

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report No: 50-382/92-12

Docket No: 50-382

License No: NPF-38

Licensee: Entergy Operations, Incorporated  
P.O. Box B  
Killona, Louisiana 70066

Facility Name: Waterford Steam Electric Station, Unit 3 (Waterford 3)

Inspection At: Taft, Louisiana

Inspection Conducted: May 3 through June 20, 1992

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Project Section A, Division of Reactor Projects  
  
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Office of Nuclear Reactor Regulation

Approved:

  
William G. Johnson, Chief, Project Section A

7/13/92  
Date

### Inspection Summary

Inspection Conducted May 3 through June 20, 1992 (Report 50-382/92-12)

Areas Inspected: Routine, unannounced inspection of plant status, followup, onsite response to events, monthly maintenance observation, bimonthly surveillance observation, operational safety verification, and licensee evaluations of changes to the environs. Also included are the results of the mid-cycle performance review and an offsite support staff review.

### Results:

- o Both Licensee Event Reports 92-002 and 92-004 were well written and fully described the events and issues involved. Corrective actions taken and those planned for future dates were appropriate (paragraph 3.3).
- o Upon reviewing Licensee Event Report 92-001, Revision 01, the inspectors noted that the licensee was proactive in identifying and correcting the problems associated with meeting the core operating limit supervisory system alarm surveillance requirement. Combustion Engineering did not agree that its guidance, which was the cause of the deficiency, may have caused the same problem at other Combustion Engineering plants. This report was left open pending resolution of the issue with assistance from the Office of Nuclear Reactor Regulation (paragraph 3.4).
- o During the main turbine governor valve malfunction of May 16, 1992, the operators responded in an exemplary manner. They maintained a high degree of attention to plant parameters as the plant experienced the transients involved (paragraph 4.1).
- o The inspectors noted that there were no operator errors during observed portions of placing main turbine Governor Valve No. 4 in service and that placing it in service was performed in accordance with the established procedure (paragraph 4.2).
- o The operators took appropriate actions to protect the control room environment during the June 9, 1992, alarming of a control room outside air intake radiation monitor and resultant actuation of the control room emergency filtration unit (paragraph 4.3).
- o The licensee's prompt identification, documentation, and dispositioning of the boric acid makeup pump environmental qualification deficiency was noteworthy (paragraph 4.4).
- o The operator's failure to follow the requirements of the electrical breaker alignment check procedure, as well as failure on the part of the control room supervisor to notice the error was noted as a weakness; however, it was mitigated by the oncoming shift when they noted the

error and promptly took action to correct the error and enter the problem into the licensee's corrective action program. A violation was identified but not cited because the licensee's efforts in identifying and correcting the violation meet the criteria specified in Section VII.B.(2) of the Enforcement Policy (paragraph 4.5).

- o The licensee's approach to investigating and correcting the presence of microbiologically induced corrosion in the fire protection system was noteworthy and proactive (paragraph 5.1).
- o Good procedure compliance and professional work practices were observed during preventive maintenance performed on an emergency feedwater pump (paragraph 5.2).
- o The licensee took a conservative approach when testing revealed vibration levels other than expected on an emergency diesel generator. Plant management was thoroughly involved in the entire process of assuring a properly operating unit (paragraph 5.3).
- o The licensee's approach to correct the fuel injector leak on an emergency diesel generator, after completing the May 11 surveillance, was nonconservative in terms of the initial prioritization of the work. The decision to reconsider the timeliness was only made after prompting by the NRC. This was considered a weakness.
- o During an emergency feedwater pump surveillance test, after a deficiency was identified by the NRC inspector, the operator failed to promptly inform the control room of the deficiency so that timely corrective action could be taken. This was viewed as a weakness and an issue requiring management attention. Once licensee management, including the shift supervisor, became aware of the deficiency, prompt and appropriate corrective action was implemented. This was viewed as a strength in management and, as such, a violation was not cited because the licensee's efforts in documenting and correcting the violation met the criteria specified in Section VII.B.(1) of the Enforcement Policy (paragraph 6.3).
- o Strengths were demonstrated when the control room operators identified insufficient recirculation flow during the above surveillance test. The prompt identification, documentation, and followup corrective actions met the criteria of Section VII.B.(2) of the Enforcement Policy and, therefore, a violation was not cited.
- o The licensee has continued to operate the plant in an exemplary manner, with emphasis on safety and good housekeeping practices with minor exceptions discussed above. Detailed reviews of NAO performance indicated that they have been well trained and approached their duties in a dedicated and professional manner.

