



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

August 29, 2006

Paul D. Hinnenkamp  
Vice President - Operations  
Entergy Operations, Inc.  
River Bend Station  
5485 US Highway 61N  
St. Francisville, LA 70775

**SUBJECT: RIVER BEND STATION - NRC COMPONENT DESIGN BASES INSPECTION  
REPORT 05000458/2006010**

Dear Mr. Hinnenkamp:

On June 26, 2006, the US Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station. The enclosed report documents the inspection findings, which were discussed on July 25, 2006, with Mr. D. Vinci and other members of your staff.

This 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.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be 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).

Sincerely,

/RA/

Jeff Clark, P.E., Chief  
Engineering Branch 1  
Division of Reactor Safety

Docket: 50-458  
License: NPF-47

Entergy Operations, Inc.

-2-

Enclosures:

Inspection Report 05000458/2006010; 05000Doc2/2006010  
w/Attachment - Supplemental Information

cc w/enclosures:

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

Vice President  
Operations Support  
Entergy Operations, Inc.  
P.O. Box 31995  
Jackson, MS 39286-1995

General Manager  
Plant Operations  
Entergy Operations, Inc.  
River Bend Station  
5485 US Highway 61N  
St. Francisville, LA 70775

Director - Nuclear Safety  
Entergy Operations, Inc.  
River Bend Station  
5485 US Highway 61N  
St. Francisville, LA 70775

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

Winston & Strawn LLP  
1700 K Street, N.W.  
Washington, DC 20006-3817

Manager - Licensing  
Entergy Operations, Inc.  
River Bend Station  
5485 US Highway 61N  
St. Francisville, LA 70775

Entergy Operations, Inc.

-3-

The Honorable Charles C. Foti, Jr.  
Attorney General  
Department of Justice  
State of Louisiana  
P.O. Box 94005  
Baton Rouge, LA 70804-9005

H. Anne Plettinger  
3456 Villa Rose Drive  
Baton Rouge, LA 70806

Bert Babers, President  
West Feliciana Parish Police Jury  
P.O. Box 1921  
St. Francisville, LA 70775

Richard Penrod, Senior Environmental  
Scientist  
Office of Environmental Services  
Northwestern State University  
Russell Hall, Room 201  
Natchitoches, LA 71497

Brian Almon  
Public Utility Commission  
William B. Travis Building  
P.O. Box 13326  
1701 North Congress Avenue  
Austin, TX 78711-3326

Electronic distribution by RIV:

Regional Administrator (**BSM1**)

DRP Director (**ATH**)

DRS Director (**DDC**)

DRS Deputy Director (**RJC1**)

Senior Resident Inspector (**PJA**)

Branch Chief, DRP/C (**KMK**)

Senior Project Engineer, DRP/C (**WCW**)

Team Leader, DRP/TSS (**RLN1**)

RITS Coordinator (**KEG**)

DRS STA (**DAP**)

J. Lamb, OEDO RIV Coordinator (**JGL1**)

**ROPreports**

RBS Site Secretary (**LGD**)

SUNSI Review Completed: \_\_\_Y\_\_\_ ADAMS: / Yes      ☐ No      Initials: \_WCS\_\_\_\_  
 / Publicly Available      ☐ Non-Publicly Available      ☐ Sensitive      / Non-Sensitive

REPLACE THIS LINE WITH FINAL LOCATION AND NAME OF FILE

SRI:EB1	SOE:OB	RI:EB1	RI:EB1	C:EB1	C:PBC	C:EB1
WCSifre/lmb	MEMurphy	JPAdams	BWHenderson	JAClark	KMKennedy	JAClark
/RA/	/RA/	/RA/	/RA/	/RA/	/RA/	/RA/
8/21/06	8/18/06	8/23/06	8/23/06	8/24/06	8/24/06	8/29/06

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 50-458  
License: NPF-47  
Report No.: 05000458/2006010  
Licensee: Entergy Operations, Inc.  
Facility: River Bend Station  
Location: 5485 U.S. Highway 61  
St. Francisville, Louisiana  
Dates: June 5 through July 25, 2006  
Team Leader: W. C. Sifre, Senior Reactor Inspector, Engineering Branch 1  
Inspectors: M. E. Murphy, Senior Operations Engineer, Operations Branch  
J. P. Adams, Reactor Inspector, Engineering Branch 1  
B. W. Henderson, Reactor Inspector, Engineering Branch 1  
Accompanied By: H. S. Anderson, Contractor  
H. Epstein, Contractor  
Approved By: Jeff Clark, P. E., Chief  
Engineering Branch 1  
Division of Reactor Safety

## SUMMARY OF FINDINGS

IR 05000458/2006010; 6/5-26-2006; River Bend Station; baseline inspection, NRC Inspection Procedure 71111.21, *Component Design Basis Inspection*.

