

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9401110017      DOC. DATE: 93/12/22      NOTARIZED: NO      DOCKET #  
 FACIL: 50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester G      05000244  
 AUTH. NAME      AUTHOR AFFILIATION  
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 MECREDY, R.C.      Rochester Gas & Electric Corp.  
 RECIP. NAME      RECIPIENT AFFILIATION

JOHNSON, A.R.      Project Directorate I-3

SUBJECT: LER 93-007-00: on 931122, RT occurred due to high source range flux level during reactor startup. Caused by failure of personnel focusing on RT setpoint. Replaced status lights & corrected PPCS alarm message. W/931222 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 8  
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NOTES: License Exp date in accordance with 10CFR2, 2.109(9/19/72).      05000244

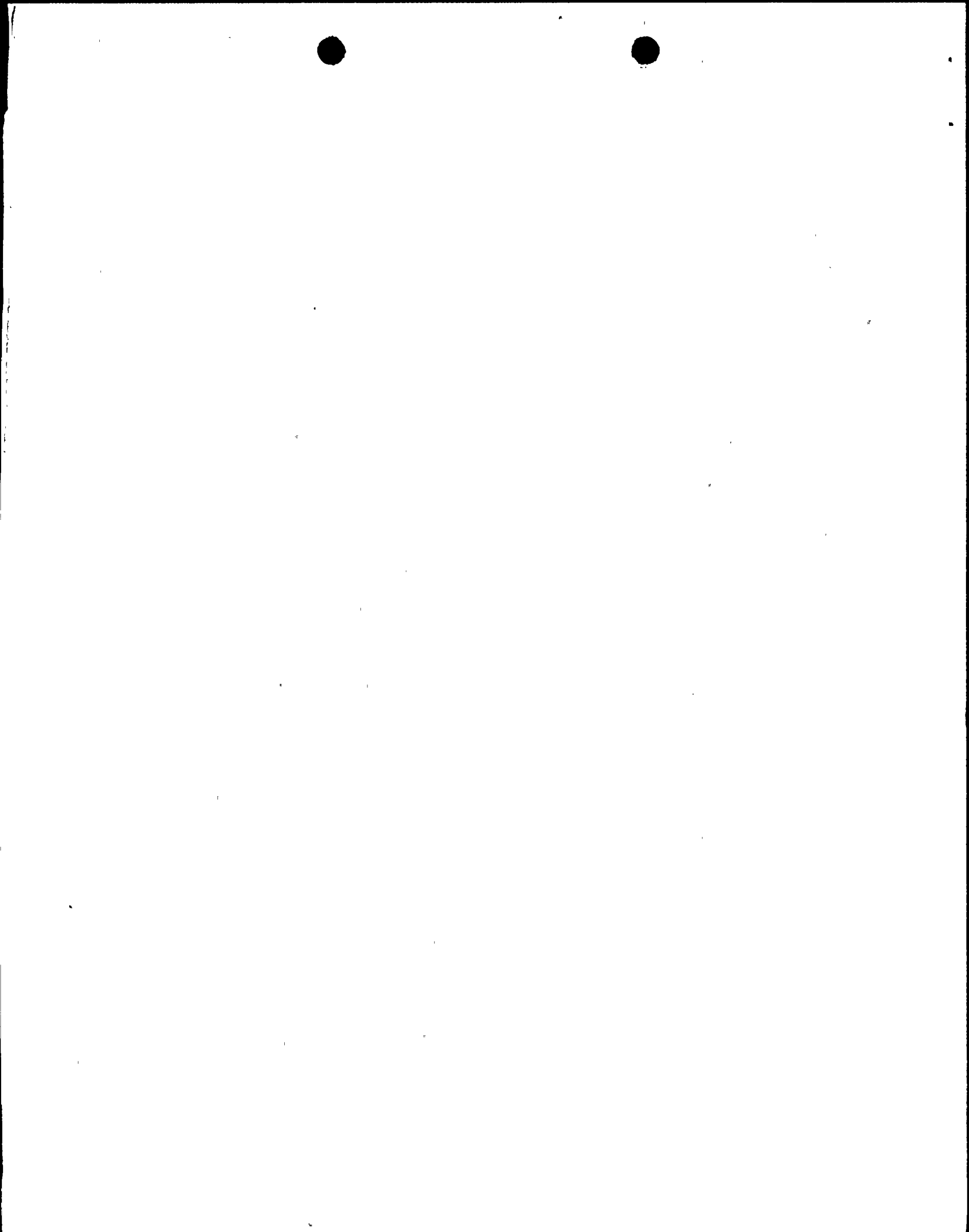
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	NRR/DE/EMEB	1	1	NRR/DORS/OEAB	1	1
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	NRR/DRCH/HOLB	1	1	NRR/DRIL/RPEB	1	1
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	NRR/DSSA/SRXB	1	1	<u>REG FILE</u> 02	1	1
	RES/DSIR/EIB	1	1	RGN1 FILE 01	1	1
EXTERNAL:	EG&G BRYCE, J.H	2	2	L ST LOBBY WARD	1	1
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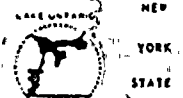
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ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER N.Y. 14649-0001



