



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

Docket: 50-382
License: NPF-3R

Entergy Operations, Inc.
ATTN: Ross P. Barkhurst, Vice President
Operations, Waterford
P.O. Box B
Killona, Louisiana 70066

SUBJECT: PUBLIC MEETING OF FEBRUARY 3, 1994

This refers to the public meeting conducted at Waterford 3 on February 3, 1994. The purpose of this meeting was to discuss plant activities associated with Refueling Outage 6, which is scheduled to begin on March 4, 1994. This meeting was attended by those personnel listed in Attachment 1.

We found that your presentation provided a comprehensive review of the preparations, scope, and outage risk assessments for Refueling Outage 6. We note that you have planned an ambitious 46-day outage. The specific topics you discussed at this meeting are listed in Attachment 2.

We note that you plan to have a temporary diesel generator available during reactor coolant system reduced inventory conditions. We consider this to be a positive step that should provide a substantial reduction to risk. Another positive step involved your extensive decontamination efforts in the containment building. We understand that these efforts are being conducted to allow "street clothes" entry into the containment building by the next refueling outage (Refuel 7) to accommodate planned extensive inservice inspection activities. Other efforts planned for this outage that we consider notable include completion of your commitments associated with Generic Letter 89-10 for your motor-operated valves, the performance of eddy current testing of both steam generators, a modification to the safety-related station batteries to remove nonsafety-related loads, and the replacement of the moisture separator tube bundles with noncopper-containing tubes to help assure that steam generator tube integrity is maintained. Another issue discussed during this meeting involved the resolution of your problems with the containment spray system isolation valves. We understand that, during this outage, you intend to modify the containment spray pump timing circuits so that the respective isolation valves open prior to the pumps starting, thus assuring that valve opening failures do not recur.

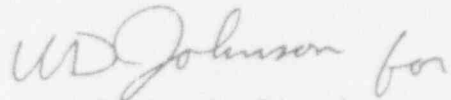
In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the NRC's Public Document Room.

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

Sincerely,



A. Bill Beach, Director
Division of Reactor Projects

Attachments:

1. Attendance List
2. Licensee Presentation

cc:

Entergy Operations, Inc.
ATTN: Harry W. Keiser, Executive
Vice President & Chief Operating Officer
P.O. Box 31995
Jackson, Mississippi 39286-1995

Entergy Operations, Inc.
ATTN: Jerrold G. Dewease, Vice President
Operations Support
P.O. Box 31995
Jackson, Mississippi 39286

Wise, Carter, Child & Caraway
ATTN: Robert B. McGehee, Esq.
P.O. Box 651
Jackson, Mississippi 39205

Entergy Operations, Inc.
ATTN: D. F. Packer, General
Manager Plant Operations
P.O. Box B
Killona, Louisiana 70066

Entergy Operations, Inc.
ATTN: L. W. Laughlin
Licensing Manager
P.O. Box B
Killona, Louisiana 70066

Entergy Operations, Inc.

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Chairman
Louisiana Public Service Commission
One American Place, Suite 1630
Baton Rouge, Louisiana 70825-1697

Entergy Operations, Inc.
ATTN: R. F. Burski, Director
Nuclear Safety
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Killona, Louisiana 70066

Hall Bohlinger, Administrator
Radiation Protection Division
P.O. Box 82135
Baton Rouge, Louisiana 70884-2135

Parish President
St. Charles Parish
P.O. Box 302
Hahnville, Louisiana 70057

Mr. William A. Cross
Bethesda Licensing Office
3 Metro Center
Suite 610
Bethesda, Maryland 20814

Winston & Strawn
ATTN: Nicholas S. Reynolds, Esq.
1400 L Street, N.W.
Washington, D.C. 20005-3502

bcc to DMB (IE45)

bcc distrib. by RIV:
L. J. Callan
Section Chief (DRP/D)
MIS System
RIV File
Section Chief (DRP/TSS)

Resident Inspector
Lisa Shea, RM/ALF, MS: MNBB 4503
DRSS-FIPS
Project Engineer (DRP/D)

RIV:DRP/D	C:DRP/D	D:DRP		
WBJones <i>WJ</i>	TFStetka <i>TS</i>	ABBeach <i>AB</i>		
2/29/94	2/28/94	2/28/94		

Entergy Operations, Inc.

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bcc to DMB (IE45)

bcc distrib. by RIV:

L. J. Callan

Section Chief (DRP/D)

MIS System

RIV File

Section Chief (DRP/TSS)

Resident Inspector

Lisa Shea, RM/ALF, MS: MNBB 4503

DRSS-FIPS

Project Engineer (DRP/D)

RIV:DRP/D	C:DRP/D	D:DRP		
WBJones <i>WJ</i>	TFStetka <i>TS</i>	ABBeach <i>AB</i>		
2/25/94	2/28/94	2/28/94		

REFUEL OUTAGE 6

NRC/WATERFORD 3 MEETING ATTENDEES

ENTERGY OPERATIONS, INC.

