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April 14, 2006

Docket No.: 50-321

NL-06-0689

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

Edwin I. Hatch Nuclear Plant – Unit 1
Supplemental Licensee Event Report
Discrepancy in Special Nuclear Material Inventory

Ladies and Gentlemen:

On November 10, 2005 SNC submitted an event report (NRC Event # 42135) concerning a discrepancy that existed between the amount of spent fuel that exists in the Spent Fuel Pool and the amount recorded within SNM physical inventory records. The report was submitted in accordance with the requirements of 10 CFR 20.2201(b)(1), using the format of 10CFR50.72(b)(2)(xi). Our report of December 9, 2005 indicated that a supplemental report would be submitted by April 14, 2006. This letter provides supplemental information as indicated in our December 9, 2005 report.

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,


H. L. Sumner, Jr.

HLS/PAH/sdl

Enclosure: LER 1-2005-003-1

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

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. C. Gratton, NRR Project Manager – Hatch
Mr. D. S. Simpkins, Senior Resident Inspector – Hatch

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)
Edwin I. Hatch Nuclear Plant - Unit 1

DOCKET NUMBER (2)
05000-321

PAGE (3)
1 OF 5

TITLE (4)
Discrepancy in Special Nuclear Material Inventory

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(S)
11	10	2005	2005	003	01	04	14	06		05000
										05000

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
4	0%	<input checked="" type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(2)(i)
		<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 20.2203(a)(2)(v)
		<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
		<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)
		<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 73.71(a)(4)
		<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(5)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	OTHER
		<input type="checkbox"/> 50.73(a)(2)(vii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	

LICENSEE CONTACT FOR THIS LER (12)

NAME K. A. Underwood, Performance Analysis Supervisor, Plant Hatch	TELEPHONE NUMBER (Include Area Code) (912) 537-5931
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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

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

During a review of Special Nuclear Material (SNM) inventory and accounting records initiated in response to industry events, a licensee-initiated corrective action, and Nuclear Regulatory Commission (NRC) Bulletin 2005-01, it was determined that a discrepancy existed between the amount of spent fuel that exists in the Spent Fuel Pool (SFP) and the amount recorded within the SNM physical inventory records. This was reported as NRC Event Number 42135 on November 10, 2005 pursuant to 10CFR20.2201(a)(1)(ii) and 10CFR50.72(b)(2)(xi). Southern Nuclear Operating Company (SNC) believes the SNM in question, consisting of fuel rod segments/fragments from five (5) fuel rods, which have not been found to date, and missing pellets or pellet fragments from a broken sixth rod, are either in potentially inaccessible areas of the SFP, in bundles, were washed out during reactor operation, or were mistakenly shipped to a facility licensed to receive radioactive waste material. The possibility of theft or diversion is not considered plausible because of the plant's radiation monitoring instrumentation, physical security measures, and the size and type of container required for transporting nuclear material of this nature.

This event was caused by fuel rod segments/fragments not being tracked as separate, individual items in the SNM inventory. The root cause of this event primarily was an inadequate procedure. The applicable plant procedure has been revised to prevent this problem from recurring. Inventory verification activities in response to NRC Bulletin 2005-01 will continue.

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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

At approximately 1528 EST, on November 10, 2005, with Unit 1 in Mode 4, a notification was made to the Nuclear Regulatory Commission (NRC) of a Special Nuclear Material (SNM) accounting discrepancy. This was a non-emergency event notification, made in accordance with 10 CFR 20.2201(a)(1)(ii) and 10CFR50.72(b)(2)(xi), to inform the NRC of an SNM accounting discrepancy. The discrepancy results from segments of five (5) rods from five (5) fuel bundles/assemblies, amounting to, in the aggregate, less than one half of a spent fuel rod, which were not tracked in physical inventory. Additionally, a sixth broken rod has some missing fuel pellets or pellet fragments, which, based on inspection, have been attributed to washout during reactor operation. In the process of reviewing records and physically verifying the contents of the Spent Fuel Pools (SFPs) as part of activities associated with corrective action [Condition Report 2005105177] and preparing Southern Nuclear Operating Company's (SNC) response to NRC Bulletin 2005-01, material control and accounting discrepancies related to fuel segments/fragments located in the SFP and physical inventories records were identified. The Spent Fuel Pool Item Control Area (ICA) includes both spent fuel pools for Units 1 & 2. Based on record reviews, the segments/fragments are believed to have originated during fuel reconstitution and inspection activities during the early 1980s. Previous physical inventory procedures performed at the plant did not track individual fuel segments/fragments that were separated from fuel bundles. Condition reports had been issued for some of the fuel rod segments which had separated from their original bundles.