ROBERT C. MCREDY  
Vice President  
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December 22, 1993

U.S. Nuclear Regulatory Commission  
Attn: Allen R. Johnson  
Project Directorate I-3  
Document Control Desk  
Washington, DC 20555

Subject: LER 93-007, High Source Range Flux Level During Reactor  
Startup Causes a Reactor Trip  
R.E. Ginna Nuclear Power Plant  
Docket No. 50-244

In accordance with 10 CFR 50.73, Licensee Event Report System, item (a) (2) (iv), which requires a report of, "any event or condition that resulted in a manual or automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS)", the attached Licensee Event Report LER 93-007 is hereby submitted.

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

Very truly yours,

*Robert C. Mecredy*  
Robert C. Mecredy

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

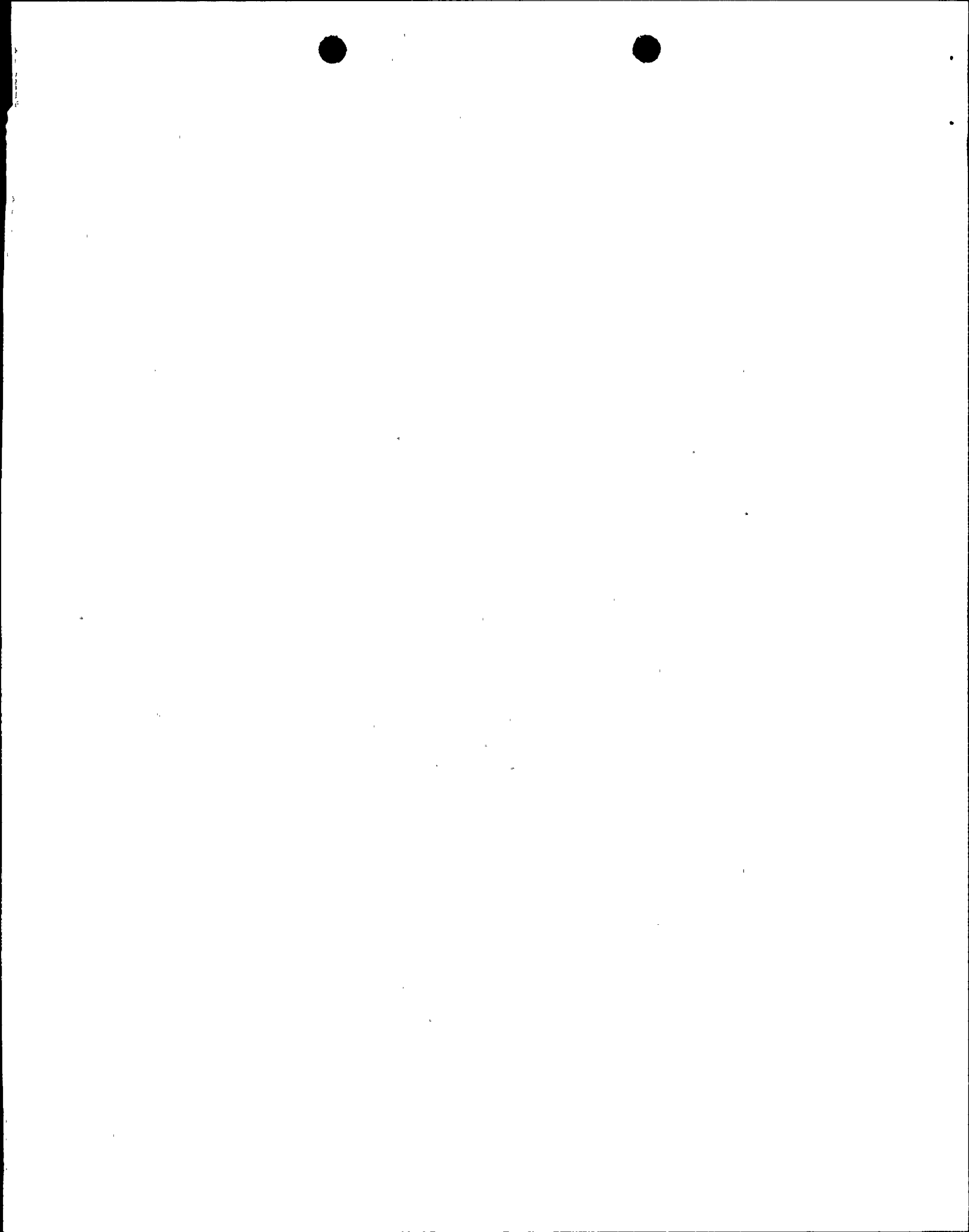
Ginna USNRC Senior Resident Inspector

