



**Entergy Operations, Inc.**  
Waterloo Road  
P.O. Box 756  
Port Gibson, MS 39150  
Tel 601 437 6470

**Jerry C. Roberts**  
Director  
Nuclear Safety Assurance

April 26, 2000

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

**ATTENTION:** Document Control Desk

**SUBJECT:** Grand Gulf Nuclear Station  
Docket No. 50-416  
License No. NPF-29  
**1999 Grand Gulf Nuclear Station (GGNS) Annual Environmental  
Operating Report (AEOR)**

**GNRO-2000/00023**

Gentlemen:

Attached is the Grand Gulf Nuclear Station (GGNS) Annual Environmental Operating Report (AEOR) for the period January 1, 1999 through December 31, 1999. This report is submitted in accordance with the Environmental Protection Plan, Appendix B to the GGNS Operating License (NPF-29), Section 5.4, "Station Reporting Requirements".

If you have any questions or require additional information concerning this report, please contact Ms. Linda A. Patterson at (601) 437-6252, or this office at (601) 437-6685.

Yours truly,

A handwritten signature in black ink, appearing to read "J. Roberts".

JCR/MJL/bcb

attachment:

1999 Annual Environmental Operating Report

cc:

(See Next Page)

April 26, 2000

GNRO-2000/00023

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cc: Ms. J. L. Dixon-Herrity, GGNS Senior Resident)  
Mr. D. E. Levanway (Wise Carter)  
Mr. N. S. Reynolds  
Mr. L. J. Smith (Wise Carter)  
Mr. H. L. Thomas

Mr. E. W. Merschoff (w/2)  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive,  
Suite 400 Arlington, TX 76011

Mr. S. P. Sekerak, NRR/DLPM/PD IV-1 (w/2)  
U.S. Nuclear Regulatory Commission  
One White Flint North, Mail Stop 04-D3  
11555 Rockville Pike  
Rockville, MD 20852-2378

Entergy Operations, Inc.  
**GRAND GULF NUCLEAR STATION**

**1999  
ANNUAL  
ENVIRONMENTAL  
OPERATING  
REPORT**

## SUMMARY

The Annual Environmental Operating Report (AEOR) provides information and data obtained from implementation of Grand Gulf Nuclear Station's (GGNS) Environmental Protection Plan (EPP), Appendix B to the GGNS Operating License (NPF-29), which only requires terrestrial issues to be addressed, for the period January 1 through December 31, 1999.

The GGNS Final Environment Statement did not identify any aquatic issues. Consequently, the EPP does not address any. The GGNS National Pollutant Discharge Elimination System (NPDES) Permit issued by the Mississippi Department of Environmental Quality (MDEQ) contains effluent limitations and monitoring requirements for aquatic matters. The MDEQ regulates matters involving water quality and aquatic biota.

This report addresses only those issues required by the EPP. In the past, the AEOR included activities associated with the GGNS Construction Permit, and an Updated Final Safety Analysis Report (UFSAR) requirement which involved reporting regional and perched groundwater levels and precipitation data in the AEOR. However, the Nuclear Regulatory Commission approved cancellation of Construction Permit CPPR-119 for Unit 2 on August 21, 1991 (GNRI-91/00176), and GGNS deleted the UFSAR AEOR reporting requirement in 1993 (GNRI-93/00025); therefore, GGNS terminated reporting activities associated with these items.

## 1.0 INTRODUCTION

### 1.1 Impact Assessment and Summary

GGNS personnel monitored the environmental impact of plant operational activities between January 1 and December 31, 1999. The monitoring results contained in the following sections indicate no adverse impact on the environment due to operation of GGNS. In addition, GGNS personnel have not observed harmful effects or evidence of trends toward irreversible damage to the surrounding environment at GGNS.

## 2.0 ENVIRONMENTAL SURVEILLANCE ACTIVITIES

### 2.1 Transmission Line Surveys

GGNS discontinued this program in 1988. Section 4.2.1 of the Environmental Protection Plan contains a provision to discontinue these surveys following stabilization of soil and vegetation.

