



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

December 18, 2003

George A. Williams, Site Vice President
Grand Gulf Nuclear Station
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150

**SUBJECT: GRAND GULF NUCLEAR STATION - NRC RADIATION SAFETY TEAM
INSPECTION REPORT 05000416/2003009**

Dear Mr. Williams:

On November 13, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Grand Gulf Nuclear Station. The enclosed Radiation Safety Team inspection report documents the inspection findings, which were discussed at the conclusion of the inspection with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The team reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, the team evaluated the inspectable areas within the Radiation Protection Strategic Performance Area that are scheduled for review every two years. These areas are:

- Radiation Monitoring Instrumentation
- Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems
- Radioactive Material Processing and Transportation
- Radiological Environmental Monitoring Program and Radioactive Material Control Program

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Entergy Operations, Inc.

-2-

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

//RA//

Troy W. Pruett, Chief
Plant Support Branch
Division of Reactor Safety

Docket: 50-416
License: NPF-29

Enclosure:
Inspection Report 05000416/2003009
w/Attachment: Supplemental Information

cc w/enclosure:
Senior Vice President
and Chief Operating Officer
Entergy Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Wise, Carter, Child & Caraway
P.O. Box 651
Jackson, MS 39205

Winston & Strawn
1400 L Street, N.W. - 12th Floor
Washington, DC 20005-3502

Jay Barkley, Chief
Energy & Transportation Branch
Environmental Compliance and
Enforcement Division
Mississippi Department of
Environmental Quality
P.O. Box 10385
Jackson, MS 39289-0385

President, District 1
Claiborne County Board of Supervisors
P.O. Box 339
Port Gibson, MS 39150

Entergy Operations, Inc.

-3-

General Manager
Grand Gulf Nuclear Station
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150

The Honorable Richard Ieyoub
Attorney General
Department of Justice
State of Louisiana
P.O. Box 94005
Baton Rouge, LA 70804-9005

Office of the Governor
State of Mississippi
Jackson, MS 39201

Mike Moore, Attorney General
Frank Spencer, Asst. Attorney General
State of MS
P.O. Box 22947
Jackson, MS 39225

Dr. Brian W. Amy
State Health Officer
State Board of Health
P.O. Box 1700
Jackson, MS 39215

Robert W. Goff, Program Director
Division of Radiological Health
Mississippi Dept. of Health
P.O. Box 1700
Jackson, MS 39215-1700

Michael A. Krupa, Director
Nuclear Safety & Licensing
Entergy Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213-8298

Director, Nuclear Safety
and Regulatory Affairs
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150

ELECTRONIC DISTRIBUTION BY RIV:

- Regional Administrator (**BSM1**)
- DRP Director (**ATH**)
- DRS Director (**DDC**)
- Senior Resident Inspector (**TLH4**)
- Branch Chief, DRP/A (**WDJ**)
- Senior Project Engineer, DRP/A (**TRF**)
- Staff Chief, DRP/TSS (**PHH**)
- RITS Coordinator (**NBH**)
- Branch Chief, DRS/PSB (**TWP**)

Only inspection reports to the following:

- Anne Boland, OEDO RIV Coordinator (**ATB**)
- GG Site Secretary (**MJS**)

ADAMS: Yes No Initials: nlh
 Publicly Available Non-Publicly Available Sensitive Non-Sensitive

DOCUMENT: R:_GG\GG2003-09RP-LTR.wpd

RIV:DRS\PSB	PSB	PSB	PSB:Team Leader	C:PSB
BDBaca:nlh	DRCarter	LTRicketson	MPShannon	TWPruett
	/RA/	/RA/	/RA/	/RA/
/ /03	11/26 /03	12 /3 /03	12/8 /03	12 /15 /03
DRP/A	C:PSB			
WBJohnson	TWPruett			
/RA/	MPShannon for			
12/17/03	12/18 /03			

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-416

License No.: NPF-29

Report No.: 05000416/2003009

Licensee: Entergy Operations, Inc.