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**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (HNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) R.E. Ginna Nuclear Power Plant

DOCKET NUMBER (2)  
05000244

PAGE (3)  
1 OF 7

TITLE (4) High Source Range Flux Level During Reactor Startup Causes a Reactor Trip

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
11	22	93	93	--007--	00	12	22	93	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	000	20.402(b)	20.405(c)	X	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)(vii)	OTHER				
		20.405(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)				
		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)(x)							

LICENSEE CONTACT FOR THIS LER (12)

NAME John T. St. Martin - Director, Operating Experience

TELEPHONE NUMBER (Include Area Code)  
(315) 524-4446

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

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE). X NO

EXPECTED SUBMISSION DATE (15)

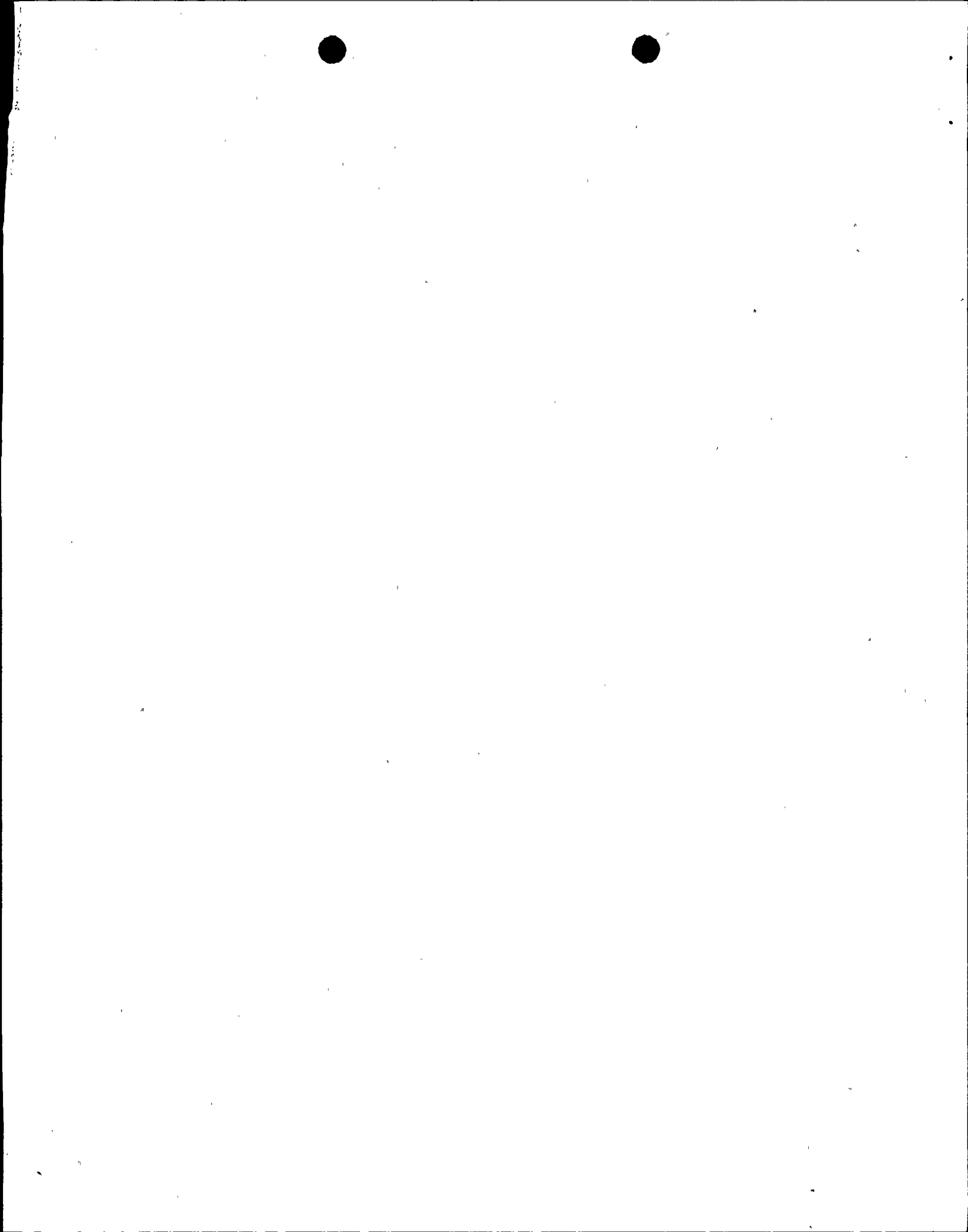
MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

