

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

August 10, 2005

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 INTEGRATED INSPECTION REPORT 05000416/2005003

Dear Mr. Williams:

On June 30, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Grand Gulf Nuclear Station. The enclosed inspection report documents the inspection findings, which were discussed on July 14, 2005, with you and 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 inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified. However, one licensee-identified violation determined to be of very low safety significance is listed in Section 4OA7 of this report. If you contest this noncited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Grand Gulf Nuclear Station facility.

In accordance with 10 CFR 2.390 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 <a href="http://www.nrc.gov/reading-rm/adams.html">http://www.nrc.gov/reading-rm/adams.html</a> (the Public Electronic Reading Room).

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

Sincerely,

### /RA/

Wayne C. Walker, Chief Project Branch C Division of Reactor Projects

Docket: 50-416 License: NPF-29

Enclosure: Inspection Report 050000416/2005003 w/Attachment: Supplemental Information

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SISP Review Completed: <u>wcw</u> ADAMS: Yes D No Initials: <u>wcw</u> : Publicly Available D Non-Publicly Available D Sensitive : Non-Sensitive

RIV:SRI:DRP/A	RI:DRP/A	C:DRS/PSB	C:DRS/EB1		
GBMiller	AJBarrett	MPShannon	NFO'Keefe		
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# U.S. NUCLEAR REGULATORY COMMISSION

**REGION IV** 

Docket:	50-416
License:	NPF-29
Report:	05000416/2005003
Licensee:	Entergy Operations, Inc.
Facility:	Grand Gulf Nuclear Station
Location:	Waterloo Road Port Gibson, Mississippi 39150
Dates:	April 1 through June 30, 2005
Inspectors:	<ul><li>G. B. Miller, Senior Resident Inspector</li><li>A. J. Barrett, Resident Inspector</li><li>L. C. Carson, II, Senior Health Physics Inspector</li></ul>
Approved By:	Wayne C. Walker, Chief Project Branch C Division of Reactor Projects
Attachment:	Supplemental Information

## SUMMARY OF FINDINGS

IR 05000416/2005003; 4/1/05 - 6/30/05; Grand Gulf Nuclear Station; routine integrated report.

The report covered a 13-week period of inspection by resident inspectors and an announced inspection by a regional senior health physics inspector. One licensee-identified Green noncited violation is described in Section 40A7 of this report. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using the Inspection Manual Chapter 0609 "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

#### B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 40A7 of this report.

## **REPORT DETAILS**

#### Summary of Plant Status

Grand Gulf Nuclear Station began this inspection period at full rated thermal power. The plant remained at or near full rated thermal power except for a planned control rod pattern adjustment and control rod drive maintenance and testing.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

During severe thunderstorm conditions on April 11, 2005, the inspectors reviewed GGNS readiness to respond to inclement weather (one inspection sample). The inspectors reviewed Procedures 05-1-02-VI-2, "Hurricanes, Tornadoes, and Severe Weather," Revision 106, and ENS-EP-302, "Severe Weather Response," Revision 3, and performed site walkdowns to verify the licensee had made the required preparations for severe weather conditions. Inspectors toured the plant grounds looking for loose debris that could become missiles during high winds or a tornado. The inspectors assessed plant operations to verify that systems required for safe control of the plant during adverse weather could be accessed and effectively implemented.

b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignments (71111.04)

a. Inspection Scope

<u>Partial System Walkdowns</u>. The inspectors performed three partial system walkdowns of systems important to reactor safety during this inspection period in order to verify the operability of the system trains (three inspection samples). The inspectors reviewed system operating instructions, required system valve and breaker lineups, operator logs, control room indications, valve positions, breaker positions, and control circuit indications to verify these components were in their required configuration for operability. The following walkdown inspections were conducted:

- On June 3 and 4, 2005, an inspector walked down the reactor core isolation cooling system while the high pressure core spray system and the Division III emergency diesel generator was out of service for planned maintenance and surveillances.
- On June 21, 2005, an inspector walked down the Division III standby service water system while the reactor core isolation cooling system was out of service for maintenance.

