Technical Specifications
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Vissing:

In accordance with 10 CFR 50.73, Licensee Event Report System, item (a) (2) (i) (B), which
requires a report of, "Any operation or condition prohibited by the plant's Technical
Specifications", the attached Licensee Event Report LER 97-001 is hereby submitted.

This event has in no way affected the public's health and safety.

Very truly yours,


Robert C. Mecredy

xc: Mr. Guy S. Vissing (Mail Stop 14C7)
PWR Project Directorate I-1
Washington, D.C. 20555

U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Ginna Senior Resident Inspector

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PDR ADOCK 05000244
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NRC FORM 366 (4-95)			U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98 <small>ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT</small>					
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)											
FACILITY NAME (1) R.E. Ginna Nuclear Power Plant					DOCKET NUMBER (2) 05000244		PAGE (3) 1 OF 8				
TITLE (4) Service Water Temperature Less Than Specified Value, Due to Non-Representative Method of Monitoring, Resulted in Condition Prohibited by Technical Specifications											
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	
01	31	97	97	-- 001	-- 00	03	03	97	FACILITY NAME	DOCKET NUMBER	
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)								
POWER LEVEL (10)		100	20.2201(b)		20.2203(a)(2)(v)		<input checked="" type="checkbox"/> 50.73(a)(2)(i)		50.73(a)(2)(viii)		
20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)		73.71		OTHER	
20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		50.73(a)(2)(iv)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A	
20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(vii)		50.73(a)(2)(vi)		50.73(a)(2)(viii)		50.73(a)(2)(ix)	
20.2203(a)(2)(iii)		50.36(c)(1)		50.36(c)(2)		50.73(a)(2)(v)		50.73(a)(2)(vi)		50.73(a)(2)(vii)	
20.2203(a)(2)(iv)		50.36(c)(1)		50.36(c)(2)		50.73(a)(2)(v)		50.73(a)(2)(vi)		50.73(a)(2)(vii)	
LICENSEE CONTACT FOR THIS LER (12)											
NAME John T. St. Martin - Technical Assistant								TELEPHONE NUMBER (Include Area Code) (716) 771-3641			
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	CAUSE	SYSTEM
SUPPLEMENTAL REPORT EXPECTED (14)											
YES (If yes, complete EXPECTED SUBMISSION DATE).						<input checked="" type="checkbox"/> NO		EXPECTED SUBMISSION DATE (15)		MONTH	DAY
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)											
<p>On January 31, 1997, at approximately 1300 EST, the plant was in Mode 1 at approximately 100% steady state reactor power. Utilizing a hand-held temperature monitoring probe, it was discovered that the Service Water pump suction temperature (screenhouse bay temperature) was slightly less than 35 degrees F. Having this temperature less than 35 degrees F is a condition prohibited by the Ginna Station Improved Technical Specifications Bases, Section B 3.7.8.</p> <p>Immediate corrective action was taken to increase the water temperature in the screenhouse bay to greater than 35 degrees F, thus restoring compliance with the Improved Technical Specifications Bases.</p> <p>The cause was a non-representative method of monitoring screenhouse bay temperature.</p> <p>On February 11, 1997, at approximately 2230 EST, environmental restrictions limited the ability to increase the water temperature in the screenhouse bay. Temperature was slightly less than 35 degrees F. Corrective action was taken to increase the water temperature in the screenhouse bay while remaining within the limits of the environmental restrictions.</p> <p>Corrective action to prevent recurrence is outlined in Section V.B.</p>											

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

I. PRE-EVENT PLANT CONDITIONS:

Concerns for the accuracy of inlet lake water temperature indications were raised in mid-January, 1997, by Operations Personnel. On January 23, 1997, an evaluation of the accuracy of measuring inlet lake temperature to the plant was being conducted by Nuclear Engineering Services (NES) engineers. It was identified that the instruments being used to monitor screenhouse bay water temperature may not provide a true indication of either Service Water (SW) pump suction temperature or screenhouse bay water temperature.

On January 31, 1997, NES engineers measured the screenhouse bay temperature locally at several locations, using a hand-held temperature monitoring probe, to verify the accuracy and consistency as compared with the permanently installed instruments.

II. DESCRIPTION OF EVENT:

A. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

- January 23, 1997: Concern for potentially inadequate mixing of incoming lake water to the screenhouse bay is documented.
- January 31, 1997, 1300 EST: Event date and time. Screenhouse bay temperature is discovered less than 35 degrees F.
- January 31, 1997, 1330 EST: Screenhouse bay temperature is increased above 35 degrees F.
- January 31, 1997, 1500 EST: Discovery Date and time.
- February 11, 1997, 2230 EST: Screenhouse bay temperature decreases to less than 35 degrees F.
- February 11, 1997, 2250 EST: Screenhouse bay temperature is increased above 35 degrees F.