The report covers an announced inspection by a team of four regional inspectors and two contractors. No violations were identified. 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

No findings of significance were identified.

## REPORT DETAILS

### 1. REACTOR SAFETY

Inspection of component design bases verifies the initial design and subsequent modifications and provides monitoring of the capability of the selected components and operator actions to perform their design bases functions. As plants age, their design bases may be difficult to determine and an important design feature may be altered or disabled during a modification. The plant risk assessment model assumes the capability of safety systems and components to perform their intended safety function successfully. This inspectible area verifies aspects of the Initiating Events, Mitigating Systems and Barrier Integrity cornerstones for which there are no indicators to measure performance.

#### 1R21 Component Design Bases Inspection (71111.21)

The team selected risk-significant components and operator actions for review using information contained in the licensee's probabilistic risk assessment. In general this included components and operator actions that had a risk achievement worth factor greater than two or Birnbaum value greater than  $1E-6$ .

##### a. Inspection Scope

To verify that the selected components would function as required, the team reviewed design bases assumptions, calculations, and procedures. In some instances, the team performed independent calculations to verify the appropriateness of the licensee engineers' analysis methods. The team also verified that the condition of the components was consistent with the design bases and that the tested capabilities met the required criteria.

The team reviewed maintenance work records, corrective action documents, and industry operating experience information to verify that licensee personnel considered degraded conditions and their impact on the components. For the review of operator actions, the team observed operators during simulator scenarios associated with the selected components, as well as, observing simulated actions in the plant.

The team performed a margin assessment and detailed review of the selected risk-significant components to verify that the design bases have been correctly implemented and maintained. This design margin assessment considered original design issues margin reductions because of modification, or margin reductions identified as a result of material condition issues. Equipment reliability issues were also considered in the selection of components for detailed review. These included items such as failed performance test results; significant corrective actions; repeated maintenance; 10 CFR 50.65(a)1 status; operable, but degraded, conditions; NRC resident inspector input of problem equipment; system health reports; industry operating experience; and licensee problem equipment lists. Consideration was also given to the uniqueness and complexity of the design, operating experience, and the available defense in depth margins.

The inspection procedure requires a review of 15-20 risk-significant and low design margin components, 3 to 5 relatively high-risk operator actions, and 4 to 6 operating experience issues. The sample selection for this inspection was 26 components, 6 operator actions, and 8 operating experience items.

The components selected for review were:

- High-Pressure Core Spray Pump E22-PC001
- Reactor Core Isolation Cooling Pump E51-PC001
- Standby Service Water Pump SWP\*2D
- Emergency Diesel Generator Room Exhaust Fan HVP-FN1A
- High-Pressure Core Spray Injection Valve E22-MOVF004
- Reactor Core Isolation Cooling Injection Valve E51-MOVF013
- Division II 4.16 kV Medium Voltage Switchgear 1ENS\*SWG1B
- Division I 480V Motor Control Center 1EHS\*MCC16A
- Division I 125 V dc Switchgear 1ENB\*SWG1A
- Reactor Core Isolation Cooling Speed Controller
- Standby Service Water Motor Operated Valve SWP-MOV40A
- Standby Service Water Motor Operated Valve SWP-MOV40B
- Standby Service Water Motor Operated Valve SWP-MOV40C
- Standby Service Water Motor Operated Valve SWP-MOV40D
- Standby Service Water Motor Operated Valve SWP-MOV57A
- Standby Service Water Motor Operated Valve SWP-MOV57B
- Standby Service Water Motor Operated Valve SWP-MOV96A
- Standby Service Water Motor Operated Valve SWP-MOV96B
- Standby Service Water Check Valve SWP-V147
- Standby Service Water Check Valve SWP-V148
- Standby Service Water Check Valve SWP-V149
- Standby Service Water Check Valve SWP-V150
- Residual Heat Removal Pump A
- Main Steam Safety Relief Valves
- Standby Service Water Check Valve SWP-V172
- Residual Heat Removal Motor Operated Valve F-094