Facility: Grand Gulf Nuclear Station (GGNS)

Location: Waterloo Road
Port Gibson, Mississippi 39150

Dates: November 10-13, 2003

Inspectors: Larry T. Ricketson, P.E., Senior Health Physicist
Michael P. Shannon, Senior Health Physicist
Bernadette D. Baca, Health Physicist
Daniel R. Carter, Health Physicist

Accompanying Inspector: Binesh K. Tharakan, Health Physicist, Plant Support

Approved By: Troy W. Pruett, Chief
Plant Support Branch
Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000416/2003-009; 11/10/03 - 11/13/03; Grand Gulf Nuclear Station; Radiation Safety Team.

The report covered a one week period of inspection on site by a team of four region-based health physics inspectors. No findings of significance were identified.

Enclosure

REPORT DETAILS

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety [OS] and Public Radiation Safety [PS]

2OS3 Radiation Monitoring Instrumentation (71121.03)

a. Inspection Scope

This area was inspected to determine the accuracy and operability of radiation monitoring instruments used for the protection of occupational workers and the adequacy of the program to provide self-contained breathing apparatus (SCBA) to personnel entering unknown atmospheres. The team conducted an in-office review of the licensee's applicable audits, self-assessments, and corrective action documents related to the radiation monitoring instrumentation and SCBA programs. On site, the team interviewed cognizant licensee personnel and compared the following items with regulatory and procedural requirements and commitments in the Updated Final Safety Analysis Report:

- Calibration, operability, and alarm setpoint of selected area radiation monitors and emergency assessment instrumentation (control room ventilation radiation monitor and containment building post-accident monitor)
- Calibration and operability of portable radiation detection instrumentation used for job coverage of high radiation area work, whole-body counters, and personnel contamination monitors
- Calibration expiration and source response check currency on portable radiation detection instruments staged for use
- The status of self-contained breathing apparatuses staged and ready for use in the plant and associated surveillance and maintenance records
- The licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions
- Training and qualifications of personnel who may use self-contained breathing apparatus during an emergency (control room operators and emergency response personnel), perform maintenance and repair of self-contained breathing apparatus, and refill air bottles
- Periodic air cylinder hydrostatic testing results
- Licensee self-assessments and audits related to the radiation monitoring instrumentation and self-contained breathing apparatuses

Enclosure

- Summary of corrective action documents written since the last inspection and selected documents related to radiation monitoring instruments, self-contained breathing apparatus equipment, repetitive, and significant individual deficiencies

The team completed all nine of the required samples in this inspection area.

b. Findings

No findings of significance were identified.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

a. Inspection Scope

This area was inspected to ensure that the gaseous and liquid effluent processing systems were maintained so that radiological releases were properly mitigated, monitored, and evaluated with respect to public exposure. The team conducted an in-office review of the licensee's annual reports, self-assessments, and corrective action documents. On site, the team examined procedures and representative records; walked down the major components of the radwaste, fuel handling area, containment, and turbine building gaseous and the liquid effluent release systems; and interviewed cognizant personnel. The team observed sample preparation, collection, and analysis of gaseous effluent from the fuel handling area exhaust and the offgas post-treatment monitor for compliance with procedural and regulatory requirements. Additionally, the following items were reviewed and compared with regulatory requirements and commitments in the Updated Final Safety Analysis Report:

- 2001 and 2002 Annual Radioactive Effluent Release Report
- Changes made in 2001 and 2002 to the Offsite Dose Calculation Manual and to the radioactive waste system design and operation
- Unplanned, monitored releases reported in the 2001 Radiological Effluent Release Report
- Effluent radiological occurrence performance indicator incidents (no occurrences during the inspection period)
- Effluent radiation monitor alarm setpoint values and calculation methodology
- Selected radioactive liquid waste and gaseous release permits and associated projected doses to members of the public
- Compensatory sampling and radiological analyses conducted for unmonitored releases and when effluent monitors were declared out-of-service
- Monthly, quarterly, and annual dose calculations

- Air cleaning system surveillance test results for the Control Room Ventilation and Fuel Handling Building Systems.
- Surveillance test results for vent flow rates
- Records of calibrations performed since the last inspection for the containment, fuel handling, and turbine building gaseous effluent radiation monitor and flow measurement devices
- Records of instrument calibrations performed since the last inspection for the liquid effluent radiation monitor
- Calibration records of counting room instrumentation associated with effluent monitoring and release activities
- Chemistry Department and Vendor interlaboratory comparison program and results
- Quality control records for the counting room instruments
- Audits and self-assessments related to the radioactive effluent treatment and monitoring program and the licensee's ability to meet the Radiological Effluent Technical Specification/Offsite Dose Calculation Manual requirements
- Summary of corrective action documents written since the last inspection and selected documents related to the radioactive effluent treatment and monitoring program, the engineered-safety-feature air cleaning systems, repetitive, and significant individual deficiencies