### 2.2 Cooling Tower Drift Program

GGNS discontinued this program in 1992.

### 2.3 Environmental Evaluations

The EPP permits changes in GGNS design or operation and performance of tests or experiments that affect the environment, provided they do not involve a change in the EPP or an unreviewed Environmental question. However, EPP requirements do not apply to changes, tests or experiments that do not affect the environment. Also, EPP requirements do not relieve GGNS of 10 CFR 50.59 requirements, "Changes, Tests and Experiments," which address the question of safety associated with proposed changes, tests and experiments.

The EPP excludes changes, tests or experiments from the evaluation:

- If all measurable environmental effects confined to onsite areas previously disturbed during site preparation and plant construction, or
- If required to achieve compliance with other federal, state or local requirements.

### 3.0 OBSERVATIONS AND DISCUSSIONS

#### 3.1 Environmental Evaluations

GGNS activities did not include any unreviewed environmental questions during 1999. Review of the single environmental evaluation performed in 1999 indicated routine matters within the scope of expected activities, with no environmental consequences observed as a result of conduct of the activity evaluated. Table 4-1, which has the evaluation attached, summarizes the single environmental evaluation performed in 1999.

### 4.0 ADMINISTRATIVE REQUIREMENTS

#### 4.1 EPP Changes

GGNS made no changes to the EPP in 1999.

#### 4.2 EPP Noncompliances

GGNS activities contained no EPP noncompliances during 1999.

#### 4.3 Nonroutine Reports

GGNS submitted no nonroutine reports in 1999.

#### 4.4 Potentially Significant Unreviewed Environmental Issues

GGNS encountered no potentially significant unreviewed environmental issues in 1999. GGNS personnel made changes in station design and operation, of which none resulted in an unreviewed environmental question, in accordance with the EPP, paragraph 3.1, Plant Design and Operation.

Table 4-1

<b>1999 Environmental Evaluation Summary *</b>	
<b>Safety and Environmental Evaluation Number</b>	<b>Description</b>
99/0391-00-00	Add a branch line off of the 24" JBD-782, which will includes a 12" normally closed valve (N71F416) and a blind flange. The new 12" branch off line will be used to connect temporary piping during refueling/extended plant outages when needed to supply additional (PSW) water to the SSW Basins to allow quick refill of the drained basins.

\* See attached for completed evaluation.

	<b>5059 EVALUATION</b> PSRC Meeting # 10-31-99 Date 10-30-99 PSRC Secretary <i>[Signature]</i> Date Forward NS&RA <i>NA</i>	Attachment 1 ER 99/0391-00-00 Page 1 of 7
Facility: GRAND GULF	Evaluation #: 99-0073-R00	

**I. SIGNATURES**

Preparer:	<i>[Signature]</i> Signature	Odis Chess, Jr. Name (print)	10/28/99 Date
Reviewer:	<i>[Signature]</i> Signature	Doug Jones Name (print)	10/28/99 Date
(PSRC):	<i>[Signature]</i> Chairman's Signature <small>(May be documented on separate form.)</small>	Rob McManan Name (print)	10/30/99 Date

**List of Assisting/Contributing Personnel:**

Name:

Scope of Assistance:

Duff Austin	Civil Inputs for excavation
Bryan Warren	Mechanical System Inputs

**II. OVERVIEW**

**A. Reference Data**

Document Evaluated: ER 99/0391-00-00
System designator(s): N71
References: SOI 04-1-01-P44-1 Section 4.1.2.t, UFSAR Sections 9.2.1 (SSW), 9.2.8 (PSW), 9.2.10.2 (Radial well), 10.4.5 (CW), UFSAR Figure Numbers 10.2-003 and 10.4-005, UFSAR Section 2.4.13.5, UFSAR section 2.5.4.5.5 & SER2.4.4 and TRM 6.7.5.