- o The licensee was proactive in assessing the criteria listed as inspection requirements in NRC Temporary Instruction 2515/112, "Licensee Evaluations of Changes to the Environs." As a result of Technical Specifications 6.9.1.9 and 6.9.1.10, the licensee had administrative tracking controls in place to ensure there was a 4-year periodic survey of toxic chemicals and pipelines in the vicinity of Waterford 3 and that appropriate Final Safety Analysis Report (FSAR) updates were being made.
- o During the NRC corporate visit, Entergy Operations' corporate engineering was observed to be continuing their efforts to improve their organization structure to better support the Entergy Operations, Inc. sites. The establishment of 19 engineering peer groups was viewed as one of the more significant 1991 accomplishments. Corporate engineering has realized major benefits from the consolidation of engineering. Corporate engineering was continuing to address its plans for the 1992 challenges and the implementation of planned initiatives.

DETAILS

1. PERSONS CONTACTED

1.1 Principal Licensee Employees at the Plant

- #F. W. Titus, Vice President, Engineering
- #R. P. Barkhurst, Vice President Operations
- \*#D. F. Packer, General Manager, Plant Operations
- #F. J. Drummond, Director, Site Support
- \*T. R. Leonard, Technical Services Manager
- #C. J. Toth, Training Manager
- R. S. Starkey, Operations and Maintenance Manager
- \*R. E. Allen, Security and General Support Manager
- A. S. Lockhart, Quality Assurance Manager
- \*#D. E. Baker, Director, Operations Support and Assessments
- \*#J. B. Houghtaling, Acting Director, Design Engineering
- J. A. Ridgel, Radiation Protection Superintendent
- \*W. E. Day, Shift Technical Advisor Supervisor
- #R. F. Burski, Director, Nuclear Safety
- \*#L. W. Laughlin, Licensing Manager
- T. J. Gaudet, Operational Licensing Supervisor
- \*J. G. Hoffpauir, Maintenance Superintendent
- D. W. Vinci, Operations Superintendent
- R. D. Peters, Electrical Maintenance Superintendent
- D. E. Marpe, Mechanical Maintenance Superintendent
- D. C. Matheny, Instrumentation & Controls Maintenance Superintendent
- \*J. H. Roberts, Quality Assurance Supervisor
- \*R. W. Prados, Jr., Licensing Engineer

\*Present at exit interview.

In addition to the above personnel, the inspectors held discussions with various operations, engineering, technical support, maintenance, and administrative members of the licensee's staff.

#Present at Mid-Cycle Performance Review conducted on June 4, 1992. Also present from NRC Region IV:

- T. P. Gwynn, Deputy Director, Division of Reactor Projects
- W. F. Smith, Senior Resident Inspector, Waterford 3

1.2 Principal Licensee Employees at Corporate Headquarters

- F. W. Titus, Vice President, Engineering
- W. F. Mashburn, Manager, Engineering Programs
- J. S. Smith, Manager, Engineering Support
- C. B. Franklin, Director, Nuclear Analysis
- J. G. Dewease, Senior Vice President, Planning & Assessment
- W. E. Edge, Manager, Planning & Assessment

B. A. Baker, Planning & Assessment Staff (Arkansas Nuclear One)  
T. H. Smith, Planning & Assessment Staff (Waterford 3)

## 2. PLANT STATUS (71707)

At the beginning of this inspection period, the plant was operating at full power until May 16, 1992, when a manual cutback and main turbine trip was executed in response to erratic operation of the main turbine governor valves (refer to paragraph 4.1 for details). Power was stabilized on the steam bypass control system at about 10 percent until repairs could be made. By May 18, the plant was restored to full power operation. After running at full power for about 16 hours on May 18, the licensee isolated main steam from the heaters in Moisture Separator-Reheater A (refer to paragraph 4.2 for details). Power was reduced to 98.5 percent due to reactor coolant system cold leg temperature limitations until Turbine Governor Valve No. 4 could be placed in service and opened to provide more steam flow. Full power operation was restored on May 21, where the plant remained through the end of this inspection period, except on June 20 when power was reduced to about 95 percent to facilitate surveillance testing of the main turbine valves.

