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May 21, 2003

Docket No.: 50-366

NL-03-1125

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

Edwin I. Hatch Nuclear Plant - Unit 2
Licensee Event Report
High Pressure Coolant Injection System
Inoperable After Performing Major Maintenance

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(v)(B), Southern Nuclear Operating Company is submitting the enclosed Licensee Event Report (LER) concerning the High Pressure Coolant Injection (HPCI) system being inoperable after performing major maintenance.

Sincerely,

A handwritten signature in cursive script that reads "H. L. Sumner, Jr.".

H. L. Sumner, Jr.

HLS/IFL/daj

Enclosure: LER 2-003-002

cc: Southern Nuclear Operating Company
Mr. J. D. Woodard, Executive Vice President
Mr. G. R. Frederick, General Manager – Plant Hatch
Document Services RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. S. D. Bloom, NRR Project Manager – Hatch
Mr. N. P. Garrett, Acting Senior Resident Inspector – Hatch

IE22

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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,

1. FACILITY NAME

Edwin I. Hatch Nuclear Plant - Unit 2

2. DOCKET NUMBER

05000-366

3. PAGE

1 OF 4

4. TITLE

High Pressure Coolant Injection System Inoperable After Performing Major Maintenance

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|---------------|-----|------|---------------|-------------------|-----------------|----------------|-----|------|------------------------------|------------------|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER(S) |
| 03 | 29 | 2003 | 2003 | 002 | 0 | 05 | 28 | 2003 | | 05000 |
| | | | | | | | | | FACILITY NAME | DOCKET NUMBER(S) |
| | | | | | | | | | | 05000 |

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

12. LICENSEE CONTACT FOR THIS LER

| | |
|---|--------------------------------------|
| NAME | TELEPHONE NUMBER (Include Area Code) |
| Steven B. Tipps, Nuclear Safety and Compliance Manager, Hatch | (912) 537-5880 |

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 |
|-------|--------|-----------|--------------|--------------------|-------|--------|-----------|--------------|--------------------|
| | | | | | | | | | |
| | | | | | | | | | |

14. SUPPLEMENTAL REPORT EXPECTED

| | | | | | |
|--|---------|------------------------------|-------|-----|------|
| YES (If yes, complete EXPECTED SUBMISSION DATE) | NO X | 15. EXPECTED SUBMISSION DATE | MONTH | DAY | YEAR |
| | | | | | |

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

On 3/29/03 at 245 EST, Unit 2 was in the Startup mode with the reactor critical at a power level of approximately 1% CMWT and reactor pressure of approximately 165 psig. Major maintenance was performed on the High Pressure Coolant Injection (HPCI) system during the refueling outage. Surveillance procedure 34SV-E41-005-2, "HPCI Pump Operability 165 PSIG Test" was being performed when it was determined that the turbine control valve would not open upon initiation. The procedure was backed out of and the HPCI system was returned to standby. The investigation of the problem determined that links TB1-39 and TB1-40 were open in panel 2H21-P050. These links that were found open provide power to the EGM/ramp generator. The links were closed and the HPCI surveillance was performed again. During this run, the control valve, 2E41-F3052, went to the fully open position and the flow controller, 2E41-R612, showed a system flow in excess of 5200 GPM. Investigation found that the magnetic speed pick-up for the speed feedback signal to the governor system was incorrectly set-up. The magnetic speed pick up was adjusted and the HPCI surveillance test was successfully completed and the HPCI system was declared operable at 1215 EST.

The cause of this event was personnel errors during the performance of the six to ten year HPCI system preventive maintenance. A contributor to this event was that the procedure was poorly human factored (for link restoration) and did not have adequate checks regarding the setting of the magnetic speed pickup. The procedure will be revised to make it easier to use and follow.

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| Edwin I. Hatch Nuclear Plant - Unit 2 | 05000-366 | 2003 | -- 002 -- | 00 | 2 OF 4 |

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

PLANT AND SYSTEM IDENTIFICATION

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

DESCRIPTION OF EVENT

On 3/29/03 at 0245 EST, Unit 2 was in the Startup mode with the reactor critical at a power level of approximately 1% CMWT and reactor pressure of approximately 165 psig. Major maintenance had been performed on the High Pressure Coolant Injection (HPCI) system during the refueling outage. Surveillance procedure 34SV-E41-005-2, "HPCI Pump Operability 165 PSIG Test" was being performed during startup when it was determined that the turbine control valve would not open upon initiation. The procedure was backed out of and the HPCI system was returned to standby. The investigation of the problem determined that links TB1-39 and TB1-40 were open in panel 2H21-P050. These links that were found open provide power to the EGM/ramp generator. The links were closed and the HPCI surveillance was performed again.