The selected operator actions were:

- Place residual heat removal "A" in standby pressure control mode
- Inject fire system into reactor pressure vessel
- Defeating main steam relief steam supply valve interlocks
- Loss of circulating water pump with failure of feed flow transmitter and instrument air system leak
- Main steam isolation valve closure anticipated transient without scram with safety/relief valve relief function failure

- Emergency containment venting

The operating experience issues were:

- New emergency core cooling system suction strainers differential pressure. Grand Gulf Nuclear Station technical specification differential pressure based upon pre-operational testing and modification for new strainers and debris assumptions did not address that technical specification values may be affected by the new method of determining the amount of debris on the strainer.
- Track actions identified as a result of Perry Operating Experience Review for Enhancements of Standard Operating Procedures SOP-0035 (reactor core isolation cooling) and SOP-0030 (high pressure core spray) for venting of pump suction piping from the suppression pool.
- Woodward 2301A load sharing and speed control failure - originally applicable to Woodward 2301A governors and concerns River Bend governors.
- Impact Evaluation for River Bend Station on Significant Event Report 2-05 "Gas Intrusion in Safety Systems."
- Review of design basis limiting values for pump flow and differential pressure requirements.
- Perry Operating Experience (OE 21581) failure to recognize transitional inoperability of high pressure core spray during evolutions that shift suction path from the suppression pool to the condensate storage tank.
- Screen Plant Hatch 1&2 NRC finding - vortexing in the condensate storage tank was not accounted for in calculating condensate storage tank level setpoint in technical specifications for automatic switchover from condensate storage tank to suppression pool.
- Correctness of calculation uncertainties and margin applied in emergency core cooling system pump surveillance procedures.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On July 25, 2006, the inspectors presented the inspection results to Mr. D. Vinci and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during this inspection.

## ATTACHMENT: SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee personnel

R. Biggs, Coordinator, Safety and Regulatory Affairs  
K. Bornman, Engineer  
R. Buell, Auditor, Quality Assurance  
R. Cole, Supervisor, Engineering  
R. Gauthreaux, Supervisor, Engineering  
H. Goodman, Director, Engineering  
K. Huffstatler, Technical Specialist IV  
N. Johnson, Manager, Programs and Components Engineering  
R. King, Director, Nuclear Safety Assurance  
D. Lorring, Manager, Licensing  
B. Mashburn, Manager, Design Engineering  
R. McAdams, Supervisor, Engineering  
T. Moffitt, Engineer  
J. Schlesinger, Supervisor, Engineering  
A. Soni, Manager, Engineering Projects  
C. Stafford, Manager, Operations  
D. Vinci, General Manager, Plant Operations  
D. Williamson, Engineer, Licensing  
J. Wilson, Engineer

#### NRC personnel

P. Alter, Senior Resident Inspector  
M. Miller, Resident Inspector

### LIST OF DOCUMENTS REVIEWED

#### **Calculations**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EAPPC.0019-NE	Vortex Worksheet for Vortex Limit, EPG Appendix C, Revision 4	0
ES-061-5	Post-LOCA Draw Down Level Change in Suppression Pool & VOLMAX	0

