

Sonny Dean
Plant General Manager

CENG_{SM}

a joint venture of



Constellation
Energy



EDF

R.E. GINNA
NUCLEAR POWER PLANT

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October 4, 2011

U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: R.E. Ginna Nuclear Power Plant
Docket No. 50-244

**LER 2011-001, Unanalyzed Condition due to Postulated Fire Causing
a Station Blackout**

The attached Licensee Event Report (LER) 2011-001 is submitted under the provisions of NUREG 1022, Event Reporting Guidelines. There are no new commitments contained in this submittal. Should you have any questions regarding the information in this letter, please contact Mr. Thomas Harding at (585) 771-5219.

Very truly yours,

Edwin D. Dean III

Attachments: (1) LER 2011-001

cc: W.M. Dean, NRC
D.V. Pickett, NRC
Resident Inspector, NRC (Ginna)

WPLNRC-1002466

JE22
NRC

ATTACHMENT 1

LER 2011-001

LICENSEE EVENT REPORT (LER)(See reverse for required number of
digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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

2. DOCKET NUMBER

05000 244

3. PAGE

1 OF 5

4. TITLE Unanalyzed Condition due to Postulated Fire Causing a Station Blackout

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED																																					
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER																																				
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9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)																																											
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10. POWER LEVEL																																														
100%																																														

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME

Thomas Harding, Licensing Director

TELEPHONE NUMBER (Include Area Code)

(585) 771-5219

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
N/A									

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO15. EXPECTED
SUBMISSION
DATE

MONTH	DAY	YEAR

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

On August 11, 2011 the R.E. Ginna NFPA-805 project identified a fire scenario in the Turbine Building that could fail power to safeguards busses resulting in a station blackout, coincident with loss of the Turbine Driven Auxiliary Feedwater pump. While no damage to the emergency diesel generators or the output breakers occurs as a result of the fire, electrical interlocks prevent automatic closure of the diesel generator breakers due to closed normal supply breakers. Manual closure of a diesel generator breaker without first tripping the normal supply breaker may result in overload.

Compensatory measures have been established to provide operators with guidance to monitor control power indication prior to attempting to manually close the emergency diesel generator breakers. In the event control power is unavailable to the normal supply breaker, operators will locally open the normal supply breaker prior to closing the emergency diesel generator breaker. Procedure changes have been made to incorporate this guidance.

The cause is an inaccurate analysis of interlock effects in the Appendix R Safe Shutdown analysis. Additional corrective actions will be evaluated upon completion of the NFPA-805 Fire PRA and Fire Risk Evaluation.

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NARRATIVE

I. DESCRIPTION OF EVENT

A. PRE-EVENT PLANT CONDITIONS:

The reactor was in Operational Mode 1 at 100% power, 2235 psig and 574 degrees F.

B. EVENT:

Both trains of Non-Safety Related 4160V station power are located in the same area of the Turbine Building. During normal plant operation, these busses supply the 480V transformers for the safeguards busses located in separate areas of the Auxiliary Building. A 4160V circuit breaker is on the primary side of the transformer and a 480V circuit breaker is on the secondary side, providing normal power. The control circuit for the 480V normal supply breaker is interlocked with the 4160V breaker to prevent the 480V breaker from closing unless the 4160V breaker is closed, and causes the 480V breaker to trip when the 4160V breaker trips. A control cable passes from the 480V breaker control circuit to the 4160V circuit breaker to form these interlocks. The 480V bus diesel generator supply breaker is also interlocked with the 480V normal supply breaker to prevent the diesel generator from automatically loading onto the bus if the 480V normal supply breaker is closed.

A hypothetical fire in the Turbine Building has the potential to cause a loss of 4160V power to both busses and a short in the control cable to the 480V normal supply breaker. This results in a loss of control power to the 480V breaker because the control power fuses are assumed to open. If the control power is lost prior to the 4160V power, then the normal supply breaker will not trip on under-voltage and the diesel generator bus supply breaker will be unable to automatically close onto the bus. This condition could affect both trains of safeguards power. Any attempt to close diesel generator supply breakers from the control room or locally without first opening the normal supply breaker would result in back feeding the transformer, potentially tripping the diesel generator output breaker on over current conditions.

The same fire was previously assumed to disable DC control power to the Turbine Driven Auxiliary Feedwater (TDAFW) pump, rendering the pump unavailable for decay heat removal. The combination of a Station Blackout and loss of the TDAFW pump is an unanalyzed condition with significant safety impact.