## 3. FOLLOWUP

### 3.1 Followup of Previous Inspection Findings (92701, 92702)

#### 3.1.1 (Closed) Inspection Followup Item (IFI) 90015-1

On June 15, 1990, the licensee informed the inspectors that certain Potter and Brumfield MDR rotary relays were failing due to a misapplication. Analysis revealed that contacts in the relays were being utilized, by Ebasco design, to deenergize the closing and reset coils at use but, because of minor variables in the timing of these contacts, the relays would not fully reposition and reset the contacts for the next operation of the relays. Potter and Brumfield pointed out that had the application been specified, they would have furnished relays designed for this application. This issue was further discussed, due to similar problems found at other sites as well as Waterford 3, in NRC Information Notice 92-19, dated March 2, 1992. This IFI was opened to track the final disposition of misapplied MDR relays at Waterford 3. As an interim measure, the licensee removed the contacts in question from selected relays. By September 3, 1991, all misapplied Potter and Brumfield MDR relays were replaced with the proper design relays pursuant to Design Change 3300. The Design Change was closed out on January 10, 1992. This item is closed.

#### 3.1.2 (Closed) Inspection Followup Item IFI 91009-1

On March 22, 1991, with the plant in cold shutdown for refueling, the licensee declared an Unusual Event in accordance with their emergency plan when plant stack activity exceeded the emergency action level limit of 1.1 E-3 microcuries per milliliter. The release was caused by ventilating the steam generator primary side in order to gain access for eddy current testing of the



tubes, without taking into account the probability that the concentrations of radioactivity could be higher than anticipated. Although procedures were followed, it appeared that less air flow at the outset, coupled with close coordination with control room personnel, would have prevented the problem because that approach was successfully taken on the second steam generator. This item was to track the permanent corrective action to completion. The inspector reviewed Health Physics Department Technical Procedure HP-002-222, Revision 2, "Steam Generator Radiological Controls," which was changed on December 27, 1991, to add a Section 10.4. This section provided details on how to ventilate the steam generator primary side with specific instructions on communications and on controlling flow rates to preclude a release similar to the release of March 22. The procedure appeared to be adequate to prevent a recurrence. This item is closed.

### 3.1.3 (Closed) Violation VIO 91025-1

This violation involved failure to comply with licensee Administrative Procedure UNT-005-015, Revision 2, "Work Authorization Preparation and Implementation," which required maintenance that can affect the performance of plant equipment to be properly preplanned. On October 25, 1991, the licensee had failed to properly preplan painting work activities on walkway structures adjacent to Wet Cooling Tower B. Consequently, licensee personnel installed protective tarpaulins, which obstructed the cooling tower principal air inlets, without determining the impact on cooling tower operability and without informing the shift supervisor.

The inspector reviewed the licensee's response dated December 11, 1991. The corrective action program was entered by issuance of Significant Occurrence Report 91-040, and Potentially Reportable Event Report 91-064. Corrective actions included the development of a notification form, training provided to selected plant personnel, and a revision to the basic courses taught to newly hired maintenance personnel. The inspector's review of plant documentation indicated that the licensee has implemented a notification form and provided training to the appropriate plant personnel. The actions taken by the licensee adequately addressed the concerns of the violation. This violation is closed.