## Calculations

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
G13.18.2.1.085	Standby Diesel Generators EGS1A & 1B Combustion Air, Exhaust, and Starting Air Pressure Drops	0
G13.18.2.3.171	Generic Letter 89-10 Design Basis Review for E12- MOVF094	1
G13.18.2.3.182	Generic Letter 89-10 Design Basis Review for E22- MOVF004	4
G13.18.2.3.198	Generic Letter 89-10 Design Basis Review for E51- MOVF013	3
G13.18.2.3.325	Grid Voltage Operability Evaluation	0
G13.18.2.3.327	BWROG DC Motor-Operated Valve Performance	0
G13.18.2.4.017	Effects of Flow on Setpoints of 1E22.ESN654C/G	1
G13.18.2.4.058	NPSH Calculation for RHR Mode A-2 Loop C	1
G13.18.2.6.034	Determine No. Of SRV Activations from LSV Air Receiver Tanks	1
G13.18.2.6.183	High Pressure Core Spray System Hydraulic Performance	0
G13.18.3.6.016	Degraded Voltage Calculation for Class 1E Buses	0A
G13.18.4.0.016	HPCS Flow versus Reactor Pressure	1
G13.18.4.0.043	Service Water System KYPIPE Model Verification (2 Service Water Pumps in Operation)	1
G13.18.4.0.046	Standby Service Water Pump Capability Verification without Flow through Drywell Unit Coolers including 5% Pump Degradation	0
G13.18.4.0.048	Standby Service Water Pump Capability Verification including 5% Pump Degradation	2

## Calculations

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
G13.18.6.1.E22.009-0	Instrument Loop Uncertainty / Setpoint Determination for HPCS System Flow Rate - Low (Bypass)	0
G13.18.10.1-014	Standby Diesel Generator Fuel Oil Storage Tank Capacity	0
G13.18.12.1.083	Diesel Generator Building Design Basis Calculation - Summer Conditions	0
G13.18.14.0.190	Post-Accident Heat Load Development for Power Uprate Service Water Evaluations	1A
G13.18.14.4-034-12	EOP Calculations Based upon EPG/SAG, Appendix C, Revision 1	1
PM-175	Standby Diesel Generator Fuel Oil Day Tank Storage Tank Capacity	1
PM-194 / G13.2.2	Standby Cooling Tower Performance and Evaporation Losses without Drywell Cooler Units	7
PM-199	Standby Cooling Tower Basin Volume	5
PM-201	Document Level Instrument Effect on CST Reserve Volume for HPCS/RCIC	0A
PM-203	Ultimate Heat Sink, Non-Usable Volume due to Pump Submergence Requirements	0
PN-268	RHR System Pumps TDH and NPSH Except LPCI (Mode A-2 Operation.)	5
PN-300 (DRN-02-5840)	RCIC System Head Calculations - Power Uprate	2D
Loop Calibration Report Loop. No. 1.ILICS.014	Reactor Core Isolation Cooling Discharge Line Flow Loop	7

## Calculations

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
VA-7222.250-000-012C	105% Power Uprate Evaluation Report - GE Task No. 16.0, Reactor Core Isolation Cooling System	0
12210-IA-CMS.1	Setpoint Calculation for Level Switches 1CMS.LS44A&B and 1CMSLS46A&B for Suppression Pool High and Low Water Level Alarm	3A
12210-IA-E22.4-2C	Setpoint Calculation for HPCS Condensate Storage Tank Low Level Bistables E22-ESN654C and G	2
12210-IA-105	Worst Case and Normal Indication Errors for RCIC Pump 1E51.PC001 Discharge Flow Rate from Transmitter 1E51.FTN003 as Displayed on Indicator 1E51.FIR606	0A
12210-PN-1E51.PISN651	RCIC Pump Discharge Flow Low	2
G13.18.2.3.282	G.L. 89-10 Design Basis Review for SWP-MOV40A/B/C/D	1
G13.18.2.3.171	G.L. 89-10 Design Basis Review for E12-MOV F094	1
G13.18.4.0.017	RHR Flow Versus Reactor Pressure	1
G13.18.2.4.058	NPSH Calculation for RHR Mode A-2 Loop C	1
G13.18.14.0.190	Post-Accident Heat Load Development for Power Uprate Service Water Evaluation	1
G13.18.14.0.042	Standby Service Water System Performance with Only One Pump	3
G13.18.2.3.316	G.L. 96-05 MOV Periodic Static Test Frequency	3
G13.18.2.3.300	G.L. 89-10 Design Basis Review for SWP-MOV96A/B	1
G13.18.2.3.294	G.L. 89-10 Design Basis Review for SWP-MOV57A/B	2

## Calculations

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
G13.18.2.3.293	G.L. 89-10 Design Basis Review for SWP-MOV55A/B	1
E-131	Station Service Short Circuit Analysis	1
E-132	Voltage Profile	3
E-143	Station Battery ENB-BAT01ADuty Cycle, Current Profile and Size Verification	9
E-176	Standby Load Center, MCC, and 120 Volt Panel Short Circuit Calculation	1
AX-108R_ADDC	Evaluation of Replacement Isolation Valve SWP-MOV55A	6C