The plant was at hot shutdown condition, with a reactor startup in progress. At 0644 EST the reactor tripped on High Source Range Flux Level ( $\geq 1E5$  counts per second).

The underlying cause was determined to be a Control Room operator not adequately focused on approaching the reactor trip setpoint. With two status lights burned out and a misleading PPCS alarm message, the operator was focused on Permissive P-6 setpoint instead of the reactor trip setpoint. (This event is NUREG-1220 (A) cause code.)

Corrective actions were to replace the status lights, correct the PPCS alarm message, and apprise the Control Room operators of the need to focus on reactor trip setpoints. Corrective action to preclude repetition is outlined in Section V (B).



LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 7
		93	-- 007 --	00	

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

I. PRE-EVENT PLANT CONDITIONS

The plant was stable in the hot shutdown condition, and the reactor was subcritical with a reactor startup in progress, using procedure O-1.2 (Plant Startup From Hot Shutdown to Full Load).

II. DESCRIPTION OF EVENT

A. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

- o November 22, 1993, 0644 EST: Event date and time.
- o November 22, 1993, 0644 EST: Discovery date and time.
- o November 22, 1993, 0644 EST: Control Room operators verify both reactor trip breakers open, and all control and shutdown rods inserted.
- o November 22, 1993, 0650 EST: Plant stabilized at hot shutdown condition.

B. EVENT:

At approximately 0643 EST, the Control Room operators were conducting the final approach to criticality, in accordance with procedure O-1.2. The operator performing the reactor startup was moving control rods out to establish a positive startup rate (SUR) prior to declaring the reactor critical. At this time, the two Nuclear Instrument System (NIS) Source Range (SR) instruments were indicating reactor power at approximately 5E4 counts per second (CPS). The Control Room operator was anticipating that Permissive P-6 status lights would illuminate at this time, prior to exceeding the reactor trip setpoint of 1E5 CPS.

Permissive P-6 setpoint is generated from NIS Intermediate Range (IR) channels, when 1 of 2 channels is above 1E-10 amps. This is normally equivalent to approximately 1E4 CPS indication on the SR instruments. Permissive P-6 allows the Control Room operator to manually block the High Source Range Flux Level reactor trip and de-energize the SR detectors.





LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 7
		93	-- 007 --	00	

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

Prior to the P-6 status lights illuminating, at approximately 0644 EST, the reactor tripped on High Source Range Flux Level (>/= 1E5 CPS). The Control Room operators performed the appropriate actions of Emergency Operating Procedure E-0 (Reactor Trip or Safety Injection), and verified that safety injection was not actuated or required. They then transitioned to Emergency Operating Procedure ES-0.1 (Reactor Trip Response).