## 3.2 Other Followup (92701)

### 3.2.1 Followup on Failure to Amend Reactor Operator License

On April 17, 1992, the licensee submitted a request to the Region IV Regional Administrator to add a restriction to a Waterford 3 reactor operator's license. This request was untimely, because the operator's medical records indicated that his uncorrected vision did not meet code vision requirements (as defined in ANSI 3.4) since November 1990. The licensee notified the resident inspector and initiated a Quality Notice (QA-92-035) to enter the problem into their corrective action program. Since there was a previous enforcement issue on failure to administer reactor operator physical examinations within the time frames required by 10 CFR 55.53 (NRC Inspection

Report 50-382/90-01), the inspectors reviewed the causes and corrective actions from that enforcement issue to evaluate whether or not those corrective actions should have prevented the above problem. The inspectors found, after reviewing a time-line of related problems in meeting operator license conditions, that corrective actions to establish responsibilities and implement procedures were not completed until July 1991, which was not in time to prevent the above problem. A subsequent licensee audit identified the above problem. Additional corrective actions to enhance the new procedure and provide specific operator training to ensure that they were aware of their own responsibilities to meet license conditions, appeared to be appropriate and adequate to prevent a recurrence. This issue is closed.

### 3.3 In-Office Review of Licensee Event Reports (LERs) (90712)

The following LERs were reviewed. The inspectors verified that reporting requirements had been met, causes had been identified, corrective actions appeared appropriate, generic applicability had been considered, and that the LER forms were complete. The inspectors confirmed that unreviewed safety questions and violations of Technical Specifications, license conditions, or other regulatory requirements had been adequately described. The Region IV staff determined that an onsite inspection followup of the event was not appropriate. The NRC tracking status is indicated below.

#### 3.3.1 (Closed) LER 92-002, "Reactor Shutdown due to Reactor Coolant System Leakage in Excess of Technical Specifications"

This event was also discussed in paragraph 4.1 of NRC Inspection Report 50-382/92-08. No deviations or violations were identified. This LER is closed.

#### 3.3.2 (Closed) LER 92-004, "Failure to Fully Implement Technical Specification Requirement due to Inadequate Procedure"

This issue was discussed in NRC Inspection Report 50-382/92-08. A Notice of Violation (VIO 92008-2) was issued. Corrective actions will be tracked for followup inspection under the violation. This LER is closed.

### Conclusions:

Both LERs 92-002 and 92-004 were well written and fully described the events and issues involved. Corrective actions taken and those planned for future dates were appropriate as to the causes.

### 3.4 Onsite LER Followup (92700)

The following LER was selected for onsite followup inspection to determine whether the licensee has taken the corrective actions as stated in the LER and whether responses to the event were adequate and met regulatory requirements, licensee conditions, and commitments. The NRC tracking status is indicated below.



3.4.1 (Open) LER 92-001, Revision 01, "Failure to Satisfy Technical Specification Surveillance Requirement due to Inadequate Administrative Controls and Inadequate Attention to Detail"

This issue was discussed in Section 4.2 of NRC Inspection Report 50-382/91-31. In view of the licensee's efforts in identifying and promptly correcting the problem, a violation was not cited. The inspectors conducted a followup inspection on the permanent corrective actions. Operating Procedure OP-004-006, Revision 8, "Core Protection Calculator (CPC) System," was revised (Change 2) to add a "Caution" note in two appropriate places to ensure that, when a change was made to the CPC azimuthal tilt allowances addressable constant, a corresponding change would be made to the core operating limit supervisory system (COLSS) azimuthal tilt limit. This was completed on March 16, 1992, prior to the estimated completion date in the LER. The inspector also verified that the appropriate changes were made to Surveillance Procedure NE-5-103, Revision 3, "COLSS Alarm Verification," in Change 1 on February 28, 1992.

The LER stated that the methodology used in the COLSS surveillance test software to meet the surveillance requirements of Technical Specifications 4.2.1.3, 4.2.3.2(c) and 4.2.4.3 was implemented at the suggestion of Combustion Engineering (CE) (letter C-CE-8075 dated October 29, 1982). The inspector reviewed the letter and found that the methodology did not accomplish the Technical Specification surveillance requirements to verify that the alarms actuated at a specific value; rather, the methodology merely cycled the alarms. Although the licensee changed their implementing procedures to meet the surveillance requirement as written, CE may have provided similar guidance to other licensees, thus creating a concern generic to CE plants. When the inspector questioned whether CE agreed there was a generic concern, the licensee stated they did not. The inspector has pursued this issue with assistance from the Office of Nuclear Reactor Regulation (NRR). This LER shall remain open until the potential issue generic to CE plants is resolved.