AFFECTS LBD?	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>		UFSAR figures 10.2-003 and 10.4-005 (ref. LOC 98-099) <span style="float: right; font-size: small;">WDA 11-4-99</span>
TS (includes OL and NRC Orders)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
TRM	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
COLR	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
FHA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SER	<input type="checkbox"/>	<input checked="" type="checkbox"/>		If "YES", see Section 5.1.19.
ODCM (GGNS only)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
PCP (GGNS only)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
QAP	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Emergency Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

	<b>50.59 EVALUATION</b>	<b>Attachment 1</b> <b>ER 99/0391-00-00</b> <b>Page 2 of 7</b>
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Is the validity of this Evaluation dependent on any non-LBD changes other than the change being evaluated? If "Yes", list the required changes.  Yes  No

**B. Executive Summary** (Serves as input to NRC summary report; send an electronic copy to NS&RA after PSRC approval, if available)

**Brief description of change, test, or experiment**

The change is to add a branch line off of 24" JBD-782, which will include a 12" normally closed valve (N71F416) and a blind flange. 24" JBD-782 supplies makeup water (PSW) for the circulating water (N71) system. The new 12" branch off will be in the N71 piping that supplies makeup water (PSW) to the circulating water pump house. However the use of this line, other than to supply PSW water for the SSW basin is not evaluated herein.

**Reason for change, test, or experiment**

The new 12" branch line will be used to connect temporary piping during refueling/extended plant outages when needed to supply additional (PSW) water to the SSW basins to allow quick refill of the drained basins during refueling/extended plant outages. However the use of this line, other than to supply PSW water for the SSW basin is not evaluated herein.

**50.59 Evaluation summary and conclusions**

A makeup water system is provided to replace the circulating water losses due to evaporation, blowdown, and drift. Makeup water for the circulating water system is taken from the plant service water system. Approximately 21,500 gpm of makeup is required. The Circulating Water System (N71) and or the Plant Service Water (P44) system serves no safety function. Systems analysis has shown that failure of the Circulating Water System (N71) or the Plant Service Water (P44) system will not compromise any safety-related systems or prevent safe shutdown.

There are no new systems added by the proposed change, thus the existing accident scenarios and analyses presented in the UFSAR will not be impacted by the proposed change. The proposed change will affect UFSAR Figure Numbers 10.2-003 and 10.4-005. However, installation of valve N71F416 will not result in the operation of any plant system or component in a manner that is inconsistent with information contained in the UFSAR. The 12" branch connection may be used to supply make-up water during all operational conditions with sufficient Plant Service Water capacity available to support the plant condition that exists during the period of use. Use of the 12" branch connection in this manner is in

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agreement with SOI 04-1-01-P44-1 Section 4.1.2.t. This section states "Start/Stop Radial Well pumps to maintain header pressure at approximately 90 psig as plant loads change". UFSAR Section 9.2.10.2 states "During normal operation, as many wells and pumps as required will be operating to meet plant demand." However the use of this line, other than to supply PSW water for the SSW basin is not evaluated herein.

The proposed change is located in the Yard at the circulation water pump house and will not affect or impact the plant's radiological effluents. The area behind the circulating water pump house is within the tie back wall and therefore is structural backfill. The function of the impermeable membrane and structural backfill is discussed in GGNS UFSAR Section 2.5.4.6 and 2.5.4.5.5 but, the impermeable membrane and structural backfill is not governed by any Technical Specifications. The proposed work activity of connecting a 12" pipe to the existing 24" JBD-782 line will require that the adjacent area be excavated. However, after completion of work activities, the area will be restored to the original design requirements. See UFSAR Section 2.4.13.5 for a discussion on ground water levels.

The temporary piping that will be attached to the new 12" branch line will be raised above grade elevation using blocks to eliminate PMP concerns during the use of the temporary piping. The anticipated size of the excavation will not affect local ground water level in the area in the event of a PMP type rainfall. The FSAR does not consider PMP to have an appreciable affect on site ground water levels. The clay cap functions to limit surface water filtration as discussed in UFSAR section 2.5.4.5.5. Due to the limited scope of excavation, this work activity will not adversely affect the PMP evaluation. For PMP requirements see SER2.4.4 and TRM 6.7.5.

