Entergy

Entergy Operations, Inc.
7003 Bald Hill Road
P.O. Box 756
Port Gibson, MS 39150
Tel 601 437 6299

Christina L. Perino
Manager
Licensing

GNRO-2009/00047

August 21, 2009

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: LER 2009-003-00 – Special Nuclear Material Inventory Discrepancy

Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

Dear Sir or Madam:

Attached is Licensee Event Report (LER) 2009-003-00 which is a final report. This report is submitted in accordance with 10 CFR 20.2201(b).

This letter does not contain any commitments. Should you have any questions regarding this report, please call Christina L. Perino at 601-437-6299.

Sincerely,

CLP/PRR

Attachment: LER 2009-003-00

cc: (See Next Page)

cc: NRC Senior Resident Inspector
Grand Gulf Nuclear Station
Port Gibson, MS 39150

U. S. Nuclear Regulatory Commission
ATTN: Mr. Elmo E. Collins (w/a)
Regional Administrator, Region IV
612 East Lamar Drive, Suite 400
Arlington, TX 76011-4005

U.S. Nuclear Regulatory Commission
ATTN: Mr. Carl F. Lyon, NRR/ADRO/DORL (w/2)
ATTN: ADDRESSEE ONLY
ATTN: Courier Delivery Only
Mail Stop OWFN/8 B1
11555 Rockville Pike
Rockville, MD 20852-2378

NRC FORM 366 (9-2007) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB: NO. 3150-0104 | EXPIRES: 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Grand Gulf Nuclear Station, Unit 1	05000416	1 of 4

4. TITLE
Special Nuclear Material Inventory Discrepancy

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
									N/A	N/A
07	22	2009	2009	- 003 -	00	08	21	2009	FACILITY NAME: N/A	DOCKET NUMBER: N/A

9. OPERATING MODE
1

10. POWER LEVEL
100

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

- ☒ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Christina L. Perino, Licensing Manager	601-437-6299

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)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On July 22, 2009, at 1733 hours Central Daylight Time (CDT), the determination was made that an unirradiated local power range monitor (LPRM) detector was not in its expected storage location. The LPRM detector contained an estimated maximum quantity of 5.84 microcuries of Uranium-234 (U-234) and Uranium-235 (U-235) combined, thus meeting the reporting criteria in 10 CFR 20.2201(a)(1)(ii) as a loss of licensed material of a quantity greater than ten times that specified in Appendix C to 10 CFR Part 20. According to special nuclear material (SNM) inventory sheets, the LPRM detector was expected to be stored in a canister in a Spent Fuel Pool (SFP) drum. However, during performance of the annual physical inventory of SNM, the LPRM detector could not be located. Subsequent investigation concluded that the LPRM was disposed of as an SNM discard and shipped to the licensed facility at Barnwell, South Carolina, in February 2005 for burial as radioactive waste.

A. REPORTED CONDITION

On July 22, 2009, at 1733 hours Central Daylight Time (CDT), Grand Gulf Nuclear Station (GGNS) was in Mode 1 operating at approximately 100 percent power. During performance of the annual physical inventory of special nuclear material (SNM), the determination was made that an unirradiated local power range monitor (LPRM) detector [IG-DET] serial number 01S22029 was not in its expected storage location. While the investigation concluded that the LPRM was shipped to a licensed disposal facility, this condition is being reported in accordance with 10 CFR 20.2201(a)(1)(ii) as a loss of licensed material of a quantity greater than ten times the quantity specified in Appendix C to 10 CFR Part 20. Telephone notification was made on July 22, 2009, to the NRC Emergency Notification System (ENS) pursuant to 10 CFR 20.2201(a)(1)(ii). This written report is being submitted within 30 days of the telephone notification in accordance with the requirements of 10 CFR 20.2201(b).

B. DESCRIPTION OF LICENSED MATERIAL INVOLVED

LPRM detector 01S22029 was originally received on site on April 2, 2002. The LPRM subsequently failed testing and was never put into service (i.e., unirradiated). It was determined that the unirradiated detector was placed into storage until it was shipped offsite to a disposal facility as an SNM discard on February 18, 2005. The LPRM detector is a sealed fission chamber containing uranium oxide material. Based on the original Shipper's Certification for Radioactive Material, dated March 25, 2002, the LPRM detector contained an estimated maximum total activity of 5.84 microcuries of Uranium-234 (U-234) and Uranium-235 (U-235) combined.

C. CIRCUMSTANCES UNDER WHICH THE LOSS OCCURRED

In September 2002, LPRM detector 01S22029 was moved to core location 26-35A during Refueling Outage 12 (RF12). Subsequently, it was discovered that the LPRM had failed testing. Prior to drywell closeout during RF12, the unirradiated defective detector was moved from the core to a temporary SNM storage area in the auxiliary building and placed into an Intermediate Range Monitor (IRM) / Source Range Monitor (SRM) detector canister.