• On June 22 and 23, 2005, an inspector walked down the low pressure core spray system following a realignment due to planned system surveillances.

### b. Findings

No findings of significance were identified.

#### 1R05 Fire Protection (71111.05)

#### a. Inspection Scope

<u>Quarterly Tours</u>. The inspectors reviewed area fire plans and performed walkdowns of six plant areas to assess the material condition and operational status of fire detection and suppression systems and equipment, the material condition of fire barriers, and the control of transient combustibles (six inspection samples). As part of the inspection, the inspectors reviewed the licensee's fire prevention Procedure 10-S-03-4, "Fire Protection: Control of Combustible Material," Revision 13, to ascertain the requirements for the required fire protection design features. Specific risk-significant plant areas included:

- Division I switchgear room (Room 1D309)
- Reactor pressure vessel vibration monitoring room (Room 1A319)
- Low pressure core spray penetration room (Room 1A115)
- Division III switchgear room (Room OC210)
- Division II switchgear room (Room 1A221)
- Reactor core isolation cooling pump and turbine room (Room 1A509)

<u>Annual Drill Observation</u>. On April 29, 2005, the inspectors observed a fire brigade drill, staged at the diesel-driven fire pump house, to evaluate the readiness of the fire brigade to fight fires. The inspectors observed the fire brigade members: (1) donning protective clothing, (2) selecting turnout gear, (3) entering the fire zone, and (4) communicating with the control room staff. The inspectors observed the firefighting equipment brought to the fire scene to evaluate whether sufficient equipment was available for the simulated fire. The inspectors also observed fire fighting directions and radio communications between the brigade leader, brigade members, and the control room.

b. Findings

No findings of significance were identified.

#### 1R06 Flood Protection (71111.06)

a. Inspection Scope

During the week of June 6 the inspectors reviewed internal flood protection features and off-normal event Procedure 05-1-02-VI-1, "Flooding," Revision 102, dealing with the

Enclosure

potential flooding of the reactor core isolation cooling room (one inspection sample). The inspectors reviewed internal flooding vulnerabilities and the protective features installed to mitigate the impact of any flooding.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification (71111.11)

**Quarterly Inspection** 

a. Inspection Scope

On May 18, 2005, the inspectors observed licensed operator requalification training activities in the simulator to assess the licensee's effectiveness in conducting licensed operator training and to verify that licensed operators received the appropriate level of training required to maintain their licenses (one inspection sample). The observed training scenario included GSMS-LOR-00195, Revision 2, "Emergency Preparedness Exercises EP-2,2A,3,4," which simulated gross fuel failure in combination with an unisolable reactor core isolation cooling steam line break outside primary containment. The inspectors observed high-risk operator actions and operator activities associated with the emergency plan and reviewed previous lessons-learned items. These items were evaluated to ensure that operator performance was consistent with protection of the reactor core during postulated accidents.

b. Findings

No findings of significance were identified.

#### 1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed performance-based problems involving two selected in-scope structures, systems or components (SSCs) to assess the effectiveness of the Maintenance Rule Program (two inspection samples). Reviews focused on: (1) proper Maintenance Rule scoping in accordance with 10 CFR 50.65; (2) characterization of failed SSCs; (3) safety significance classifications; (4) 10 CFR 50.65 (a)(1) and (a)(2) classifications; and (5) the appropriateness of performance criteria for SSCs classified as (a)(1) and goals and corrective actions for SSCs classified as (a)(2). Also, the inspectors reviewed the system functional failures for the last 2 years. The following systems were reviewed:

• 125V batteries (L11)

- High pressure core spray system (E22)
- b. Findings

No findings of significance were identified.