Conclusions:

The licensee was proactive in identifying and correcting the problems associated with meeting the COLSS alarm surveillance requirements; however, they did not convince CE that the methodology recommended by their letter of October 29, 1982 (C-CE-8075) did not meet the surveillance requirement and may have caused the same problem at other Combustion Engineering plants. Therefore, the inspectors have referred the question to NRR and will leave the LER open until the potential generic issue is resolved.

#### 4. ONSITE RESPONSE TO EVENTS (93702)

##### 4.1 Manual Reactor Cutback and Main Turbine Trip

On May 16, 1992, at about 3 p.m., while the plant was operating at full power, the main turbine governor valves (GVs) began shifting from the sequential to the single mode and were moving in the closed direction. The operator placed the controls in "Turbine Manual," but this had no effect on GV-3. GV-1 and GV-2 stopped at 38 percent, but GV-3 went to 11 percent open. A few minutes later, GV-3 closed, and GV-1 and GV-2 began opening, causing turbine generator output to rapidly increase. Up to 200 megawatt swings were noted by the operators. The operators manually actuated a reactor power cutback and tripped the main turbine, in accordance with Operating Procedure OP-004-015, Revision 5, "Reactor Power Cutback System." Then the operators entered Off-Normal Procedure OP-901-003, Revision 6, "Reactor Power Cutback." For the next 1 1/2 hours, the operators manipulated control element assemblies in Regulating Group 6 to get the reactor within Technical Specification insertion limits, gain control of axial shape index, and deal with the xenon transient. By 4:30 p.m., reactor power was at less than 20 percent and, by 5:30 p.m., reactor power was stabilized at about 10 percent where the licensee intended to stay while repairing GV controls.

A process analog card had failed in the controls for GV-3 in the turbine digital electrohydraulic system. The card was replaced and, by May 17 at 8:12 p.m., the plant was back on the grid at 15 percent power. By 12 midnight the plant was at 75 percent and, by 4:42 a.m., on May 18, the plant was restored to full power operation.

The licensee did not inform the resident inspectors of the above event and, therefore, the resident inspectors were not on site to observe the operations. This lack of communication was expressed as a concern to the licensee. From the reactor operators' logs, it appeared that the operators responded to the event in an exemplary manner. Dealing with such a transient late in the fuel cycle required a high degree of attention to the plant and to procedures, and this attribute was demonstrated by the operators.

##### 4.2 Isolation of Moisture Separator Reheater (MSR) A

Throughout most of the fuel cycle, the licensee had been operating with main steam isolated from the west heater tube bundle of MSR A due to tubing leaks. There was a loss in overall plant efficiency, but the effects on the reactor were negligible. On May 18, 1992, the licensee determined that tube leaks also existed on the east heater tube bundle to the extent that it would be prudent to isolate main steam from the east tube bundle. At 8:30 p.m., on May 18, all heating steam was isolated from MSR A. As a result, reactor power had to be reduced to 98.5 percent to accommodate the MSR condition and to maintain the reactor coolant system cold leg temperature below 558°F as required by Technical Specification 3.2.6. Since only 3 of the 4 main turbine governor valves were in service (the plant normally operated with GV-4

disabled and shut and with GV-1, -2 and -3 open), the operators were not permitted by plant operating procedures to open GV-4. The procedures were changed, allowing GV-4 to be in service, but discussions between licensee engineering and the vendor determined that GV-4 should be opened not less than 20 percent to avoid valve chatter and hunting. On May 21, 1992, the licensee opened GV-4 to 20.9 percent and adjusted reactor coolant boric acid concentration as required to maintain reactor power at 100 percent. Cold leg temperature stabilized at about 550°F, which was well within the Technical Specification 3.2.6 allowable band of 544-558°F. The licensee indicated that they plan to retube the MSRs during Refueling Outage No. 6 and will repair the leaking tubes or tubesheets during Refueling Outage No. 5, scheduled for September 1992.