The proposed change to the N71 system will have no adverse environmental impacts. After reviewing the proposed change, it has been concluded that installation of the valve does not represent an Unreviewed Safety Question and will have no adverse affects on the environment. The GGNS Technical Specifications do not address the Circulating Water System (N71). Thus the proposed change will not result in the need to change or revise the GGNS Technical Specifications or the Technical Requirements Manual for the Circulating Water System (N71). This change does not adversely affect the overall performance or reliability of the Plant Service Water (P44) system in a manner that could lead to an accident occurring. This change does not cause the systems to be operated outside of their design basis limits. The new 12" branch line cannot affect any system interface in a way that could lead to an accident. The new 12" branch line will not result in degradation of safety systems. Additionally, the margin of safety as defined in the bases for the Technical Specifications has not been reduced.

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### III. UNREVIEWED SAFETY QUESTION DETERMINATION

Does the proposed change:

1. Increase the probability of occurrence of an accident previously evaluated in the SAR?  Yes  
 No

BASIS:

The proposed change installs a 12" branch line with an isolation valve to be used to connect temporary piping during refueling/extended plant outages when needed to supply additional PSW water to the either SSW basin. This action will not alter the ability of the Circulating Water System (N71) or the Plant Service Water (P44) system to perform their intended power generation design functions. The proposed change will not impact other plant systems or components, and will not prevent any safety-related systems or components from performing their safety related action(s). Thus, the proposed change will not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Increase the consequences of an accident previously evaluated in the SAR?  Yes  
 No

BASIS:

The proposed change installs a 12" branch line with an isolation valve to be used to connect temporary piping during refueling/extended plant outages to supply additional PSW water to either SSW basin for refill. The 12" branch off line with isolation valve is located in the Yard. The Circulating Water System (N71) or the Plant Service Water (P44) system is not directly addressed in any of the accidents previously evaluated and presented in Chapter 15 of the UFSAR. The N71 piping in the Turbine building is not affected so the change has no affect on postulated flooding of the Turbine building by a circulating water break. The Plant Service Water (P44) system does not contribute to accident mitigation during a refueling outage. Thus, the proposed change does not represent an activity that may increase the consequences of an accident previously evaluated in the SAR

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3. Increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR?  Yes  No

**BASIS:**

The new 12" branch off line connected to the Circulating Water System is located in the Yard. The 12" branch line is not relied upon to initiate any safety-related functions and the installation of this 12" branch line as installed will not prevent any safety-related equipment or systems from performing their safety related functions. The 12" branch line will be used to connect temporary piping during refueling/extended plant outages when needed to supply additional PSW water to either SSW basin for refill. Use of the 12" branch connection in this manner is in agreement with SOI 04-1-01-P44-1 Section 4.1.2.t. This section states "Start/Stop Radial Well pumps to maintain header pressure at approximately 90 psig as plant loads change". UFSAR Section 9.2.10.2 states "During normal operation, as many wells and pumps as required will be operating to meet plant demand." The new valve and fitting materials will meet the existing design specifications and standards used for the original system design. Thus, the proposed action will not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR?  Yes  No

**BASIS:**

The proposed change as installed will not impact or will not prevent any safety-related systems or components from performing their safety related action(s). The new 12" branch line will not be used as a mitigating device in any of the analyzed accident scenarios presented in the UFSAR. The new 12" branch as installed will not cause any system used for accident mitigation from performing its function. Thus, the proposed change does not represent an activity that may increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR.

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5. Create the possibility of an accident of a different type than any previously evaluated in the SAR?  Yes  No

**BASIS:**

The proposed change does not introduce a new system, nor does this action introduce any new high-energy lines or adversely affect any of the existing safety related systems. Thus, the proposed change does not represent an activity that may create the possibility for an accident of a different type than any previously evaluated in the SAR.

6. Create the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR?  Yes  No

**BASIS:**

The proposed change does not introduce a new system, nor does this action introduce any new high-energy lines or adversely affect any of the existing safety related systems. Therefore, the proposed change does not represent an activity that may create the possibility for a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR.