Physical searches of the SFPs in Summer 2005 and Fall 2005 identified individual segments in the SFPs separate from their original bundles. Most of these have been retrieved and quantified; however, some potential SNM has been observed in highly inaccessible areas of the pools. Efforts to retrieve these potential short segments and/or pellet fragments, including at least one 5 inch segment, will resume after the current refueling outage. Inventory verification in response to the NRC Bulletin is not complete because these items still need to be recovered and characterized.

10 CFR 20.2201(b) requires a written report within 30 days after the initial notification for the occurrence of any lost, stolen, or missing licensed material that was reported under 10 CFR 20.2201(a)(1)(ii) for licensed material in a quantity 10 times greater than the quantity specified in Appendix C to Part 20. The following topics are required to be addressed:

(i) A description of the licensed material involved, including kind, quantity, and chemical and physical form:
Segments/fragments of irradiated fuel rods, approximately ½ inch in diameter, consisting of fuel pellets and pellets contained within metal cladding. The fuel material is irradiated, low-enrichment uranium dioxide.

(ii) A description of the circumstances under which the loss or theft occurred:

Fuel rods were broken during inspection and reconstitution activities in the early 1980s. The location of the resulting segments/fragments was not recorded in the SNM inventory records. The possibility of theft or diversion is not plausible because of the plant's radiation monitoring instrumentation, physical security measures, and the size and type of container required for transporting nuclear material of this nature. It is believed that the fuel fragments either still reside within the SFPs, were washed out during reactor operation, or were mistakenly shipped to a facility licensed to receive radioactive material.

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(iii) A statement of disposition, probable disposition, of the licenses material involved:

SNM identified and retrieved during the physical searches to date, over 20 rod segments, fuel cladding and pellet/pellet fragments, are inventoried and included in the SNM accountability procedure. Ongoing evaluation of the identified fuel segments/ fragments that still reside in the SFP will determine disposition/control methods. With respect to SNM quantities not identified to date in the SFP searches, SNC currently believes that the fragments and pellets remain in the SFP, were washed out during reactor operation, or were mistakenly shipped to a facility licensed to receive radioactive material.

(iv) Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas:

No exposure to radiation occurred to the plant staff or members of the public, since the fuel fragments and pellets either remain in the SFPs; were washed out during reactor operation and captured on demineralizers; or were mistakenly shipped in a licensed shielded container to a facility licensed to receive radioactive material. This facility possesses monitoring equipment to prevent unauthorized exposure.

(v) Actions that have been taken, or will be taken, to recover the material:

A team has completed a detailed physical inspection of the SFPs, and has retrieved over 20 items which have been determined to be SNM. Other potential SNM items still reside in the pools in potentially inaccessible locations and will be retrieved after the current outage. The team is still reviewing records, performing document reviews of operating logs, and interviewing present and former employees and vendors who have been associated with SFP activities, irradiated fuel inspections, reconstitutions, and radioactive material shipments, at Plant Hatch, to ensure that all broken rods, separated from their original bundles, have been identified.

The following specific actions have been performed or are in progress:

- (1) A visual inspection of accessible areas of the Spent Fuel Pool has been completed. Special cameras and robotic equipment were used to perform this inspection. The inspection reports are being reviewed to determine if there are additional areas to inspect or any areas which need to be re-inspected.
- (2) Additional review of selected vendor fuel and shipping records is in progress.
- (3) Additional review of selected SNC fuel and shipping/receipt records is in progress.
- (4) Inspection of selected fuel assemblies in the SFP has been completed. Additional bundle inspection may be performed when work resumes after the current refueling outage.
- (5) Records are being reviewed to identify any information which might be pertinent to the on-site investigation.
- (6) The number of fuel bundles/assemblies within the SFP has been verified.
- (7) The records of offsite shipments are being reviewed to determine if any fragments were sent directly to off-site locations for analysis or testing.
- (8) Additional retrieval, characterization, and quantification of potential SNM from selected cells in fuel racks and potentially inaccessible areas in, and around, the fuel storage racks will be performed to the extent possible after the current outage.
- (9) Inspection of baskets, pails, and other containers within the SFP has been largely completed. The remaining locations will be inspected after the current outage.
- (10) Additional inspection of open spaces and locations under equipment stored on the bottom of the SFP will be completed after the current outage.
- (11) State of Georgia and South Carolina representatives and the operator of the Barnwell facility were notified of the discrepancy.

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(vi) Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of licensed material:

The root cause evaluation identified corrective actions to ensure that all fuel SNM items are recorded in the physical inventory. All corrective actions identified by the root cause evaluation have been completed.

CAUSE OF EVENT:

The root cause of this event primarily was an inadequate procedure. The procedure for the physical inventory of SNM did not contain instructions regarding inclusion of less than whole SNM units on the SNM physical inventory records.

CORRECTIVE ACTIONS:

- All located SNM-bearing fragments and pieces were included in the physical inventory records.
- The special nuclear material physical inventory procedure was revised, effective 10/25/2005, to include instructions on the administrative handling of SNM fragments and pieces.
- Personnel assigned to SNM accounting activities have been trained on the new requirements for tracking and inventorying SNM and SNM-bearing fragments and pieces. A program is in place to ensure personnel assigned to SNM accounting activities in the future will be trained on the new tracking and inventorying requirements.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is required by 10 CFR 20.2201(b) because of a nuclear material accountability discrepancy. Portions of five (5) spent fuel rods, amounting to less than half a fuel rod in the aggregate, have not been located to date during the SNM inventory performed in response to Bulletin 2005-01. However, additional potential fuel segments, pellets, and fragments of fuel pellets have been identified in potentially inaccessible areas of the SFP. This material has not yet been retrieved or quantified. The inventory discrepancy involved segments/fragments of irradiated fuel rods, approximately 1/2 inch in diameter, consisting of fuel pellets and pellets contained within metal cladding. The fuel material is irradiated, low-enrichment uranium dioxide.

The possibility of theft or diversion is not plausible because of radiation monitoring instrumentation, the plant's physical security measures, and the size and type of container required for transporting nuclear material of this nature.

No exposure to radiation occurred to plant staff or to the public, since the fuel fragments remain in the SFPs or were shipped to a facility licensed to receive radioactive material.

Based upon the preceding analysis, it is concluded this event had no adverse impact on nuclear safety. The analysis is applicable to all power levels.

A final statement of disposition is not available at this time. However, it is believed that some fuel segments/fragments still reside within the SFP. To the extent possible (based upon accessibility) these segments/fragments will be retrieved when the SFP inspection resumes after the current outage. A final disposition or probable disposition of the inventory discrepancy will be determined and included in the final response to NRCB 2005-01, to be submitted later this year.

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ADDITIONAL INFORMATION

No systems other than those already mentioned in this report were affected by this event.

This LER does not contain any permanent licensing commitments.

LER 50-321/1982-097, dated November 30, 1982, reported the separation of a fuel rod into two (2) segments/fragments during fuel rod inspection.

NRC Inspection Report 50-321/88-10, dated April 27, 1988, addressed material accountability and control procedures at Plant Hatch. NRC Inspection Report 50-321/87-27, dated November 18, 1987, includes an NRC finding related to material control and accountability. NRC Inspection Report 50-321/83-31, dated December 9, 1983, includes NRC observations of fuel bundle reconstitution activities. NRC Inspection Report 50-3211/2005-001 and 50-366/2005-001, dated January 17, 2006, which identified the results of Phase III of Temporary Instruction 2515/154, "Spent Fuel Material Control and Accounting at Nuclear Power Plants." One Unresolved Item (URI), with respect to unaccounted for spent fuel rod pieces, was identified.

URI 05000321, 366/2005003-02, "Special Nuclear Material Control and Accountability," wherein the NRC has designated SNM accountability as an unresolved item.