The plant was subsequently stabilized in hot shutdown, using procedure O-2.1 (Normal Shutdown to Hot Shutdown).

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

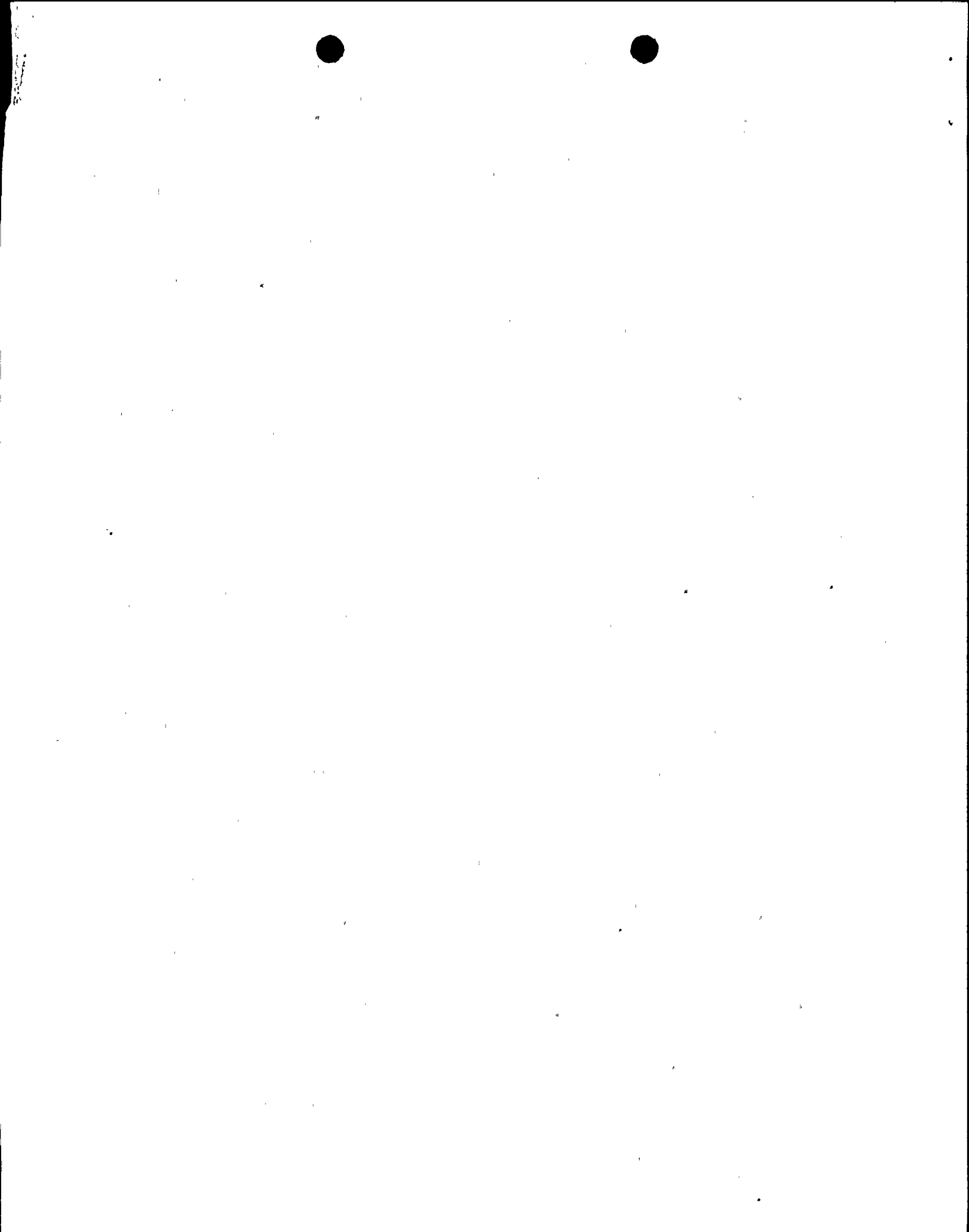
- o The light bulbs for the status lights that provide indication that reactor power is above Permissive P-6 were both burned out.
- o Plant Process Computer System (PPCS) alarm message to indicate reactor power is above Permissive P-6 was misleading. With reactor power above the P-6 setpoint, the PPCS alarm message indicated that power was still below the setpoint.