The team completed all ten of the required samples in this inspection area.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation (71122.02)

a. Inspection Scope

This area was inspected to verify that the licensee's radioactive material processing and transportation program complies with the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation regulations contained in 49 CFR Parts 170-189. The team conducted an in-office review of the licensee's annual reports, self-assessments, and corrective action documents. On site, the team interviewed radiation workers and radiation protection personnel involved in radioactive material processing and transportation activities and walked down the liquid and solid

Enclosure

radioactive waste processing systems to verify that the current system configuration and operation agreed with the descriptions contained in the Updated Final Safety Analysis Report and in the Process Control Program. The team reviewed radioactive waste processing equipment that was not operational or abandoned in place for material condition, potential unmonitored release pathways, and unnecessary personnel exposure. Additionally, the following items were reviewed and compared with regulatory requirements:

- Waste stream determination and sampling procedures
- Radioactive waste transfer and sampling procedures and waste classification methodology
- Radio-chemical sample analysis results and changes to operational parameters affecting the results for each of the licensee's radioactive waste streams
- Scaling factors and calculations used to account for difficult-to-measure radionuclides
- 10 CFR Part 20, Appendix G, quality assurance program
- Transport cask Certificates of Compliance (9208 and 9233)
- Transferee licenses (R-I2005-K01, R-24003-D05, and R-73013-F91)
- Procedures for cask loading and closure
- Training of personnel responsible for the conduct of radioactive waste processing and radioactive material shipment preparation activities
- Documentation for five non-excepted package shipments that demonstrated shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipment readiness
- Changes to the radioactive waste processing systems since the last inspection (No changes were identified.)
- Audits and self-assessments related to the radioactive material and transportation programs performed since the last inspection
- Summary of corrective action documents written since the last inspection and selected documents involving the radioactive material and shipping programs, and repetitive and significant individual deficiencies

No shipments of radioactive materials were conducted during the inspection. The team completed all six of the required samples in this inspection area.

Enclosure

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program and Radioactive Material Control Program (71122.03)

a. Inspection Scope

This area was inspected to determine whether the licensee had an adequate program to verify the impact of radioactive effluent releases to the environment and to ensure that the licensee's surveys and controls were adequate to prevent the inadvertent release of licensed materials into the public domain. The team conducted an in-office review of the licensee's applicable audits, self-assessments, and corrective action documents related to the radiological environmental monitoring program and the radioactive material control program. On site, the team interviewed members of the licensee's staff responsible for implementing the radiological environmental, meteorological monitoring, and radioactive material control programs. The team observed the following activities and equipment with respect to the Technical Requirements Manual (TRM), Offsite Dose Calculation Manual (ODCM), Technical Specifications (TS), and regulatory requirements:

- Collection and preparation for shipment of airborne particulate, charcoal, and water samples for analysis at an off-site contract laboratory
- Meteorological instrumentation at the primary and back-up meteorological towers and data displays in the control room
- The survey of materials for release from the controlled access area
- Implementing procedures for the radiological environmental monitoring program
- Environmental sample analytical results
- Two environmental air sampling stations (AS-1 and AS-7, located in Emergency Planning Sector's G and H, respectively) and six thermoluminescent dosimetry stations (M-07, M-60, M-22, M-21, M-16, and M-10 located in Emergency Planning Sectors G, G, G, J, A, and A, respectively) specified in the TRM
- Calibration and maintenance records for environmental air sampling equipment
- Calibration, maintenance, and quality control records for environmental sample measurement instrumentation
- 2001 land use census results and changes to the radiological environmental monitoring program (no changes where identified)