## Condition Reports

1992-00740	2003-00496	2005-01238	2005-04176	2006-00916
1996-00931	2004-00274	2005-00998	2006-00170	2006-00954
1998-00873	2004-02118	2005-01419	2006-00175	2006-01026
1998-01501	2004-02136	2005-01991	2006-00234	2006-01084
1999-01914	2004-02238	2005-02276	2006-00283	2006-01196
2000-01359	2004-02915	2005-02308	2006-00322	2006-01680
2001-01398	2004-03381	2005-02845	2006-00506	2006-01862
2002-00376	2004-03585	2005-03212	2006-00555	2006-01929
2002-00643	2004-03816	2005-03422	2006-00693	2006-01959
2002-00671	2004-04356	2005-03525	2006-00792	2006-02004
2003-01313	2005-00870	2005-03887	2006-00881	2006-02458
2003-01353				

## Drawings

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EB-7C	Building Service - Ventilation Plan Elevation 126'0" & Sections - Standby Diesel Generator Building Sheet 3	10
EE-001B	Main One Line Diagram Unit Relaying	17
EE-001C	Main One Line Diagram Station Service Relaying	26

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EE-001G	4160V One Line Diagram Bus NNS-SWG1A & 1B	10
EE-001J	4160V One Line Diagram Bus NNS-SWG3A, 3B & 1C	9
EE-001K	4160V One Line Diagram Standby Bus ENS-SWG1A	19
EE-001L	4160V One Line Diagram Standby Bus ENS.SWG1B	15
EE-001M	4160V One Line Diagram Standby Bus E22-S004	9
EE-001AA	480V One Line Diagram Standby Bus 1EJS.LDC 1A & 2A	12
EE-001AB	480V One Line Diagram Standby Bus 1EJS.LDC 1B & 2B	11
EE-001AC	Start Up Electrical Distribution Chart	33
EE-1BR	480V One Line Diagram 1NHS-MCC101, MCC1LL1 & 1LL2, Turbine Building	4
EE-001CE	480V One Line Diagram 1NHS-MCC102A & 102B, Auxiliary Building	12
EE-001SA	480V One Line Diagram 1E22.S002, Control Building	11
EE-001TA	480V One Line Diagram EHS-MCC2A & 2L, Auxiliary Building	17
EE-001TB	480V One Line Diagram EHS-MCC2C & 2D, Auxiliary Building	10
EE-001TC	480V One Line Diagram EHS-MCC2E, Auxiliary Building	10
EE-001TD	480V One Line Diagram EHS-MCC2G & 2H, Auxiliary Building	11
EE-001TE	480V One Line Diagram EHS-MCC2J & 2K, Auxiliary Building	19
EE-001TF	480V One Line Diagram EHS.MCC2B, Auxiliary Building	10
EE-001TG	480V One Line Diagram EHS.MCC2F, Auxiliary Building	14
EE-001VA	480V One Line Diagram EHS.MCC8A, Standby Switchgear	10
EE-001WA	480V One Line Diagram EHS-MCC14A & 14B, Standby SWGR Room 1A	10
EE-001WB	480V One Line Diagram EHS-MCC16B, Standby Cooling Tower No. 1	12