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None.

E. METHOD OF DISCOVERY:

This event was immediately apparent due to Main Control Board Annunciator D-26 (Source Range Hi Flux Level Reactor Trip 1E5 CPS) and other alarms and indications in the Control Room.



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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)		PAGE (3)
R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
		93	-- 007 --	00
4 OF 7				

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

F. OPERATOR ACTION:

After the reactor trip, the Control Room operators performed the appropriate actions of Emergency Operating Procedures E-0 (Reactor Trip or Safety Injection) and ES-0.1 (Reactor Trip Response). The plant was stabilized at hot shutdown. Subsequently, the Control Room operators notified higher supervision. The Nuclear Regulatory Commission was notified per 10CFR50.72, Non-Emergency, 4 Hour Notification at approximately 1022 EST.

G. SAFETY SYSTEM RESPONSES:

None

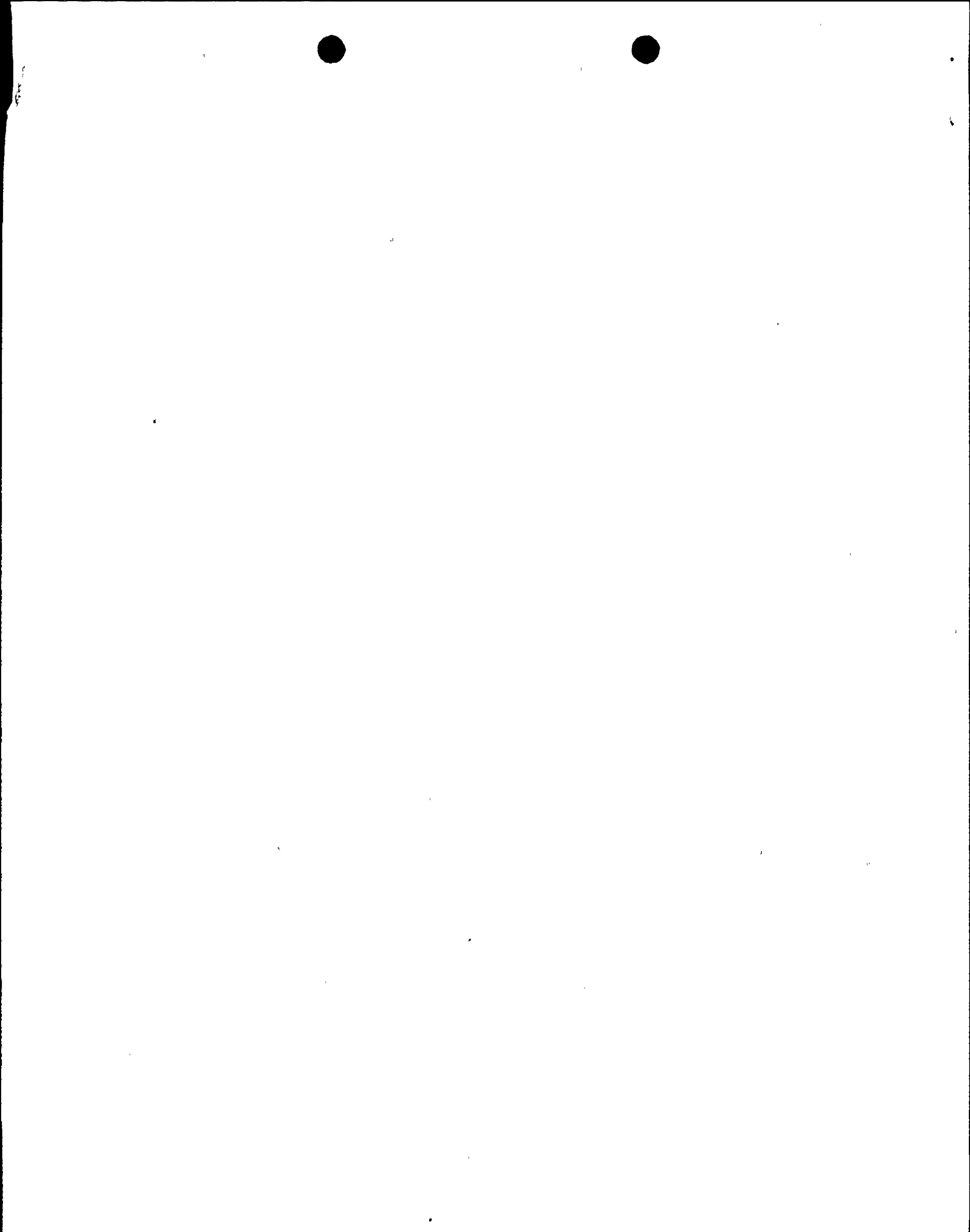
III. CAUSE OF EVENT

A. IMMEDIATE CAUSE:

The reactor trip was due to NIS SR high flux level above the SR reactor trip setpoint of 1E5 CPS.

B. INTERMEDIATE CAUSE:

The high flux level was caused by failure to block the SR reactor trip, after establishing a SUR of approximately 0.5 to 1 decades per minute (DPM) during the final approach to criticality, with power approaching the SR reactor trip setpoint.



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R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 7
		93	-- 007 --	00	

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

C. ROOT CAUSE:

The underlying cause of the failure to block the SR reactor trip with power increasing at a 0.5 to 1 DPM SUR, was cognitive personnel error by a Control Room operator. The Control Room operator was not adequately focused on approaching the SR reactor trip setpoint.

The Control Room operator was anticipating that the status lights indicating reactor power above Permissive P-6 setpoint would be illuminated, allowing block of the SR reactor trip, prior to reaching the trip setpoint. His attention was focused on these status lights instead of on the approach to the reactor trip setpoint. The status lights did not illuminate due to the light bulbs being burned out. The PPCS alarm message provided incorrect reinforcement that reactor power was still below the P-6 setpoint. The actions of the operator performing the reactor startup were not contrary to procedures established for this evolution. (This event is NUREG-1220 (A) cause code, Personnel Error.)