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B. EVENT:

On January 31, 1997, at approximately 1300 EST, the plant was in Mode 1 at approximately 100% steady state reactor power. Personnel from NES and Operations were measuring the temperature locally in the screenhouse bay using a hand-held temperature monitoring probe. One local reading was measured as 34.6 degrees F, which is < 35 degrees F. The Control Room operators were immediately notified.

When lake temperature is very cold (< 38 degrees F), some of the warmer water discharged from the plant is normally recirculated to mix with the incoming lake water. This recirculation flow is normally throttled by operation of the recirculation gate to direct the desired amount of condenser outlet discharge water back into the plant, to maintain this temperature > 38 degrees F, as measured by permanently installed instruments.

The Control Room operators initiated actions to increase the screenhouse bay temperature by providing more condenser outlet discharge water to recirculate back into the screenhouse bay. Within half an hour, the coldest locally measured screenhouse bay temperature was increased to > 35 degrees F. Continued monitoring by the hand-held probe confirmed that the screenhouse bay temperature remained above 35 degrees F.

The Ginna Station Improved Technical Specifications (ITS) Bases for the Service Water (SW) system (Section B 3.7.8) states minimum water level and temperature requirements for the screenhouse bay. At approximately 1500 EST on January 31, it was discovered that screenhouse bay temperature, which had been < 35 degrees F for approximately half an hour, did not meet this ITS Bases. This condition was a failure to meet the Surveillance Requirements (SR) of ITS SR 3.7.8.1. As per ITS SR 3.0.1, failure to meet a SR shall be failure to meet the LCO. This condition, had it been recognized as being associated with failure to meet ITS Limiting Condition for Operation (LCO) 3.7.8 CONDITION C, would have resulted in entry into ITS LCO 3.0.3. Thus, at approximately 1500 EST, it was discovered that the plant had been in a condition prohibited by Technical Specifications from time of the event (approximately 1300 EST) until time of correcting the condition (approximately 1330 EST).

Operators monitored screenhouse bay temperatures utilizing a portable temperature probe in several locations to ensure temperature remained >/= 35 degrees F.

On February 11, 1997, lake temperature was measured below 32 degrees F. Screenhouse bay temperature, as measured by permanently installed instruments, was > 38 degrees F. At approximately 2230 EST, screenhouse bay temperature was measured < 35 degrees F using the hand-held temperature monitoring probe. Due to environmental restrictions on the maximum differential temperature between the lake inlet and the condenser outlet discharge temperatures, recirculation of more discharge water would have exceeded this environmental restriction, and was not a desirable action. Therefore, reactor power was decreased to lower the condenser outlet discharge water temperature. The Control Room operators used a combination of further throttling open the recirculation gate and decreasing reactor power until screenhouse bay temperature was >/= 35 F. This was achieved within half an hour, at approximately 2250 EST on February 11, 1997.

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Again, temperature < 35 degrees F was a failure to meet ITS SR 3.7.8.1, which required entry into ITS LCO 3.0.3. Corrective actions were completed within 6 hours, so completion of the actions required by LCO 3.0.3 were not required.

The ITS Bases B 3.7.8 was recognized as being too limiting for operation under lake temperature conditions experienced during a normal winter. The plant design basis was investigated and it was justified that the ITS Bases could be changed. Once this change was made to the ITS Bases, greenhouse bay temperature was allowed to decrease, as long as it was maintained above the new limit of 32 degrees F, and reactor power was increased to normal full power, at approximately 1900 EST on February 12, 1997.

It is not possible, via review of the plant operating history since inception of the ITS (on February 24, 1996), to accurately identify any other times when greenhouse bay temperature was < 35 degrees, due to the lack of representative data from the hand-held temperature monitoring probe prior to January 31, 1997. It is assumed that this condition had also existed at various times during the winters of 1995/1996 and 1996/1997.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

None

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None

E. METHOD OF DISCOVERY:

NES and Operations personnel were investigating the accuracy and consistency of temperature indication from the permanently installed temperature instruments, utilizing a hand-held temperature monitoring probe. During these activities, they identified that the temperature was < 35 degrees F at one area in the greenhouse bay, the slot that separates the Circulating Water pump suction bay from the Service Water pump suction bay.

F. OPERATOR ACTION:

When notified (on January 31, 1997) that greenhouse bay temperature was < 35 degrees F, the Control Room operators immediately initiated action to increase the temperature, by further throttling open the recirculation gate to supply more condenser outlet discharge water to mix with the incoming lake water. They also monitored greenhouse bay temperature to ensure temperature remained >= 35 degrees F.

When notified (on February 11, 1997) that greenhouse bay temperature was < 35 degrees F, the Control Room operators immediately initiated action to comply with both the environmental restriction and the ITS limit, by decreasing reactor power and increasing greenhouse bay temperature.

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G. SAFETY SYSTEM RESPONSES:

None

III. CAUSE OF EVENT:

A. IMMEDIATE CAUSE:

The immediate cause of being in a condition prohibited by Technical Specifications was screenhouse bay temperature < 35 degrees F, as measured by a hand-held temperature monitoring probe.