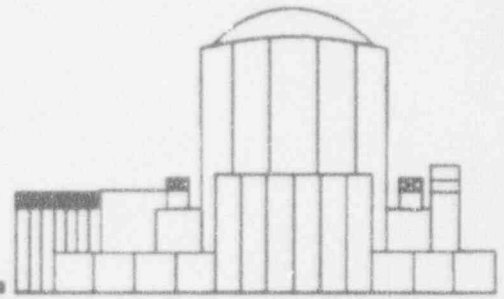
R. Starkey	Manager, Operations and Maintenance
L. Laughlin	Manager, Licensing
R. Burski	Director, Nuclear Safety
G. Davie	Manager, Operational Experience Engineering
R. Allen	Manager, Security & General Support
R. Prados	Senior Engineer - Licensing
M. Ferri	Director, Modules & Construction
R. LeBlanc	Licensing Supervisor
J. O'Hern	Manager, Training
D. Shipman	Manager, Planning & Scheduling
D. Packer	General Manager, Plant Operations
R. Barkhurst	Vice President Operations - Waterford 3
H. Keiser	Executive Vice President
J. Holman	Manager, Safety & Engineering Analysis
R. Azzarello	Director, Design Engineering

NUCLEAR REGULATORY COMMISSION

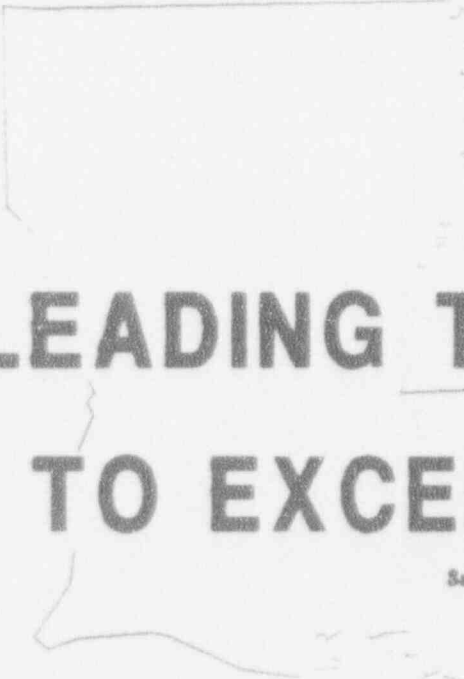
E. Ford	Senior Resident Inspector, Waterford 3
T. Stetka	Chief, Project Section D, Division of Reactor Projects
L. Camper	Acting Deputy Director, Division of Radiation Safety and Safeguards
D. Wigginton	Sr. Project Manager - Waterford 3, Nuclear Reactor Regulation (NRR)
W. Beckner	Director, Project Directorate IV-1, NRR
J. Dixon-Herrity	Resident Inspector - Waterford 3
D. Powers	Chief, Maintenance Section, Division of Reactor Safety



ENTERGY



WATERFORD 8ES - UNITS



**LEADING THE WAY
TO EXCELLENCE**



**NRC/WATERFORD 3 MEETING
REFUEL OUTAGE 6
FEBRUARY 3, 1994**

**NRC/WATERFORD 3
MEETING**

REFUEL OUTAGE 6

FEBRUARY 3, 1994

AGENDA

- INTRODUCTION R.P. BARKHURST
- PREPARATION
ACTIVITIES D.L. SHIPMAN
- SCOPE D.F. PACKER
- MAJOR ACTIVITIES D.F. PACKER
- RELOAD DESIGN/
ANALYSIS R.G. AZZARELLO
- OUTAGE RISK
ASSESSMENT D.F. PACKER
- OUTAGE RISK
ASSESSMENT PROGRAM J.B. HOLMAN

INTRODUCTION

**PREPARATION
ACTIVITIES**

PREPARATION MILESTONES

- REFUEL 6 PREPARATION TEAM ESTABLISHED MARCH 19, 1993
- MAJOR ACTIVITIES IDENTIFIED MAY 5, 1993
- OUTAGE ORGANIZATION FORMED JUNE 18, 1993
- OUTAGE FACILITIES PLAN COMPLETE SEPTEMBER 17, 1993
- DESIGN CHANGE SCOPE FROZEN (20 DC's, FIELD WORK) OCTOBER 16, 1993
- FINAL MAINTENANCE ACTIONS DETERMINED DECEMBER 18, 1993
- OUTAGE SCHEDULE FINALIZED (RISK ASSESSMENT BEGAN) DECEMBER 20, 1993
- OUTAGE CONTRACTS ESTABLISHED DECEMBER 29, 1993