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EE-001XA	480V One Line Diagram EHS-MCC15A, 15B & NHS-MCC15A, Diesel Generator Rooms 1A & 1B	8
EE-001YA	480V One Line Diagram EHS-MCC16A, Standby Cooling Tower No. 1	11
EE-001YB	480V One Line Diagram EHS.MCC8B, Standby Switchgear	9
EE-001ZD	125VDC One Line Diagram ENB-MCC1, Auxiliary Building	6
EE-001ZG	125VDC One Line Diagram Standby Bus A, ENB-SWG01A, ENB-PNL02A, 03A	19
EE-001ZH	125VDC One Line Diagram Standby Bus B, ENB.SWG01B, ENB.PNL02B, 03B	20
EE-001ZJ	125VDC One Line Diagram Normal & Standby Backup Charger Sys	17
ESK-06CSH0E	Elementary Diagram 480 V Control Circuit HPCS Pump Injection Shutoff & Minimum Flow to Suppression Pool Valve	6
ESK-11ICS09	Elementary Diagram 125V DC Control Circuit RCIC Injection Shutoff Valve	6
ESK-6RHS21	Elementary Diagram 480 V Control Circuit Residual Heat Removal System	3
PID-27-06A	Engineering P&I Diagram System 209 Reactor Core Isolation Cooling	42
PID-27-07B	System 204, Residual Heat Removal -LPCI	40
PID-09-10F	Service Water Normal	29
PID-27-07A	System 204, Residual Heat Removal - LPCI	35
PID-27-07B	System 204, Residual Heat Removal - LPCI	40
PID-27-07C	System 204, Residual Heat Removal - LPCI	25
PID-03-01B	System 109, Main Steam	23
PID-03-01D	System 202, SVV Compressor/Dryers	4
PID-27-20A	System 208, MSIV Positive Leakage Control	9
PID-27-20C	System 208, LSV-C3A Compressor Skid	2

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PID-27-20D	System 208, LSV-C3B Compressor Skid	4
PID-09-10E	Engineering P&ID Diagram System 256, Service Water - Standby	20
PID-22-07A	Engineering P&ID Diagram System 405, HVAC - Diesel Generators	19
PID-27-04A	Engineering P&ID Diagram System 203, HPCS System	26
PID-27-07B	Engineering P&ID Diagram System 204, Residual Heat Removal - LPCI	40
12210-EM-32C-6	Machine Location Standby Service Water Cooling Tower No. 1 - Sections	6
12210-EM-34B-7	Mach Locn Auxiliary Bldg Plans EL 114'0" & 141'0"	0
0221.415-000-101	125 VDC Distribution System 2600 kW. 4160V, 3i , 60HZ, 0.8 pf Emergency Diesel Generator 22711AU SH. 1	H
0221.415-000-102	125 VDC Distribution System 2600 kW. 4160V, 3i , 60HZ, 0.8 pf Emergency Diesel Generator 22711AU SH. No 2	G
0228-229-234-002	18" Class 150 Dual Plate Check Valve Assembly	0
0228-229-234-001	30" Class 150 Dual Plate Check Valve Assembly	0
0222.214-327-001	Air Compressor Assembly	0
VPF-B607-248-1	HPCS Pump Performance Curves	1
21A9236	HPCS - Engine - Generator	4
7308-5026	Pump Performance Curve Pump 18X23 VSN1 (Service Water)	0
01-400-293	Hayward Tyler Pump 01-400-293	F

## Procedures

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AOP-0004	Loss of Offsite Power	29
AOP-0050	Station Blackout	20
EOP-0001	RPV Control	20

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EOP-0003	Secondary Containment and Radioactive Release Control	13
EOP-0004	Contingencies	12
EOP-0005	Emergency Operating and Severe Accident Procedures Enclosures	15B
SOP-0022	Instrument Air System	41A
SOP-0031	Residual Heat Removal	47
SOP-0042	Standby Service Water System	25
SOP-0046	4.16 KV System	29
SOP-0054	Station Blackout Diesel Generator	4A
SOP-0059	Containment HVAC System	27
OSP-0053	Emergency and Transient Response Support Procedure	4
JPM-204-01	Place RHR A in SPC Mode	5
RJPM-OPS-800-07	Inject Fire System into RPV	8
RJPM-OPS-80005	Defeating MSR Steam Supply Valve Interlocks	6
RJPM-OPS-800-21	Emergency Containment Venting	2
RSMS-OPS-417	Loss of Offsite Power	6
RSMS-OPS-420	Station Blackout and Restoration	3
RSMS-OPS-442	Loss of Circ Water Pump/Failure of Feed Flow Transmitter/IAS Leak	3
RSMS-OPS-621	MSIV Closure ATWS With SRV Relief Function Failure	2
AOP-0016	Loss of Standby Service Water	13
MCP-4195	Maintenance Calibration Procedure - Calibration of the RCIC Turbine Speed Controls	4
EN-DC-195	Margin Management	0
GMP-1282	Limiterque SMB-000 and SMB/SM-00 Overhaul	13
GMP-0108	Signature Testing of Gate, Globe, and Torque Seated Butterfly Valves with Limitorque Actuators	5

