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April 14, 2016

Docket Nos.: 50-321

NL-16-0536

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

Edwin I. Hatch Nuclear Plant
Licensee Event Report 2016-003-00
Reactor Coolant System Piping Has Unacceptable Weld Indication Discovered During Refueling
Outage

Ladies and Gentlemen:

In accordance with the requirements 10 CFR 50.73(a)(2)(ii)(A), Southern Nuclear Operating Company 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,

D. R. Vineyard
Vice President – Hatch

DRV/jcb

Enclosures: LER 2016-003-00

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. D. R. Vineyard, Vice President – Hatch
Mr. M. D. Meier, Vice President – Regulatory Affairs
Mr. D. R. Madison, Vice President – Fleet Operations
Mr. B. J. Adams, Vice President – Engineering
Mr. G. L. Johnson, Regulatory Affairs Manager - Hatch
RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission
Ms. C. Haney, Regional Administrator
Mr. M. D. Orenak, NRR Project Manager – Hatch
Mr. D. H. Hardage, Senior Resident Inspector – Hatch

Edwin I. Hatch Nuclear Plant Unit 1

Licensee Event Report 2016-003-00

**Reactor Coolant System Piping Has Unacceptable Weld Indication Discovered During
Refueling Outage**



LICENSEE EVENT REPORT (LER)

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 internet e-mail to Infocollections.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 Edwin I. Hatch Nuclear Plant Unit 1	2. DOCKET NUMBER 05000 321	3. PAGE 1 OF 3
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4. TITLE
Reactor Coolant System Piping Has Unacceptable Weld Indication Discovered During Refueling Outage

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
02	16	2016	2016	- 003	- 00	4	14	2016	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 5

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)

10. POWER LEVEL 0

<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT: Edwin I. Hatch / Carl James Collins – Licensing Supervisor
 TELEPHONE NUMBER (Include Area Code): 912-537-5900 ext 2342

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
E	AD	PSP		Y					


14. SUPPLEMENTAL REPORT EXPECTED YES (If yes, complete 15. EXPECTED SUBMISSION DATE) NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

During the 2016 Unit 1 R27 refueling outage, plans were put in place to upgrade the 1B31-1RC-12BR-E-5 (1B31-E5) design weld overlay (WOL) to a full structural weld overlay (FSWOL) in order to allow for code qualified examinations. On February 16, 2016 at 0631 EST, during surface preparation work, axial indications were found on the WOL. Evaluation of the indications found in the weld overlay suggests that the non-satisfactory PT examination was a result of the propagation of the original flaw that was found on the 1E Recirculation Loop Piping. The original indication had propagated into the Inconel Alloy 82 WOL material installed in 1988. It was determined that the as-found condition of the flaw did not meet ASME Section XI acceptance criteria. The indications were removed from the WOL and 1B31-E5 was upgraded to a full structural weld overlay using intergranular stress corrosion cracking (IGCSS) resistant Alloy 52 weld material.

NRC FORM 366A (02-2014)	U.S. NUCLEAR REGULATORY COMMISSION  LICENSEE EVENT REPORT (LER) CONTINUATION SHEET	APPROVED BY OMB: NO. 3150-0104 EXPIRES: 1/31/2017 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 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.
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Edwin I. Hatch Nuclear Plant Unit 1	05000 321	YEAR	SEQUENTIAL NUMBER	REV. NO.	2 OF 3
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NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

General Electric- Boiling Water Reactor (BWR)
Energy Industry Identification System codes appear in the text as (EISS Code XX)

DESCRIPTION OF EVENT

On February 16, 2016 at 0631 EST, with Unit 1 at 0 percent rated thermal power due to a scheduled refueling outage, it was discovered that an axial flaw found on the recirculation inlet nozzle 1B31-1RC-12BR-E-5 (1B31-E5) to safe-end weldment had propagated into the Inconel Alloy 82 Weld Overlay (WOL) material installed in 1988. Evaluation of the as-found condition of the flaw did not meet ASME Section XI acceptance criteria.