PREPARATION MILESTONES (CONTINUED)

- OUTAGE FACILITIES ERECTION/
STAGING JANUARY 5, 1994
- OUTAGE MANUAL ISSUED FEBRUARY 4, 1994
(ESTIMATED)
- CYCLE 6 FUEL RECEIPT
COMPLETE FEBRUARY 5, 1994
(ESTIMATED)
- OUTAGE PREPARATION
COMPLETE FEBRUARY 15, 1994
(ESTIMATED)
- OUTAGE COMMENCEMENT MARCH 4, 1994
(2400 HOURS)
(ESTIMATED)

SCOPE

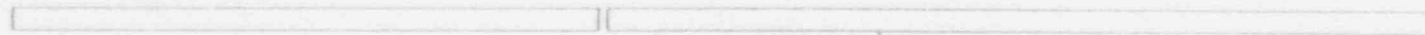
REFUEL 6 SUMMARY SCHEDULE

OUTAGE DAYS

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45
 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46

■ OFF GRID

PLANT SHUTDOWN / COOLDOWN



TED - TRAIN 'A'

TED - TRAIN 'B'

□ OPEN MAINT HATCH

□ ICI REMOVAL AND REPLACEMENT

■ REACTOR DISASSEMBLY

■ FLOODUP RCS

■ SET REACTOR HEAD

■ LIFT REACTOR HEAD

■ REACTOR REASSEMBLY

■ REDUCED INVENTORY

■ FUEL SHUFFLE
RCS 44'

■ REDUCED INVENTORY

■ CRITICAL PATH

□ INSTALL NOZZLE DAMS

□ CLOSE MAINT HATCH

□ STEAM GENERATOR EDDY CURRENT

□ REMOVE NOZZLE DAMS

■ MODE 4

■ SAFETY BUS OUTAGES

■ FILL & VENT

□ EDG 'B'

□ EDG 'A'

■ HEATUP / STARTUP

■ MSR TUBE BUNDLES REPLACEMENT

□ TURBINE & GENERATOR WORK

■ ON GRID



ENTERGY
 WATERFORD 3

SCOPE

- **CRITICAL PATH PROJECTS**
 - DISASSEMBLY, FUEL SHUFFLE, REASSEMBLY
 - MSR TUBE BUNDLE REPLACEMENT

- **NEAR CRITICAL PATH PROJECTS**
 - MDR REPLACEMENT
 - TURBINE GENERATOR INSPECTION
 - SAFETY BUS OUTAGE
 - SUPS OUTAGES
 - STEAM GENERATORS INSPECTION AND NOZZLE DAM INSTALLATION
 - SI, CCW, ACCW AND EDG SYSTEM OUTAGES

SCOPE (CONTINUED)

- **UNIQUE AND FIRST-TIME ACTIVITIES**
 - PERFORM REFUELING WITHOUT CONTRACTOR
 - REPLACING MSR TUBE BUNDLES
 - ICI REMOVAL AT 44' RCS LEVEL USING LONG-HANDLED TOOLS
 - TEST CCW HEAT EXCHANGER PERFORMANCE
 - MODIFICATION OF STATION BATTERY A/B
 - MRPC EDDY CURRENT TESTING OF 'EGG CRATE' REGION OF BOTH STEAM GENERATORS

- **LESSONS LEARNED FROM REFUEL 5**
 - SAFETY BUS OUTAGE WORK TO BE DONE AT RCS REFUELING LEVEL (44')
 - ENHANCED 'PLANT CONDITION' COMMUNICATION TO GENERAL WORKERS
 - EXTENDED POSTING TO INCLUDE PROTECTED AND OPERABLE TRAINS

MAJOR ACTIVITIES

MAJOR ACTIVITIES

- **REFUELING**
 - 1/3 CORE REPLACEMENT
 - REPLACE 42 ICI'S AND RECOVER 2 ICI'S

- **MID-LOOP OPERATION**
 - DURING REACTOR DISASSEMBLY (ON 7th DAY) - 1 1/2 DAYS
 - DURING REACTOR REASSEMBLY (ON 31st DAY) - 1 1/2 DAYS
 - TEMPORARY ELECTRICAL DIESEL

- **CONTAINMENT ENHANCEMENTS**
 - AGGRESSIVE DECONTAMINATION

MAJOR ACTIVITIES (CONTINUED)

- REFUELING INTERVAL SURVEILLANCES/
TESTING
 - EMERGENCY DIESEL GENERATORS
 - INSERVICE INSPECTION - PIPE & SUPPORTS
 - SNUBBERS INSPECTION
 - MOTOR OPERATED AND AIR OPERATED
VALVE TESTING
 - SECONDARY PIPING EROSION/CORROSION
EXAMINATIONS
 - CHECK VALVE TESTING
 - CONTAINMENT ISOLATION VALVES LOCAL
LEAK RATE TESTING