During this subsequent run, the control valve, 2E41-F3052, went to the fully open position and the flow controller, 2E41-R612, showed a system flow in excess of 5200 GPM. Investigation found that the magnetic speed pick-up for the speed feedback signal to the governor system was incorrectly set-up. Specifically, the gap between the sensing gear and the pickup was greater than the .010" required by procedure. This caused the governor system to incorrectly sense a zero speed condition while attempting to increase the turbine speed to correspond to the speed demand signal from the flow controller. Once the flow controller sensed that flow was increasing past the setpoint of 4250 GPM, the flow controller automatically decreased the speed demand to try to bring the system flow back to the controller's setpoint. This demand was decreased until the low speed signal of 4 ma was reached (which corresponds to approximately 850 RPM). However, because the magnetic speed pick-up was sensing 0 RPM, the governor system still tried to reach 850 RPM by continually opening the control valve until it was fully open. Since reactor pressure was low, there was not sufficient motive force to drive the turbine to an overspeed condition.

After adjusting the magnetic speed pick up the HPCI surveillance test was successfully completed and the HPCI system was declared operable at 1215 EST.

A review of the procedure 52PM-E41-002-0, "HPCI Turbine and Auxiliaries Major Inspection" was performed and it was determined that the steps restoring the links left open during this event could easily have been misunderstood as being not applicable. Additionally, the six to ten year HPCI system preventive maintenance requires the use of procedure 52PM-E41-001-0, "HPCI System Inspection and Lubrication." This procedure describes the setting of the magnetic pickup. It requires the alignment of a tooth of the spur gear with the approximate center of the hole for the magnetic pickup. Once this alignment is achieved the magnetic pickup is to be screwed in until it makes contact with the spur gear

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tooth. Then an indicator is to be positioned over the magnetic pickup, and the pickup backed out 0.010 inch, then the jam nut tightened securely. During this event resistance was encountered when screwing in the magnetic pickup. This resistance was incorrectly assumed to be the result of the pickup contacting the spur gear. This event has revealed the necessity of establishing guidance for determining when the pickup makes contact with the spur gear.

CAUSE OF EVENT

The cause of this event was personnel errors during the performance of the six to ten year HPCI system preventive maintenance. A contributor to this event was that the procedure was poorly human factored (for link restoration) and did not have adequate checks regarding the setting of the magnetic speed pickup. The procedure will be revised to make it easier to use and follow.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is reportable pursuant to 10 CFR 50.73 (a) (2) (v) in that a single event occurred which rendered a single train safety system incapable of performing its intended function. Specifically, with links TB1-39 and TB1-40 opened in panel 2H21-P050 there would be no power to the EGM/ramp generator preventing the turbine control valve from opening upon an initiation signal. Additionally, with the magnetic speed pick up incorrectly adjusted the HPCI system would have tripped on overspeed at higher reactor pressures.

The HPCI System is designed to provide adequate cooling to limit fuel-clad temperature in the event of a small break in the nuclear steam supply system that does not result in rapid depressurization of the reactor vessel. The Automatic Depressurization System (ADS, EIIS Code JE) is the backup for the HPCI system and is initiated on a low reactor water level condition coincident with a Primary Containment high pressure condition. Upon initiation of ADS, the reactor is depressurized to a point where either the Low Pressure Coolant Injection (LPCI, EIIS Code BO) system or the Core Spray (CS, EIIS Code BM) system can operate to maintain adequate core cooling.

In this event it was determined that the turbine control valve would not open upon an initiation signal making HPCI incapable of operating and after closing the links that were found open it was determined that with the misadjusted magnetic speed pick up HPCI would have tripped on overspeed at higher reactor pressures (at pressures above the 165 psig where the test was being performed). Nonetheless, the CS system, the LPCI system, and ADS system were operable during the event. Consequently, in the event of an accident, these systems would have been capable of mitigating the consequences of such an accident in the absence of the HPCI system.

Based on the above information, it was concluded that this event had no adverse impact on nuclear safety.

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CORRECTIVE ACTIONS

The links TB1-39 and TB1-40 that were found open were closed and the magnetic speed pick up was adjusted correctly. The HPCI surveillance was then successfully completed and HPCI system declared operable at 1215 EST.

The personnel involved with this event were counseled and the procedures will be revised before being used again to improve human factors as well as requiring additional checks regarding the setting of the magnetic speed pick up. The next anticipated use of procedure 52PM-E41-001-0 "HPCI System Inspection and Lubrication," for setting the magnetic pick up, is October 2003.

ADDITIONAL INFORMATION

No systems other than those previously described in this report were affected by this event.