Southern Nuclear

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Docket Nos.: 50-321 NL-17-1110

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant Unit 1
LER 2017-005-00
Automatic Scram Due to Intermediate Range Monitors Spiking Upscale

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(iv)(A), Southern Nuclear Operating Company (SNC) hereby submits the enclosed Licensee Event Report.

This letter contains no NRC commitments. If you have any questions, please contact Greg Johnson at (912) 537-5874.

Respectfully submitted,

David R. Vineyard
Vice President – Hatch

DRV/jcb

Enclosure: LER 2017-005-00

Cc: Regional Administrator, Region II
NRR Project Manager – Hatch
Senior Resident Inspector – Hatch
RTYPE: CHA02.004

Edwin I. Hatch Nuclear Plant Unit 1

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NRC FORM 366 (06-2016) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by 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	2. DOCKET NUMBER	3. PAGE
Edwin I. Hatch Nuclear Plant Unit 1	05000321	1 OF 3

4. TITLE
Automatic Scram Due to Intermediate Range Monitors Spiking Upscale

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
4	20	2017	2017	- 005	- 000	06	16	2017	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
2	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
001	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER (Include Area Code)
Edwin I. Hatch/Jimmy Collins – Licensing Supervisor	912-537-2341

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
X	IG	JI	G080	Y					

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	☒ NO				

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

On April 20, 2017 at 0302 EDT with Unit 1 at approximately 1 percent rated thermal power due to a reactor startup from a planned maintenance outage, an automatic reactor scram was received due to the "A" and "B" Intermediate Range Monitors (IRMs) spiking upscale simultaneously. The instrument's set points for high-high neutron flux were reached, giving false trip signals to both channels of the reactor protection system (RPS) trip logic. Upon the automatic reactor scram signal, all control rods fully inserted appropriately. No primary containment isolation system (PCIS) actuations occurred and none were expected to occur based upon plant conditions following the reactor scram.

The cause of the event is due to the integrity of the IRMs signal cable connectors being in a degraded condition. Degradation was found on "A" IRM at the detector connector, while the "B" IRM had connection issues between the penetration and the jumper connector. These IRM cable integrity issues allowed a signal path to exist between the cables' shielding and center conductors, causing the IRMs to spike upscale. The "A" and "B" IRM jumper cables and the associated connections were replaced and all Unit 1 IRM cables and associated trip logics were tested satisfactorily.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO
Edwin I. Hatch Nuclear Plant Unit 1	05000-321	2017	- 005	- 00

NARRATIVE

Event Description

On April 20, 2017 at 0302 EDT with Unit 1 at approximately 1 percent rated thermal power due to a reactor startup from a planned maintenance outage, an automatic reactor scram was received due to the "A" and "B" Intermediate Range Monitors (IRMs) spiking upscale simultaneously. The instrument's set points for high-high neutron flux were reached, giving false trip signals to both channels of the reactor protection system (RPS) trip logic. Upon the automatic reactor scram signal, all control rods fully inserted appropriately. No primary containment isolation system (PCIS) actuations occurred and none were expected to occur based upon plant conditions following the reactor scram.

Event Cause Analysis

The cause of the event is due to the integrity of the IRMs signal cable connectors being in a degraded condition. Degradation was found on "A" IRM at the detector connector, while the "B" IRM had connection issues between the penetration and the jumper connector. These IRM cable integrity issues allowed a signal path to exist between the cables' shielding and center conductors. The noise signal was magnified when the signal was transmitted to the instrumentation's amplifier, causing both the "A" and "B" IRMs to spike upscale and trip.

Safety Assessment

This event is reportable per 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in the automatic actuation of the reactor protection system (RPS).

The IRMs monitor neutron flux from the upper portion of the source range monitor (SRM) range to the lower portion of the power range neutron monitoring (PRNM) range. The IRM system has eight IRM channels, each of which includes one detector that can be physically positioned in the core by remote control. The detectors are inserted into the core for a reactor startup and are withdrawn after the reactor mode selector switch is turned to RUN. The IRM system is capable of generating a trip signal that can be used to prevent fuel damage resulting from anticipated operational occurrences (AOOs) that occur while operating in the intermediate power range. The independence and redundancy incorporated in the design of the IRMS are consistent with the safety design basis of the RPS.

The IRM system is divided into two groups of IRM channels arranged in the core. IRM channels "A", "C", "E", and "G" are associated with trip system A of the RPS and IRM channels "B", "D", "F", and "H" are associated with trip system B. While the reactor mode switch is in REFUEL or STARTUP, an IRM upscale or inoperative trip signal actuates a neutron monitoring system trip of the RPS.

All control rods fully inserted and the plant responded as expected. Therefore, this event is considered to have very low safety significance.

Corrective Actions

As part of corrective actions, the "A" and "B" IRM jumper cables were replaced and all Unit 1 IRM cables

and associated trip logics were tested satisfactorily.

Previous Similar Events

None.