B. INTERMEDIATE CAUSE:

The intermediate cause of screenhouse bay temperature < 35 degrees F was a non-representative method of monitoring screenhouse bay temperature using the permanently installed temperature instruments, which had been assumed to provide accurate, consistent, and representative indication of screenhouse bay temperature. On February 11, 1997, in combination with low lake water temperature and the inability to increase the recirculation of condenser outlet discharge without exceeding environmental restrictions, this condition occurred again.

C. ROOT CAUSE:

The underlying cause of non-representative monitoring was an improper assumption that permanently installed temperature monitor T-2031 was directly representative of screenhouse bay temperature at all locations. Personnel were unaware that potentially significant amounts of temperature streaming existed in the screenhouse bay. Therefore, the temperature measured by T-2031 (which is downstream of the circulating water (CW) pumps) may not represent worst case temperatures in the screenhouse bay.

The Causal Factor that contributed to this event was Design (unanticipated interaction of systems). This event does not meet the NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants", definition of a "Maintenance Preventable Functional Failure".

IV. ANALYSIS OF EVENT:

This event is reportable in accordance with 10 CFR 50.73, Licensee Event Report System, item (a) (2) (i) (B), which requires a report of, "Any operation or condition prohibited by the plant's Technical Specifications". Having screenhouse bay temperature less than the value specified in the ITS Bases for SW is a condition prohibited by Technical Specifications.

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An assessment was performed considering both the safety consequences and implications of this event with the following results and conclusions:

There were no operational or safety consequences or implications attributed to having screenhouse bay temperature < 35 degrees F because:

- The 35 degrees F screenhouse bay temperature criterion is in place to ensure heat removal rates from the Containment (CNMT) Recirculation Fan Coolers (CRFCs) do not exceed those rates assumed in the accident analysis. Specifically, too much heat removal results in a lower CNMT pressure during a Loss of Coolant Accident (LOCA), which results in a higher peak clad temperature. Some conservatisms exist in the CRFC capability calculations:

- a. maximum SW flow (four pumps running) is used
- b. zero fouling of the CRFC's is assumed

Reanalysis of the impact on CNMT pressure using CRFC performance based on 30 degree F inlet temperature and the same conservatisms results in an insignificant change in pressure (< 0.1 psi) and peak clad temperature (< 1 degree F). All limits with respect to 10CFR50 Appendix K continue to be met.

- The change in allowed temperature has been formalized in Safety Evaluation SEV-1090 and was the justification to change the ITS Bases B 3.7.8 temperature from < 35 to < 32 degrees F.
- It is not possible to identify all other times that screenhouse bay temperature was < 35 degrees F, from February 24, 1996, to January 31, 1997. Nevertheless, when this condition occurred, it did not adversely impact the accident analysis, as discussed above.
- When permanently installed temperature instruments indicated potentially inconsistent readings, temperatures were obtained locally in the screenhouse bay using a hand-held temperature monitoring probe. When these readings indicated < 35 degrees F, temperatures were obtained at a remote plant component which would be representative of SW temperature delivered to plant components. The inlet and outlet of a CRFC that was not operating was measured. These temperatures were approximately 39 degrees F for both the inlet and the outlet temperatures.

Based on the above, it can be concluded that the public's health and safety was assured at all times.

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V. CORRECTIVE ACTION:

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

- On January 31, 1997, the recirculation gate was further throttled open, and screenhouse bay temperature was increased above 35 degrees F.
- CRFC inlet and outlet temperatures were measured using portable external temperature instruments, and confirmed above 35 degrees F.
- On February 11, 1997, reactor power was decreased and the recirculation gate was further throttled open, and screenhouse bay temperature was increased above 35 degrees F.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

- Normal Operating Procedure O-6 (Operations and Process Monitoring) was temporarily revised to require screenhouse bay temperature be maintained between 40 and 43 degrees F, to ensure continued compliance with ITS Bases. This temperature range will be changed at the discretion of Operations management, due to the recent change in the ITS Bases.
- Operators were directed to monitor screenhouse bay temperatures periodically utilizing a portable temperature probe in several locations to ensure temperature is ≥ 35 degrees F.
- Reanalysis of the limiting SW system temperature was performed, and the ITS Bases were subsequently changed. NES has revised the ITS Bases for SW and lowered the minimum temperature to 32 degrees F.
- The method of ensuring compliance with ITS SR 3.7.8.1 has been changed. Verification that screenhouse bay water temperature is within limits is now based on either more conservative lake inlet temperature or more representative temperature readings taken locally.
- Operations management will clarify expectations for documentation to be completed when it is discovered that ITS LCO 3.0.3 should have been entered.
- NES will investigate means to ensure adequate monitoring of screenhouse bay temperature using permanently installed instruments.

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VI. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

None

B. PREVIOUS LERs ON SIMILAR EVENTS:

A similar LER event historical search was conducted with the following results: No documentation of similar LER events with the same root cause at Ginna Station could be identified.

C. SPECIAL COMMENTS:

None