As part of normal pre-outage scope activities, plans were put in place to upgrade the 1B31-E5 partial WOL to a FSWOL in order to allow for code qualified examinations. During surface preparation work, axial indications were found on the partial WOL. It was then discovered that the original flaw had propagated into the Inconel Alloy 82 WOL material installed in 1988. The flaw was repaired in accordance with an approved code alternative and 1B31-E5 was upgraded to a full structural weld overlay (FSWOL) using intergranular stress corrosion cracking resistant Alloy 52 weld material.

CAUSE OF EVENT

The unacceptable as-found condition of the defect found in the WOL for 1B31-E5 was due to intergranular stress corrosion cracking (IGSCC). The 304 stainless steel piping and Inconel Alloy 182 weld materials are susceptible to this failure mode in a BWR environment.

The station also lost track of the different design attributes of 1B31-E5 weld repair. This led to mis-characterization of the weld as a FSWOL and extending the exam frequency, thus causing the station to not adequately monitor the growth of the flaw. Reliefs that reduced the frequency of performance of ISI code exams were approved by the NRC. Approval was based upon the ASME Class 1 WOL's meeting the requirements of being a full structural WOL type. Additionally, during the implementation of BWRVIP-075, a risk classification was required to prioritize the welds to be examined. However, the assumption that all Unit 1 WOL repairs were full structural welds affected the priority placed upon this weld. The flaw was repaired in accordance with an approved code alternative and 1B31-E5 was upgraded to a full structural weld overlay (FSWOL) using intergranular stress corrosion cracking resistant Alloy 52 weld material.

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

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NARRATIVE

REPORT ABILITY AND SAFETY ASSESSMENT

This event is reportable per 10 CFR 50.73(a)(2)(ii)(A) due to a defect in the primary coolant system that could not be found acceptable under ASME Section XI. Upon performance of the subsequent liquid penetrant testing (PT) examination, it was discovered that the as-found condition of the flaw did not meet ASME Section XI acceptance criteria. Evaluation of the flaw found in the weld overlay suggests that the non-satisfactory PT examination is a result of the propagation of the original flaw that was found on the 1E Recirculation Loop Piping.

Though the weld flaw exceeded the acceptance criteria of ASME Section XI, no leakage from this flaw was identified at any time during operation or shutdown. There is reasonable assurance that there was not a breach in the credited RCS boundary due to the axial flaw not having grown through the weld overlay. Additionally, engineering evaluation of the structural integrity of the weld shows that the flawed component had adequate margin for all design basis events. The evaluation has shown that the axial flaw identified in Weld 1B31-1RC-12BR-E-5 located on the recirculation inlet system, meets the ASME Code, Section XI structural margin, considering a Service Level D structural factor in the evaluation, as required by the NRC Inspection Manual. Even though the flaw has a depth of 100% of original wall thickness, which exceeds the ASME Code, Section XI allowable flaw depth of 75% of wall thickness, the safety of the reactor pressure boundary was not compromised. It is, therefore, concluded that the flawed component had adequate margin for all Design Basis Loading Events when the flaw was identified and this condition had a very low safety significance.

CORRECTIVE ACTIONS

As part of corrective actions, a weld repair on 1B31-1RC-12BR-E-5 was completed to restore piping back to original code. The design type weld overlay was upgraded to a full structural weld overlay using Inconel Alloy 52 weld material in accordance with an NRC approved alternative (HNP-ISI-ALT-15-01).

As part of an extent of condition review, a similar weld repair was performed on 1B31-1RC-12BR-C-5 to upgrade its weld from a design type weld overlay to a full structural weld overlay. Also, Unit 1 and 2 weld overlays containing Alloy 82 weld material will be re-examined in the upcoming refueling outages.

ADDITIONAL INFORMATION

Other Systems Affected: No systems other than those mentioned in this report were affected by this event.

Failed Components Information: None.

Commitment Information: This report does not created any new licensing commitments.

Previous Similar Events: None.