#### 4.3 Engineered Safety Feature (ESF) Actuation

On June 9, 1992, at 1:53 p.m., control room outside air intake (CROAI) Radiation Monitor ARM-IRE-0200.2BS alarmed for about 5 minutes. This in turn caused the control room air conditioning system to isolate from the outside environment and Control Room Emergency Filtration Unit S8-B to automatically start. All of the equipment functioned as designed, except for a possible problem with the radiation monitor. The control room emergency filtration units were defined as ESFs in the Waterford 3 FSAR. The operators made the 4-hour report to the NRC as required by 10 CFR Part 50.72. The other three CROAI radiation monitor channels were indicating normal radiation levels, and air samples taken in the area of the alarming radiation monitor showed no detectable activity. The operators took the appropriate actions as required by Off-Normal Procedure OP-901-017, Revision 4, "High Airborne Activity in Control Room." The licensee was unable to immediately identify the cause of the alarm, so troubleshooting was initiated. One of the operators recalled that an ESF actuation had occurred on April 27, 1992 (see LER 92-003-01), with the same CROAI radiation monitor channel, and both times it occurred just after starting the turbine driven emergency feedwater (EFW) pump. The EFW pump turbine exhausted to the roof. The inspector reviewed recent steam generator sample results and noted that there was no detectable radioactivity. The licensee's troubleshooting has included electrical influences that may have been present when the EFW pump was started. While monitoring the radiation monitor, the operators started and ran the EFW pump later in the afternoon, and no alarm occurred. The licensee will report the results of their corrective actions in an LER as required by 10 CFR Part 50.73. The licensee appeared to be taking appropriate actions to determine and correct the cause(s) of the ESF actuations; however, as of the end of this inspection period, troubleshooting efforts have failed to diagnose the cause(s) of the alarm tripping. The inspectors will continue to monitor licensee actions to correct the problem.

#### 4.4 Indeterminate Qualification of Boric Acid Makeup (BAM) Pumps

On June 9, 1992, while upgrading environmental qualification (EQ) files, the licensee discovered that the qualified life of both BAM Pumps had been exceeded by over 2 years. With the plant operating at power, one or both BAM pumps were required to be operable depending on whether one or both boron injection flow paths were considered operable, as required by Technical Specifications.

The previously established service life was 11.77 years from December 18, 1984; however, it was based on an ambient temperature of 104°F. The service life should have been based on a fluid temperature of 120°F, which yielded a service life of about 5.5 years.

The licensee promptly informed the shift supervisor on Condition Identification Report 281108 and entered Site Directive No. W4.101, Revision 0, "Nonconformance/Indeterminance Analysis Process." The prompt operability determination was that the BAM Pumps probably were operable based on operating trend data. An initial engineering evaluation was performed within 24 hours, and it supported the prompt operability determination. The inspector reviewed "W4.101 Initial Engineering Evaluation CI 281108," dated June 10, 1992. The evaluation concluded that the BAM Pumps were operable based on trend data taken on pump developed head, discharge flow, and bearing vibration. These data indicated no degradation in pump performance. Also, the report concluded, in short, that the nonmetallic parts subject to aging would degrade gradually, such that symptoms would be detected in a timely manner. In addition, the evaluation stated the pumps would only need to run for 6.2 hours for emergency boration, based on BAM Tank capacity, and were unlikely to become inoperable due to aging degradation in such a short time span. The inspector considered the evaluation to have an adequate basis.

Long-term actions included replacing the nonmetallic parts subject to aging prior to the end of Refueling Outage No. 5 and updating the BAM Pump EQ file to ensure that timely maintenance was performed to keep the equipment in a qualified state.