Enclosure

- 2001 and 2002 Annual Radiological Environmental Operating Report (GNRO-2003/00013 and GNRO-2002/00034, respectively)
- The contractor environmental laboratory's performance in the inter-laboratory comparison program
- Implementing procedures for the meteorological monitoring program
- Meteorological instrument operability, reliability, and annual meteorological data recovery
- Procedures, methods, and instruments used to survey, control, and release materials from the controlled access area
- Calibration procedures and records for instruments used to perform radiological surveys prior to material release
- Detection sensitivities and counting parameters of radiation survey instruments used for the release of potentially contaminated materials from the controlled access area
- Criteria used for the unrestricted release of potentially contaminated material from the controlled access area
- Audits and self-assessments related to the radiological environmental monitoring program and the radioactive material control program
- Summary of corrective action documents written since the last inspection and selected documents involving radiological environmental monitoring, meteorological monitoring, and release of radioactive material programs.

The team completed all ten of the required samples in this inspection area.

c. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

Sections 2OS3, 2PS1, 2PS2, and 2PS3 evaluated the effectiveness of the licensee's problem identification and resolution processes in the respective inspectable areas. No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

On November 13, 2003, the team presented the inspection results to Mr. G. Williams, Site Vice President, and other members of his staff who acknowledged the findings. One proprietary document was reviewed by the team during the inspection but was not copied or retained.

ATTACHMENT
SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee personnel

R. Benson, Supervisor, Radwaste
D. Cotton, Supervisor, Health Physics Operations
J. Hagood, Senior Health Physicist, Radiation Protection Department
M. Hurley, Meteorological Systems Engineer
D. Jackson, Health Physics/Chemistry Support Coordinator, Chemistry Department
J. Lassetter, Effluents Supervisor, Chemistry Department
F. Rosser, Supervisor, Health Physics
R. Shaw, Environmental Specialist, Chemistry
P. Stokes, Senior Specialist, Health Physics/Chemistry
R. Tolbert, Senior Specialist, Health Physics/Chemistry
J. Watts, Senior Specialist, Health Physics/Chemistry
R. Wilson, Superintendent, Radiation Protection

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Opened and Closed During this Inspection

NONE

Previous Items Closed

NONE

Previous Items Discussed

NONE

LIST OF DOCUMENTS REVIEWED

I. Inspection Procedure 71121.03

A. Self-Assessment and Quality Verification

Grand Gulf Self Assessment Radiation Protection Instrumentation
(LO-GLO-2003-00108)
Respiratory Protection Self-Assessment (LO-GLO-2003-00041)

B. Procedures

Instruments

RP-303 Source Checking of Radiation Protection Instrumentation, Revision 2
RP-306 Operation and Calibration of the Eberline PM-7, Revision 0
RP-307 Operation and Calibration of Eberline Personnel Contamination Monitors,
Revision 2
RP-308 Operation and Calibration of Gamma Scintillation Tool Monitors, Revision 2
08-S-10-04 Calibration of Portable Dose Rate Instruments, Revision 2
08-S-10-06 Calibration of Extendable Dose Rate Instruments, Revision 2

SCBA

RP-501 Respiratory Protection Program, Revision 0
RP-502 Inspection and Maintenance of Respiratory Protection
Equipment, Revision 0
RP-504 Breathing Air, Revision 0
08-S-02-42 Inspection and Maintenance of Respiratory Protection
Equipment, Revision 17
08-S-02-117 Flow Testing of SCBA Regulators, Revision 0

C. Condition Reports

Instruments

2001-02008, 2002-00448, 2002-00969, 2002-1619, 2002-01629, 2002-02279,
2002-02535, 2003-00725, 2003-00883, and 2003-1402

SCBA

2003-00725

II Inspection Procedure 71122.01

A. Self-Assessment and Quality Verification

River Bend Assessment of the Radiological Environmental Monitoring Program and the
Radiological Effluent Controls Program, May 2003 (LO-RLO-2003-00066-CA2)

Radioactive Effluent Count Room Quality Control Assessment, October 2003
(LO-GLO-2003-00127)

QA-6-2001-GGNS-1 Effluent and Environmental Monitoring, September/October
2001
QA-6-2003-GGNS-1 Effluent and Environmental Monitoring, September/October
2003