#### 1R13 <u>Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)</u>

#### a. Inspection Scope

Throughout the inspection period, the inspectors reviewed weekly and daily work schedules to determine when risk-significant activities were scheduled. The inspectors discussed five selected activities with operations and work control personnel regarding risk evaluations and overall plant configuration control (five inspection samples). The inspectors discussed emergent work issues with work control center personnel and reviewed the prioritization of scheduled activities. The inspectors verified the performance of plant risk assessments related to planned and emergent maintenance activities as required by 10 CFR 50.65(a)(4) and plant Procedure 01-S-18-6, "Risk Assessment of Maintenance Activities," Revision 2. Specific maintenance work orders (WO) reviewed during this period included:

- WO 64512, Motor-driven fire pump troubleshooting
- WO 66894, Main Transformer B oil pressure relief valve lift alarm
- WO 53312, Instrument air compressor motor bearing vibration high
- WO 67587, Generator stator water flow transmitter replacement
- WO 67875, Reactor core isolation cooling trip-throttle valve troubleshooting

#### b. Findings

No findings of significance were identified.

#### 1R14 Nonroutine Events (71111.14)

a. Inspection Scope

The inspectors reviewed operator response to nonroutine events during the inspection period. In addition to direct observation of operator performance, the inspectors reviewed procedural requirements, operator logs, and plant computer data to determine that the response was appropriate with that required by procedures and training. The following two operator responses were reviewed (two inspection samples):

On April 9, 2005, the inspectors observed control room personnel performance while performing a downpower to exercise the control rod drive mechanisms and to recover an inadvertently scrammed control rod.

On May 7, 2005, the inspectors observed operations personnel perform a plant power reduction to 72 percent rated thermal power in order to perform a control rod sequence exchange and control rod scram time testing. The inspectors observed control room shift personnel performing the pre-evolution brief, establishing prerequisites, lowering recirculation flow, and maneuvering control rods. The inspectors also observed operator procedural compliance and response for the evolution.

b. Findings

No findings of significance were identified.

#### 1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected six operability evaluations performed by the licensee during the report period involving risk-significant SSCs (six inspection samples). The inspectors evaluated the technical adequacy of the operability determinations, determined whether appropriate compensatory measures were implemented, and determined whether the licensee considered all other pre-existing conditions, as applicable. Additionally, the inspectors evaluated the adequacy of the licensee's problem identification and resolution program as it applied to operability evaluations as specified in Procedure 01-S-06-44, "Operability Assessment," Revision 106. Specific operability evaluations reviewed are listed below.

- CR-GGN-2005-1429, Reactor core isolation cooling exhaust valve operation
- CR-GGN-2005-1538, Division III emergency diesel generator voltage regulator
- CR-GGN-2005-1568, Containment isolation valves
- CR-GGN-2005-1681, Main steam line drain air operated valves
- CR-GGN-2005-2071, Division I battery panel
- CR-GGN-2005-2355, Reactor core isolation cooling trip/throttle valve

#### b. Findings

No findings of significance were identified.

#### 1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors reviewed four operator workaround and two operator burden items (one inspection sample) to evaluate their cumulative effects on: (1) the reliability, availability, and potential for misoperation of a system; (2) multiple mitigating systems; and (3) operators' ability to respond in a correct and timely manner to plant transients and accidents. The inspection included a review of the licensee's criteria and processes

used for identifying deficiencies that should be tracked as operator workarounds. The review also focused on the length of time the identified workarounds had been in existence and the efforts initiated by the licensee to resolve them.

b. Findings

No findings of significance were identified.

#### 1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed postmaintenance test procedures and associated testing activities for five selected risk-significant mitigating systems (five inspection samples). In each case, the associated work orders and test procedures were reviewed against the attributes in Inspection Procedure 71111.19 to determine the scope of the maintenance activity and to determine if the testing was adequate to verify equipment operability. The reviewed activities were:

- WO 329195, Standby service cooling water fan replacement
- WO 61838, Scram valve diaphragm replacement
- WO 65707, Primary containment isolation valve regulator maintenance
- WO 66653, Static inverter breaker maintenance
- WO 54904, Fuel pool cooling and cleanup heat exchanger relief valve testing

#### b. Findings

No findings of significance were identified.