- STEAM GENERATORS
 - 100% EDDY CURRENT TESTING OF BOTH
SG'S
 - MRPC OF SELECTED TUBES
 - » 6100 IN LOWER REGION FOR CIRCUMFERENTIAL
CRACKING
 - » 300 IN UPPER REGION FOR AXIAL CRACKING
 - SLUDGE REMOVAL AND SECONDARY SIDE
INSPECTION

MAJOR ACTIVITIES

(CONTINUED)

- REACTOR COOLANT PUMPS/MOTORS
 - GENERAL PREVENTIVE MAINTENANCE ON ALL 4 MOTORS - 2 MAJOR, 2 MINOR

- CONTAINMENT SPRAY
 - PUMP AND VALVE TIMING

- TURBINE/GENERATOR AND AUXILIARIES
 - LOW PRESSURE TURBINE #2 INSPECTION, INCLUDING ROTOR REMOVAL
 - GOVERNOR AND THROTTLE VALVE MAINTENANCE
 - REBABBITTING OF 2 BEARINGS
 - MOISTURE SEPARATOR REHEATER (MSR) TUBE BUNDLES REPLACEMENT AND INTERNAL REPAIRS

MAJOR ACTIVITIES (CONTINUED)

- MAJOR DESIGN CHANGES
 - DC 3096: MSR TUBE BUNDLE REPLACEMENT

 - DC 3364: MAIN FEEDWATER ISOLATION VALVE N2 ACCUMULATOR UPGRADE

 - DC 3384: EMERGENCY DIESEL GENERATORS OVERHEAD RIGGING SYSTEM UPGRADE

 - DC 3387: INSTALL VERSA-VENT SYSTEM ON CEDM'S TO REPLACE EXISTING BALL VALVES

 - DC 3402: A/B BATTERY MODIFICATIONS

**RELOAD DESIGN/
ANALYSIS**

RELOAD DESIGN/ ANALYSIS

- **CYCLE LENGTH**
 - 18 MONTH CYCLE / 483 EFPD

- **METHODOLOGY**
 - ALL METHODOLOGIES PREVIOUSLY REVIEWED AND APPROVED

- **RELOAD SAFETY ANALYSIS**
 - CYCLE 7 EVENTS BOUNDED BY REFERENCE CYCLE
 - NO UNREVIEWED SAFETY QUESTIONS

**OUTAGE RISK
ASSESSMENT**

OUTAGE RISK ASSESSMENT

- PREOUTAGE RISK ASSESSMENT OF SCHEDULE BY OUTAGE RISK ASSESSMENT TEAM (ORAT)
 - DETAILED COMPONENT/ACTIVITY REVIEW TO ASSESS FIVE SAFETY FUNCTIONS
 - » DECAY HEAT REMOVAL
 - » REACTIVITY CONTROL
 - » INVENTORY CONTROL
 - » CONTAINMENT
 - » ELECTRICAL POWER

- DEVELOPED OUTAGE RISK ASSESSMENT PROGRAM (ORAP)
 - COMPONENT LEVEL ANALYSIS OF SCHEDULE

OUTAGE RISK ASSESSMENT (CONTINUED)

- **CHANGES TO OUTAGE SCHEDULE**
 - CONTINUED SERVICE OF ORAT DURING OUTAGE TO ASSESS CHANGES TO SCHEDULE VS. FIVE BASIC SAFETY FUNCTIONS

- **PROTECTED TRAINS**
 - USE PROTECTED TRAIN CONCEPT TO ENSURE SAFETY FUNCTIONS ARE MET

- **ELECTRICAL POWER WHILE AT REDUCED INVENTORY**
 - MINIMUM ONE EDG, TWO INDEPENDENT OFF-SITE POWER SOURCES AND ONE TEMPORARY ELECTRICAL DIESEL

**OUTAGE RISK ASSESSMENT
PROGRAM**

OUTAGE RISK ASSESSMENT PROGRAM

- **OBJECTIVE**
 - MINIMIZE OUTAGE RISK
 - IMPROVE ASSESSMENT CAPABILITIES
 - COMPONENT LEVEL ASSESSMENT

- **DEVELOP INTEGRATED ORA MODEL**
 - ORAM - TIP
 - IPE MODEL (DIAL CAFTA)
 - SCHEDULE ACTIVITIES AND COMPONENTS

- **THREE MAJOR DISPLAYS**
 - PROCEDURE COMPLIANCE
 - DEFENSE IN DEPTH
 - RISK PROFILE

- **MOST USEFUL DURING REFUEL 6 FOR PROTECTED TRAIN COMPLIANCE**