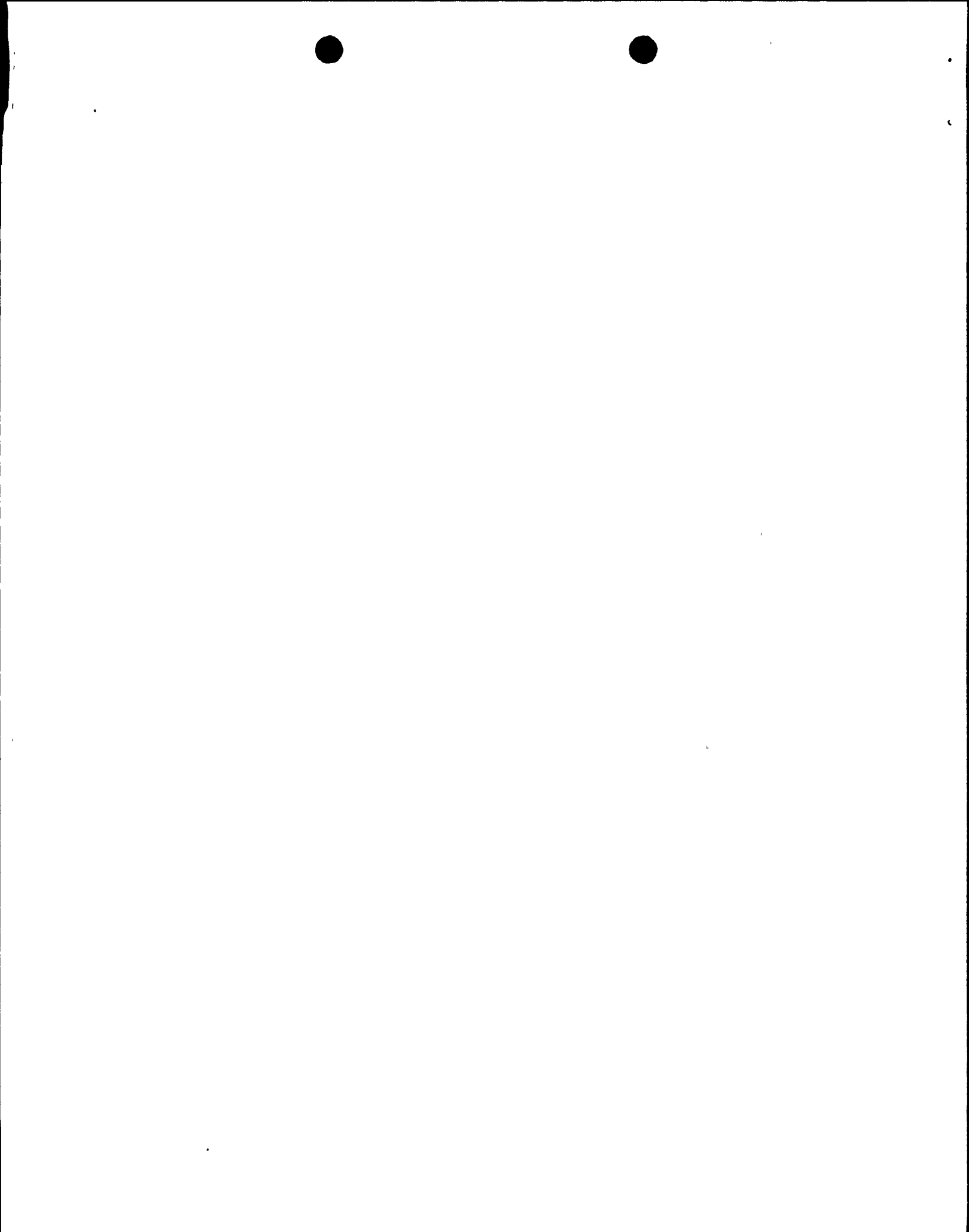
IV. ANALYSIS OF EVENT

This event is reportable in accordance with 10 CFR 50.73, Licensee Event Report System, item (a) (2) (iv), which requires a report of, "any event or condition that resulted in manual or automatic actuation of any engineered safety feature (ESF) including the reactor protection system (RPS)". The reactor trip was an automatic actuation of the RPS.

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

There were no safety consequences or implications attributed to the reactor trip because:

- o The two reactor trip breakers opened as required.
- o All control and shutdown rods inserted as designed.
- o The plant was stabilized at hot shutdown.



LICENSEE EVENT REPORT (LER)  
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R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
		93	-- 007 --	00
6 OF 7				

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The reactor trip did not cause any reactor coolant system (RCS) transient, as the reactor was not at the point of adding heat. All reactor protection circuitry actuated as designed to place the reactor in a tripped mode at hot shutdown.

Based on the above and a review of post trip data and past plant transients, it can be concluded that the plant operated as designed and that there were no unreviewed safety questions and that the public's health and safety was assured at all times.

V. CORRECTIVE ACTION

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

- o The light bulbs for the status lights that indicate reactor power is above P-6 were replaced, and a surveillance procedure was performed to verify their functionality.
- o The PPCS alarm message for P-6 was corrected to ensure a clear understanding of the status of Permissive P-6.
- o Operations Management reevaluated their expectations for an appropriate approach to criticality at flux levels near the SR reactor trip setpoint, and communicated these revised expectations to the personnel on the Operating Shift scheduled to perform the subsequent reactor startup.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