In January 2003, LPRM 01S22029 was discovered in the SNM storage area in the auxiliary building. Prior to discovery of the detector, it was thought to have been moved to the Spent Fuel Pool (SFP) (reference: CR-GGN-2003-00070). The LPRM was stored in a canister designed to contain IRM and SRM detectors which was not typical of the normal storage method for LPRMs (i.e., to place them in specifically designed LPRM canisters). This atypical storage method was a result of the detector not being irradiated. After discovery, the IRM/SRM canister containing LPRM 01S22029 was moved from the SNM storage area to a drum in the SFP which contained multiple canisters containing IRMs, SRMs, and LPRMs. Movement of the LPRM to the SFP drum was noted on the SNM Tracking Sheet STS-1-13-04.

A SFP cleanup campaign was conducted in February 2005 under the authorization of SNM Tracking Sheet STS-1-14-21, which described the staging of detectors into a shipping cask for disposal. During this campaign, the SFP drum was emptied of shippable items (i.e., items with specific activity not excessively high, including all IRM/SRM canisters), and these items were loaded into a shipping cask and shipped to the Barnwell, South Carolina, facility for disposal. No LPRM canisters were shipped offsite at this time. LPRM 01S22029 continued to appear in the SNM inventory database because it was incorrectly assumed to be stored in an LPRM canister in the SFP drum.

During performance of the 2009 annual SNM physical inventory in July 2009, under the authorization of SNM Tracking Sheet STS-1-17-16, the SFP drum was emptied of LPRM canisters. The LPRM canisters were transferred to specially designed holders that allowed each LPRM canister to reside in an individual fuel rack location in the SFP. During this activity, a discrepancy between the SNM database and physical inventory was discovered regarding the location of LPRM detector 01S22029 (reference: CR-GGN-2009-03729). Review of the 2005 SNM Tracking Sheet STS-1-14-21 determined that the steps in the STS were vague and did not specifically document detector serial numbers. The STS referred to all detectors stored in the SFP drum, which was all detectors (IRM, SRM, LPRM, and Traversing Incore Probe (TIP)) in the SFP at that time. The STS also contained the note "All detectors except LPRMs in canisters," indicating that all detectors except LPRMs in canisters were removed from the SFP drum and loaded into the shipping cask. Based on interviews with personnel performing the cask loading and review of STS-1-14-21, it was concluded that LPRM 01S22029 was loaded into the cask since the LPRM was contained in an IRM/SRM canister in the SFP drum and all IRM/SRM canisters had been shipped offsite in 2005. The contents of the IRM/SRM canister had not been positively identified because the canister was not accessible to perform serial number or piece count verifications of contents. The LPRM remained in the SNM inventory database because it was thought to be stored in an LPRM canister. The investigation concluded that LPRM 01S22029 was shipped offsite as an SNM discard in Grand Gulf Shipment No. 2005-0205 on February 18, 2005.

D. DISPOSITION OF LICENSED MATERIAL INVOLVED

Based on the investigation, review of inventory results, and interviews with responsible personnel, it was concluded that LPRM detector 01S22029 was shipped offsite to the Barnwell, South Carolina, facility as SNM discard. The 2009 SNM inventory sheets have been reconciled with the physical SNM inventory, and appropriate notifications and reporting are in progress.

E. EXPOSURES OF INDIVIDUALS TO RADIATION

LPRM detector 01S22029 contained a maximum total activity of approximately 5.84 microcuries of U-234 and U-235 combined. The licensed material in the detector that could not be accounted for was in a container that was properly handled as a device containing radioactive material. Since the detector containing the licensed material was maintained in the controlled waste process stream (i.e., packaging, transportation, and disposal of radioactive materials), no unregulated exposures occurred to persons in unrestricted areas. In addition, given that the detector was unirradiated, its contribution to the dose received by any radiation workers involved in the waste handling process was negligible.

F. ACTIONS TAKEN TO RECOVER THE MATERIAL

A thorough inspection of potential detector storage locations within the SFP Item Control Areas was conducted, interviews with persons previously involved in performing SNM physical inventories were conducted, and historical SNM related documentation was reviewed. Based on the investigation, it was concluded that LPRM detector 01S22029 was shipped offsite to the Barnwell, South Carolina facility and disposed of as an SNM discard. The 2009 SNM inventory sheets have been reconciled with the physical SNM inventory, and appropriate notifications and reporting are in progress.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Grand Gulf Nuclear Station, Unit 1	05000416	2009	-- 003 --	00	4 of 4

G. PROCEDURES OR MEASURES TAKEN OR WILL BE ADOPTED TO ENSURE AGAINST RECCURRENCE

Condition Report GGN-2009-03729, initiated on July 22, 2009, will address any additional actions to preclude recurrence of similar events. A root cause evaluation was performed to thoroughly analyze the event and recommend corrective actions, identify process improvements, and ensure appropriate management involvement in issue resolution. This evaluation determined that the primary cause of the event was insufficient procedural guidance related to properly storing atypical SNM in identifiable containers.