#### 1R22 <u>Surveillance Testing (71111.22)</u>

a. Inspection Scope

The inspectors observed performance of surveillance test procedures and reviewed test data of six selected risk-significant SSCs (six inspection samples) to assess whether the SSCs satisfied the Technical Specifications, Updated Final Safety Analysis Report, Technical Requirements Manual, and licensee procedural requirements and to determine if the testing appropriately demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. The following tests were inspected:

- 06-OP-1E61-R-009, "Hydrogen Ignition System Heatup Test," Revision 104
- 06-OP-SP64-A-0046, "Fire Pumps Low Pressure Start Functional Test," Revision 101

- 06-OP-SZ51-M-0002, "Control Room Standby Fresh Air Unit 'B' Blower Test," Revision 104
- 06-OP-1P81-M-0002, "High Pressure Core Spray Diesel Generator 13 Functional Test," Revision 118
- 06-OP-1E12-Q-0006, "Low Pressure Core Spray / Reactor Heat Removal Subsystem 'B' Motor Operated Valve Functional Test," Revision 106
- 06-OP-1E22-Q-0005, "High Pressure Core Spray Quarterly Functional Test," Revision 111
- b. <u>Findings</u>

No findings of significance were identified.

4. OTHER ACTIVITIES

### 4OA2 Problem Identification and Resolution (71152)

- .1 <u>Annual Sample Review</u>
  - a. Inspection Scope

The inspectors selected Condition Report CR-GGN-2005-1568 for a detailed review (one inspection sample). This condition report was associated with the functional capability of air-operated containment isolation valves with double acting actuators to close against the maximum expected differential pressure. The inspectors evaluated the condition report, and corrective actions taken, against the requirements of the licensee's corrective action program as delineated in Administrative Procedure EN-LI-102, "Corrective Action Process," Revision 1, and 10 CFR Part 50, Appendix B.

b. Findings and Observations

One licensee-identified very low safety significance violation was reviewed and is documented in Section 4OA7 of this report.

#### .2 <u>Semiannual Sample Review</u>

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment

issues, but also considered the results of the daily inspector condition report screening (Section 4OA2.3) and licensee trending efforts. The review also included issues documented outside the corrective action process, including repetitive and/or rework maintenance lists, departmental problem lists, system health reports, quality assurance audits/surveillances, self-assessment reports, and maintenance rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's latest quarterly trend reports. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy.

The inspectors also evaluated the report against the requirements of the licensee's corrective action program as specified in Administrative Procedure EN-LI-102, "Corrective Action Process," Revision 1, and 10 CFR Part 50, Appendix B.

#### b. Findings and Observations

There were no findings of significance identified. The licensee routinely performed causal analysis, involved independent review organizations, and performed in-depth program reviews to identify potential trends in their corrective action program data. The inspectors compared the licensee process results with the results of the inspectors' screening and did not identify any discrepancies or potential trends in the data that the licensee had failed to identify.

#### .3 Daily Condition Report Review

#### a. Inspection Scope

In order to identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of all items entered into the licensee's corrective action program. This review also assessed whether the licensee was identifying issues at an appropriate threshold for entry into the corrective action program.

#### b. Findings and Observations

No findings of significance were identified.

#### 4OA5 Other

#### .1 <u>Temporary Instruction (TI) 2515/161 - Transportation of Reactor Control Rod Drives in</u> <u>Type A Packages</u>

#### a. Inspection Scope

This area was inspected to verify that the licensee's radioactive material transportation program complies with specific requirements of 10 CFR Parts 20 and 71 and

Department of Transportation regulations contained in 49 CFR Part 173. The inspector interviewed licensee personnel and determined that the licensee had undergone refueling/defueling activities between January 1, 2002, and present, but it had not shipped irradiated control rod drives in Department of Transportation Specification 7A Type A packages.

#### b. Findings and Observations

No findings of significance were identified.