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
A&M 303-10975	30"Tricentric Butterfly Valve	1
STP-000-6606	Section IX Safety and Relief Valve Testing	16
STP-051-4247	ECCS Press Low/SRV Actuation	14A
STP-051-4248	ECCS Reactor Vessel Pressure Low/SRV Actuation Instrumentation Channel Calibration Test	13A
STP-051-4298	ADS "A" Drywell Pressure Bypass Timer Functional Test and Channel Calibration	07 & 6A
STP-051-4299	ADS "B" Drywell Pressure Bypass Timer Functional Test and Channel Calibration	08
STP-202-0601	Relief Valve Low Low Set ADS A Manual Initiation System Functional Test	9A
STP-202-0603	Relief Valve Low Low Set ADS B Manual Initiation System Functional Test	9A
STP-202-6606	ADS SRV Accumulator Check Valve Leak Rate Operability Test	3A
STP-202-7700	Safety Relief Valve Actuator Stroke Test	2
STP-204-6302	Div II LPCI (RHR) Quarterly Pump & Valve Operability Test	16
SOP-0011	Main Steam System (SYS #109)	21
STP-107-3806	RCIC E51-MOVF013, Post-Maintenance Test	9
STP-203-6305	HPCS Quarterly Pump and Valve Operability Test	15
STP-209-0602	RCIC System Flow Test (Low Pressure)	12A
STP-209-6310	RCIC Quarterly Pump and Valve Operability Test	26
STP-256-6303	Standby Service Water A Loop Valve and Pump Operability Test	17
STP-256-6304	Standby Service Water B Loop Valve and Pump Operability Test	16A
STP-256-6801	Division 1 Standby Service Water Cold Shutdown Valve Operability Test	2A
STP-256-6603	Division 1 Service Water 2 year Position Indication	3
STP-256-6301	Division 1 Standby Service Water Quarterly Valve Operability Test	11

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SWP-MOV40B-ST-003	VOTES MOV Test Report	4
GMP-1282	Limatorque SMB-000 and SMB/SM-00 Overhaul	13
GMP-0108	Signature Testing of Gate, Globe, and Torque Seated Butterfly Valves with Limatorque Actuators	5
SOP-0011	Main Steam System (SYS #109)	21
TSP-0010	RCIC Overspeed Trip Test	6C

### **Work Orders**

<u>NUMBER</u>	<u>TITTLE</u>	<u>DATE</u>
W/O 50687649	SWP-MOV96A - Clean Inspect Insulation Test, Lubricate	4/22/2005
W/O 28832	SWP-MOV96B - Contingency to Repair Valve as Required	7/21/2004
W/O 85109	SWP-MOV96A - Perform Signature Test	5/9/2006
W/O 00064799	SWP-MOV96B Perform Static and Dynamic Signature Test	6/9/2005
W/O 00078851	Static Signature Test, SWP-MOV57A	4/12/2006
W/O 50974128	SWP-MOV-57A - Clean Inspect, Insulation Test, Lubricate	12/28/2005
W/O 00078619	SWP-MOC57B Perform Signature Test	4/30/2006
W/O 0008723101	SWP-MOV40C	5/5/2006
W/O 00063469	SWP-MOV96B Failed to Fully Close	3/30/2005
W/O 0008723101	SWP-MOV40C	5/5/2006
W/O 00087364	SWP-V147 - Valve Is Leaking past its Seat - Inspect/repair	5/6/2006
W/O R202149	Perform MOV Dynamic Test per NRC GL 89-10 During RF5, PEP 0158	1/14/1994
W/O 00078619	SWP-MOC57B Perform Signature Test	4/30/2006
W/O 50974128	SWP-MOV-57A - Clean Inspect, Insulation Test, Lubricate	12/28/2005