7. Reduce the margin of safety as defined in the basis for any Technical Specification?  Yes  No

**BASIS:**

The availability of the affected systems will not be altered by the proposed change. As such, the functions of the systems are not impacted by the proposed action. Thus, the proposed action does not represent an activity that will reduce the margin of safety as defined in the basis for any Technical Specification.

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#### IV. ENVIRONMENTAL EVALUATION APPLICABILITY REVIEW

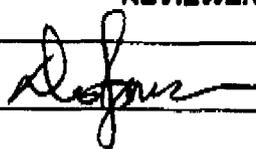
If any of the following questions is answered "YES", then an Environmental Evaluation must be performed.

Will the Change being evaluated:

- | YES                                 | NO                                  |  |
|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Increase thermal discharges to the river, lake or atmosphere?  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Increase concentration or quantity of chemicals discharged to the atmosphere, ground water, or surface water?  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower that will change flow characteristics?   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Potentially cause a spill or unevaluated discharge that may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area that may effect runoff, surface water or ground water?   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the site?   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Result in a change to non-radiological effluents or licensed reactor power level?  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the site?  |

	<b>ENVIRONMENTAL EVALUATION</b>	<b>Attachment 5</b>
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**Document Evaluated:** : ER 99/0391-00-00

REV NO.	TOT. PGS	PREPARER	DATE	REVIEWER	DATE
0	2	Duff Austin	10-28-1999		10/28/99
1					

**Description of Proposed Change:**

Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>1. Does the proposed change or activity represent a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement-Operating License, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board?</p> <p><b>BASIS:</b> A tap into the PSW system was provided as the source of water. This tap consist of a short segment of pipe with a valve. Normally, the valve will be closed and a blind flange attached to the valve. However, during RF10 a temporary pipe line from this PSW tap to the Unit II circ. water basin will be provided as part of the effort to reduce the fill time for the SSW basin. As designed, the temporary pipe will contain the PSW. However, since the pipe line will be on grade, and unprotected, there exist the possibility that damage could occur to the pipe resulting in a spill. Since the contains of the pipe will be PSW, i.e. well water, there would not be a significant adverse environmental impact if the pipe was to break. However, a pipe break could be considered an unmonitored release as described in GGNS's NPDES permit. Therefore, the ER requires that notification be made to Operations and Chemistry before the use of the valve and in the event of any spills.</p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>2. Does the proposed change or activity represent a matter which may result in a significant change in effluents or power level?</p> <p><b>BASIS:</b> The use of this PSW tap during RF10 requires only the use of Radial Wells as the source water. It does not require the operation of the plant and does not effect the plants power level. The SSW basin normal make-up is the PSW system. This temporary piping is so the rate of make-up to the SSW basin can be increased.</p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>3. Does the proposed change or activity represent a matter which was not previously reviewed and evaluated in the Final Environmental Statement - Operating License or in the NPDES permit?</p> <p><b>BASIS:</b> The normal use of the temporary make-up line will not result in an unmonitored discharge of PSW. This evaluation is to determine, in the unlikely event there is an accident; would any significant adverse conditions exist. The normal use of the make-up line would not present a matter of concern in the FES or NPDES and the plant's Chemistry department is responsible for remedial actions if a spill should occur. Additionally, if a spill did occur, it is believed that the affects would be confined to the area east of and adjacent to the Turbine building.</p>

	<b>ENVIRONMENTAL EVALUATION</b>	<b>Attachment 5</b> <b>ER 99/0391-00-00</b> <b>Page 2 of 2</b>
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**REFERENCES:** (Discuss the methodology for performing the document search. If performing an electronic search on LRS, identify the documents reviewed and the key words used. List the relevant references.)

FES, Appendix B to NPF-29

**CONCLUSIONS:** (Summary of basis for responses to the above questions)

There will be no adverse environmental effects from the use of the temporary pipe line from the PSW tap to the Unit II circulation water pit during RF10.