### .2 Temporary Instruction (TI) 2515/163, "Grid Reliability"

#### a. Inspection Scope

The inspectors reviewed the licensee's procedures to ensure the procedures addressed the operational readiness of the offsite power systems in accordance with NRC requirements. The specific requirements reviewed included 10 CFR Part 50, Appendix A, General Design Criteria 17, "Electric Power Systems"; 10 CFR Part 50.63, "Loss of All Alternating Current Power"; Plant Technical Specifications; and the Maintenance Rule (10 CFR Part 50.65).

### b. Findings

No findings of significance were identified. The information requested by the TI was forwarded to the individuals identified in the TI for consolidation and assessment.

#### 4OA6 Meetings, including Exit

On June 14, 2005, the senior health physics inspector discussed the inspection results of TI 2515/161, "Transportation of Reactor Control Rod Drives in Type A Packages," with C. Bottemiller, Manager, Plant Licensing. The inspector verified that no proprietary information was provided during the inspection.

On July 14, 2005, the senior resident inspector presented the inspection results to Mr. G. Williams, Vice President, Operations, and members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspections by the resident inspectors.

#### 40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy for being dispositioned as a noncited violation.

10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires the licensee to provide measures for verifying or checking design adequacy, such as by the performance of design reviews, by the use of alternate or simplified calculational methods or by the performance of a suitable testing program. On April 19, 2005, the licensee determined that the calculations used to determine the setpoints for air-operated containment isolation valves improperly assumed that nonsafety-related instrument air would be available to stroke the valves under accident conditions. If instrument air were assumed to be lost, a number of the secondary containment isolation valves would no longer develop sufficient force from their integral safety-related accumulators to stroke the valves shut under worst case conditions of differential pressure or flow. This event is documented in the licensee's corrective action program as CR-GGN-2005-1568 and CR-GGN-2005-1815. This finding is of very low safety significance since it did not represent a degradation of the barrier function of the control room against smoke or toxic gases, nor did it represent an actual open pathway or physical challenge to the physical integrity of the primary containment.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

## **KEY POINTS OF CONTACT**

### Licensee Personnel

- C. Abbott, Supervisor, Quality Assurance
- D. Barfield, Manager, Outage
- C. Bottemiller, Manager, Plant Licensing
- M. Causey, Senior Lead Technical Specialist
- R. Collins, Manager, Operations
- R. Bryan, General Manager, Plant Operations
- L. Eaton, Senior Lead Engineer
- C. Ellsaesser, Manager, Planning and Scheduling
- M. Guynn, Manager, Emergency Preparedness
- S. Humphries, Emergency Planner
- M. Krupa, Director, Nuclear Safety Assurance
- M. Larson, Senior Licensing Engineer
- M. Rohrer, Manager, System Engineering
- G. Sparks, Manager, Design Engineering
- P. Stokes, Radioactive Waste Specialist
- R. Sumrall, Emergency Planner
- G. Williams, Vice President, Operations
- D. Wiles, Director, Engineering
- D. Wilson, Supervisor, Design Engineering
- R. Wilson, Superintendent, Radiation Protection
- P. Worthington, Supervisor, Engineering
- H. Yeldell, Manager, Maintenance

#### NRC Personnel

- T. Farnholtz, Senior Project Engineer, Reactor Project Branch A
- R. Azua, Project Engineer, Reactor Project Branch C

## LIST OF DOCUMENTS REVIEWED

#### Procedures

Nuclear Management Manual EN-LI-102, "Corrective Action Process," Revision 1

Administrative Procedure 01-S-06-44, "Operability Assessment," Revision 106

Administrative Procedure 01-S-18-6, "Risk Assessment of Maintenance Activities," Revision 2

Administrative Procedure 01-S-06-05, "Reportable Events or Conditions," Revision 106

Central Engineering Manual CE-P-05.11 "EOOS Model Development and Control," Revision 1

Attachment

Nuclear Management Manual EN-WM-101, "On-Line Work Management Process," Revision 0

Nuclear Management Manual ENS-EP-302, "Severe Weather Response," Revision 3

Operations Procedure 02-S-01-17, "Control of Limiting Conditions for Operability," Revision 111