<u>NUMBER</u>	<u>TITTLE</u>	<u>DATE</u>
W/O 00029620	SWP-MOV-57B - Clean Inspect, Insulation Test, Lubricate	1/23/2004
W/O 00078851	Static Signature Test, SWP-MOV57A	4/12/2006
W/O 50687140	Perform Seat Leakage Test of WSP-MOV96A	9/17/2004
W/O 50687649	SWP-MOV96A - Clean Inspect Insulation Test, Lubricate	4/22/2005
W/O 85109	SWP-MOV96A - Perform Signature Test	5/9/2006
W/O 28832	SWP-MOV96B - Contingency to Repair Valve as Required	7/21/2004
W/O 50687139	SWP-MOV96B - Perform Seat Leakage Test of SWP-MOV96B	9/17/2004
W/O 00063469	SWP-MOV96B Failed to Fully Close	3/30/2005
W/O 00064799	SWP-MOV96B Perform Static and Dynamic Signature Test	6/9/2005
W/O 0006610001	TSP-0010 RCIC Overspeed	5/12/2006
W/O 5103029901	STP-203-6305 HPCS Quarterly Pump and Valve Operability Test	3/28/2006

### **Engineering Requests**

<u>NUMBER</u>	<u>TITTLE</u>	<u>REVISION/ DATE</u>
ER-0745	Modify Safety Related Limitorque Actuator to increase the torque output capability as a result of Limitorque Technical Update 98-01	0
ER-97-0232	Replacement of the Service Water Valves	8/27/1997
ER-RB-2000-0345	SWP MOV Upgrade	0
ER-RB-1998-0580-000	Revise Documentation to Reflect Effective Reduction in HPCS/RCIC CST Reserve Volume Due to Flow Induced Instrument Error	0
ER-RB-2000-0330-000	Install Relief Valves on the Return Lines of the Containment Unit Coolers, HVR-UC1A and HVR-UC1B	0

ER-RB-2001-0296-000	"Replace RCIC Lube Oil Cooler Orifice Plate E51-ROD012	0
ER-RB-2004-0080-000	Replace 230KV Transformer Disconnect Switches for Preferred Station Service Transformers and Main Transformer	0
ER-RB-2004-0256-000	Replace Air Operated Valve Actuator Diaphragms with New EPDM/Nomex Type	0
ER-RB-2004-0307-000	Replace O-Ring on Fisher AOV from Nitrite to Viton	0
ER-RB-2004-0487-000	Replace MOV Actuator with Angled Actuator	0
ER 98-0206	Perform a Review of Design Basis Limiting Values for Pump Flow and Differential Pressure Requirements	11/24/1998

#### Miscellaneous Documents

NUMBER	TITTLE	DATE/ REVISION
NCIG-05	EPRI Guideline for Piping System Reconciliation	1
WLAS31274-07	Minimum Required Operating Torque and Weak Link Analysis	A
LTU 98-01	Actuator Output Torque Calculation	5/15/1998
R-STM-0118	System Training Manual - Service Water Systems	11
WLAS31274-04	Minimum Required Operating Torque and Weak Link Analysis	A
EQAR-025	River Bend Nuclear Station Environmental Qualification Assessment Report (EQAR) for Limitorque Motorized Valve Actuators with Class B Insulated AC Motors	2
E/IC-95-001	River Bend Station Engineering Report for Mechanical Equipment Qualification Program Deletion	0
8020 VMT 1F-7558 (218RHR)	Byron Jackson Pump Division Technical Manual for Vertical RHR Pump Type: 28 DX 18.5 CKXL, Three-Stage VMT	9
SDC-108,109,202	Main Steam System Design Criteria	03

NUMBER	TITTLE	DATE/ REVISION
E12-MOVF094-ST-003	VOTES MOV Test Report	0
STP-204-6304R14PR-15	Procedure Action Request	0
ISTCN No.08-003	Change Summary for the IST Program 10 Year Update	0
OE-IN 93-68	Failure of Pump Shaft Coupling Caused by Temper Embrittlement During Manufacture	0
OE-IN944500.SA1	Potential Common Mode Failure Mechanism for Large Vertical Pumps	0
	Fire Area AB-15 Summary Table	0
42069-R-001	Seismic Verification of Ingersoll Rand Model 7C3 Air Compressor for the River Bend Station	0
ER-RB-2001-0595-000	Revise the Post-fire Safe Shutdown Analysis to Incorporate the Conclusions of Calc G13.18.2.6.034	0
NEDO-10905	General Electric Licensing Topical Report High Pressure Core Spray System Power Supply Unit	May 1973