- o Procedure O-1.2 was revised to incorporate the revised management expectations. These included procedural guidance for (1) a conservative power level (below the SR reactor trip setpoint), where the power increase should be stopped to evaluate the status of P-6, if P-6 status lights have not illuminated, (2) a conservative SUR when the SR reactor trip setpoint is not defeated, (3) a formalized shift briefing conducted by the Shift Supervisor, prior to commencing a reactor startup.





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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)		PAGE (3)	
R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	7 OF 7
		93	-- 007 --	00	

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- o Personnel on the Operating Shift scheduled to perform the subsequent reactor startup were trained on the revisions to procedure O-1.2 prior to commencing the startup.
- o A Human Performance Enhancement System (HPES) evaluation was performed to determine causal factors for this event. The results of the HPES evaluation were used to identify the root cause and appropriate corrective actions.
- o The two Control Room operators directly involved in this reactor trip were removed from shift until they had completed additional simulator training on reactor startups, and had been apprised of the revised management expectations contained in the revision to procedure O-1.2.
- o All licensed reactor operators, as part of normal training, will be trained on the revisions to procedure O-1.2.
- o Appropriate lesson plans for the Licensed Operator Training programs will be revised to ensure management expectations contained in procedure O-1.2 are continually reinforced during simulator training.

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 Nuclear Power Plant could be identified.

C. SPECIAL COMMENTS:

None