Off-Normal Event Procedure 05-1-02-VI-2, "Hurricanes, Tornadoes, and Severe Weather," Revision 106

Off-Normal Event Procedure 05-1-02-VI-1, "Flooding," Revision 102

Off-Normal Event Procedure 05-1-02-I-4, "Loss of AC Power," Revision 32

Fire Prevention Procedure 10-S-03-4, "Control of Combustible Materials," Revision 13

System Operating Instruction 04-1-01-E21-1, "Low Pressure Core Spray System," Revision 35

System Operating Instruction 04-1-01-E51-1, "Reactor Core Isolation Cooling System," Revision 121

System Operating Instruction 04-1-01-P41-1, "Standby Service Water System," Revision 122

Work Orders / Ma	aintenance Ad	<u>ction Items</u>			
26186	51392	57053	64512	66894	
329195	53312	57564	65707	67587	
50998271	54904	61838	66653	67875	
Condition Report	e				
CR-GGN-2005-12	<u>-</u> 238	CR-GGN-2005-1731	CR-G	GN-2005-2071	
CR-GGN-2005-1242		CR-GGN-2005-1772	CR-GGN-2005-2082		
CR-GGN-2005-1265		CR-GGN-2005-1803	CR-GGN-2005-2091		
CR-GGN-2005-13	306	CR-GGN-2005-1812	CR-G	GN-2005-2096	
CR-GGN-2005-13	349	CR-GGN-2005-1815	CR-G	GN-2005-2129	
CR-GGN-2005-1355		CR-GGN-2005-1826	CR-GGN-2005-2148		
CR-GGN-2005-1384		CR-GGN-2005-1855	CR-GGN-2005-2198		
CR-GGN-2005-14	429	CR-GGN-2005-1865	CR-G	GN-2005-2202	
CR-GGN-2005-14	436	CR-GGN-2005-1872	CR-G	GN-2005-2208	
CR-GGN-2005-1	504	CR-GGN-2005-1875	CR-G	GN-2005-2232	
CR-GGN-2005-1	517	CR-GGN-2005-1907	CR-G	GN-2005-2334	
CR-GGN-2005-1	538	CR-GGN-2005-1927	CR-G	GN-2005-2336	
CR-GGN-2005-1	568	CR-GGN-2005-1931	CR-G	GN-2005-2342	
CR-GGN-2005-10	647	CR-GGN-2005-1958	CR-G	GN-2005-2355	
CR-GGN-2005-16	664	CR-GGN-2005-2002	CR-G	GN-2005-2356	
CR-GGN-2005-16	681	CR-GGN-2005-2028	CR-G	GN-2005-2359	
CR-GGN-2005-1	712	CR-GGN-2005-2030	CR-G	GN-2005-2366	
CR-GGN-2005-1	713	CR-GGN-2005-2041	CR-G	GN-2005-2369	

CR-GGN-2005-2374
CR-GGN-2005-2386
CR-GGN-2005-2389

CR-GGN-2005-2392 CR-GGN-2005-2421

CR-GGN-2005-2436 CR-GGN-2005-2446

#### Calculations

M 3.9.8, "Standby Gas Treatment System Drawdown Time Calculation," Revision 2

PC-Q1B21-02182, "Maximum Expected Differential Pressure for Air Operated Valve Q1B21F113," Revision 0

PC-Q1P60-05001, "Unwedging Force for Valve 1P60F007," Revision 0

PC-Q1B21-02186, "Actuator Capability Margin for Air Operated Valve 1B21F114," Revision 0

Miscellaneous Documents

Operations Section Guideline OPG-12, "Operator Workarounds," Revision 1 GSMS-LOR-00195, "Emergency Preparedness Exercises EP-2,2A,3,4," Revision 2

Audits and Self-Assessments

LO-GLO-2005-0011 LO-GLO-2005-0019 LO-GLO-2005-0047 LO-GLO-2005-0050