2001 and 2002 Chemistry Interlaboratory quarterly comparisons
EL 054/02 Duke Engineering and Services Semi-annual Quality Assurance Status Report, July - December 2001
EL 161/02 Duke Engineering and Services Semi-annual Quality Assurance Status Report, January - June 2002
EL 027/03 Duke Engineering and Services Semi-annual Quality Assurance Status Report, July - December 2002
EL 114/03 Duke Engineering and Services Semi-annual Quality Assurance Status Report, January - June 2003

B. Procedures

06-CH-1000-M-0049 Effluent Dose Calculations, Revision 104
06-CH-1000-M-0059 31-Day Dose Projection, Revision 102
06-CH-1D17-M-0003 Building Ventilation Gaseous Tritium, Revision 104
06-CH-1D17-M-0005 Building Ventilation Gaseous Isotopic, Revision 105
06-CH-1D17-V-0032 INOP Gaseous Monitor Analysis, Revision 109
06-CH-1N64-V-0033 Offgas Post-treatment INOP Gaseous Monitor Analysis, Revision 104
08-S-03-120 Germanium System Calibration Summary, Revision 9

C. Condition Reports

2001-01118, 2001-02027, 2002-00458, 2002-00836, 2002-01627, 2002-01704, 2002-2490, 2003-00640, and 2003-02729

D. Waste Release Analyses

Liquid (Maintenance Action Item and Work Order Requests)
304435, 308579, 319013, 333223, 5031176, and 5031177

Gaseous (Maintenance Action Item and Work Order Requests)
306319, 307232, 307616, 313056, 316285, 318056, 318579, 320642, 323855, 328078, 332020, 332752, 50327524, 50335723, 50338179, and 50374038

III. Inspection Procedure 71122.02

A. Self-Assessment and Quality Verification

QA-15-2001-GGNS-1 Radwaste Program
Self Assessment of Radioactive Transportation and Radwaste Management Program (LO-ELO-2003-0197)

B. Procedures

RW-102 Radioactive Shipping Procedure, Revision 1
08-S-06-10 Radioactive Shipment Classification, Revision 9

08-S-06-11 Classification of Radwaste, Revision 12
08-S-06-20 Packaging Radioactive Materials, Revision 15
08-S-06-21 Cask Handling for the 14-190 and 14-210 Series Casks, Revision 13
08-S-06-30 Radioactive Material Shipment Surveys, Revision 17
08-S-06-40 Marking, Labeling and Placarding Radioactive Material Shipments,
Revision 11

C. Condition Reports

2002-1526, 2003-1610, 2003-2029, 2003-2479, 2003-2603, and 2003-2662

D. Shipment Packages

2002-1101, 2003-0201, 2003-0605, 2003-0903, and 2003-1001

IV. Inspection Procedure 71122.03

A. Self-Assessments and Quality Verification

Quality Assurance Audit (QA-6-2003-GGNS-1)
Vendor audit pertaining to environmental sample analysis (LO RLO 2003-00066 CA2)

B. Procedures

Radiological Environmental Monitoring Program

06-EN-S000-V-0001, Radiological Environmental Sampling, Revision 104
06-EN-S000-O-0002, Land Use Census, Revision 101
06-EN-S000-A-0003, Inter-laboratory Comparison, Revision 101

Release of Radioactive Material

01-S-08-2, Exposure and Contamination Control, Revision 112
01-S-08-6, Radioactive Material Control Program Procedure, Revision 108
Post Order No. 1, Security Post Order, Vehicle Search Officer, Revision 41

Meteorological Monitoring

06-IC-SC84-1003, Primary Tower Wind Speed/Direction and Air Temperature (T/DT)
and Relative Humidity Calibration, Revision 102

C. Condition Reports

Radiological Environmental Monitoring Program

2001-00214, 2002-01283, 2002-01937, 2002-02179, 2002-02646, 2002-02714,
2003-00474, 2003-00684, 2003-00696, 2003-01310, 2003-01643, 2003-01746,
2003-01850, 2003-02412, 2003-02477, 2003-02543, 2003-02612, and 2003-02869

Release of Radioactive Material

2003-02603, 2003-02662, 2003-03191, and 2003-03307

Meteorological Monitoring

2003-00826, 2003-00838, 2003-02040, and 2003-03225

D. Calibration Data

Radiological Environmental Monitoring Program

Air Sampler, Serial Number 002483, Dated August 01, 2003

Air Sampler, Serial Number 002487, Dated August 01, 2003