Compensatory measures have been established to provide guidance to operators to check the control power indication for the 480V normal supply breaker prior to attempting to close the diesel generator supply breaker. If the control power is extinguished, direction is provided to locally trip the normal supply breaker prior to closing the diesel generator supply breaker. This guidance was incorporated into equipment restoration procedures.

As part of the NFPA-805 project, a fire risk evaluation will be performed to determine if any further corrective actions are required.

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

None

D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

12/1983	Initial Appendix R Safe Shutdown Analysis was finalized. Interlocks for safeguards normal supply breakers were not identified or evaluated.
08/06/2008	Appendix R Safe Shutdown Analysis revised to incorporate NFPA-805 methodology. Normal supply breaker interlocks were modeled, but the impact was not properly evaluated.
08/11/2011	Preliminary Fire PRA results identify interlock concern with safeguards bus supply breakers.
08/18/2011	Functionality Assessment concludes that the condition is within the Appendix-R design basis and the impact could have a significant safety impact if assumed to occur.

E. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None

F. METHOD OF DISCOVERY:

NFPA-805 Fire PRA Development

G. MAJOR OPERATOR ACTION:

No operator actions were required as a result of this event.

H. SAFETY SYSTEM RESPONSES:

No safety systems actuated or were required to respond to this event.

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II. CAUSE OF EVENT:

This event was entered into the site corrective action program (CR-2011-005716). The cause appears to be an inaccurate analysis of interlock effects in the Appendix R Safe Shutdown analysis. Additional corrective actions will be evaluated upon completion of the NFPA-805 Fire PRA and development of a Fire Risk Evaluation. Compensatory measures will remain in effect until this evaluation is complete.

III ANALYSIS OF THE EVENT:

This event is reportable in accordance with 10 CFR50.73, Licensee Events Report System under item (a)(2)(ii)(B) based on the plant being in an unanalyzed condition that significantly degraded plant safety.

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

This hypothetical scenario could have resulted in a Station Blackout with no auxiliary feedwater to provide a secondary heat sink. However, there were no adverse safety consequences that result from the given scenario, as there was no actual fire in the affected area. Administrative controls, availability of fire detection and suppression systems, and a trained on-site fire brigade make it unlikely that a credible fire would result in the circuit failure combinations in the required sequence for the hypothetical scenario to occur. In the event it did occur, the plant has emergency damage mitigation guidelines for beyond design basis fires that would restore DC power to the TDAFW pump, minimize the impact of the event and provided additional time for restoration of power. Restoration of AC power could be accomplished within minutes of recognizing the cause and could be implemented by operators without additional site support. Since no damage to the diesel generators, their output breakers, or control circuits is postulated to occur as a direct result of the fire, the likelihood of restoration is high.

Compensatory measures include standing orders to raise operator awareness of the issue, identify available indication, and specify required actions. Procedure changes have been implemented for equipment restoration procedures that mitigate the condition. As part of the NFPA-805 Project, a Fire Risk Evaluation will be developed upon completion of the Fire PRA model to determine if other corrective actions are warranted.

This event does not have any impact on NRC performance indicators.

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IV CORRECTIVE ACTIONS:

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

This is a hypothetical event. No specific actions were required.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE

Compensatory measures include standing orders to raise operator awareness of the issue, identify available indication, and specify required actions. Procedure changes have been implemented for equipment restoration procedures that mitigate the condition. As part of the NFPA-805 Project, a Fire Risk Evaluation will be developed upon completion of the Fire PRA model to determine if other corrective actions are warranted.

V. ADDITIONAL INFORMATION:

A. FAILED COMPONENT

No components failed.

B. PREVIOUS LERS ON SIMILAR EVENTS

A review of recent Ginna events identified one similar event:

LER 2006-001, Potential Failure of Charging Pumps Due to Unevaluated Fire Scenario

C. THE ENERGY INDUSTRY IDENTIFICATION SYSTEM (EII) COMPONENT FUNCTION IDENTIFIER AND SYSTEM NAME OF EACH COMPONENT OR SYSTEM REFERRED TO IN THIS LER:

<u>COMPONENT</u>	<u>IEEE 803 FUNCTION IDENTIFIER</u>	<u>IEEE 805 SYSTEM IDENTIFICATION</u>
52/14	BKR	ED
52/16	BKR	ED
52/14SS	BKR	EA
52/16SS	BKR	EA
52/EG1A1	BKR	ED
52/EG1B1	BKR	ED

D. SPECIAL COMMENTS

None