#### 4.5 Failure to Comply with Technical Specification Surveillance Procedure

On May 28, 1992, at 12:59 p.m., Emergency Diesel Generator (EDG) A was declared inoperable to repair a leaking fuel injector. Technical Specification 3.8.1.1.6 required demonstration of the operability of the offsite power sources within 1 hour and every 8 hours, thereafter, while the EDG was inoperable. The operators implemented Surveillance Procedure OP-903-066, Revision 5, "Electrical Breaker Alignment Check," Attachments 10.5 and 10.6, to accomplish this Technical Specification requirement. Attachments 10.5 and 10.6 each had an asterisk note that stated, "If TS credit is taken for AB components, then this attachment can not be performed." The reason for the note was there were no AB breakers to check on Attachments 10.5 and 10.6. Other attachments addressed the AB breakers. At

the time the EDG was declared inoperable, Technical Specification credit was not taken for any AB components, so Attachments 10.5 and 10.6 were applicable.

On May 30, at 3:16 a.m., Essential Chiller AB took the place of Essential Chiller A. At 4:56 a.m., the operators implemented OP-903-066. Attachments 10.5 and 10.6 in error, contrary to the note. The control room supervisor reviewed the documentation of the breaker check but also failed to notice the note. At 7:12 a.m., the oncoming shift recognized the error and, at 7:16 a.m., the proper attachments were implemented. By 8:22 a.m., EDG A was declared operable, at which time Procedure OP-903-066 was no longer required.

The oncoming shift supervisor had the problem documented on a Potentially Reportable Event Report (92-014) to enter the corrective action program. The operators involved in the error were counselled, and the operations superintendent told the inspector that he intended to clarify the procedure, although there was no excuse for the operators and reviewers to miss the asterisk note. License management also initiated a Human Performance Evaluation System study on this issue.

Upon evaluating the Technical Specification requirements against what offsite power verifications were accomplished by Procedure OP-903-066, Attachments 10.5 and 10.6, the licensee found that Technical Specification requirements were satisfied, even with AB components in service. This was because the AB busses were energized from the vital busses and, thus, had nothing to do with offsite power verification. Procedure OP-903-066 was conservatively checking more circuits than were necessary to meet the Technical Specification action statement. Since there was no Technical Specification violation, the licensee will not be required to report the incident pursuant to 10 CFR Part 50.73.

Failure to follow the instructions in Procedure OP-903-066 was a violation of NRC regulations; however, this violation will not be subject to enforcement action because the licensee's efforts in identifying and correcting the violation meet the criteria specified in Section VII.B.(2) of the Enforcement Policy.

#### Conclusions:

During the main turbine governor valve malfunction of May 16, 1992, the operators responded in an exemplary manner. They maintained a high degree of attention to plant parameters as the plant experienced the transients involved.

The inspector noted that there were no operator errors during observed portions of placing GV-4 in service, and that placing GV-4 in service was performed in accordance with the established procedure.



The operators took appropriate actions to protect the control room environment during the June 9, 1992, alarming of control room outside air intake radiation monitor and resultant ESF actuation.

The licensee's prompt identification, documentation, and dispositioning of the BAM pump EQ deficiency described above was noteworthy.

The operators' failure to follow the requirements of the electrical breaker alignment check procedure, as well as failure on the part of the control room supervisor to notice the error, was noted as a weakness; however, it was mitigated by the oncoming shift when they noted the error and promptly took action to correct the error and enter the problem into the licensee's corrective action program. A noncited violation was identified.

#### 5. MONTHLY MAINTENANCE OBSERVATION (62703)

The station maintenance activities affecting safety-related systems and components listed below were observed and documentation reviewed to ascertain that the activities were conducted in accordance with approved work authorizations (WAs), procedures, Technical Specifications, and appropriate industry codes or standards.

##### 5.1 WA 0108974: Microbiologically Induced Corrosion (MIC) Inspection of Fire Protection (FP) System

On May 20, 1992, the inspector observed portions of the MIC inspection of Check Valve FP-103A of the FP system. This WA was being performed concurrently with WA 01092425 for painting the seal cavity on the motor driven fire pump to minimize pump outage time. The check valve was on the outlet of Firewater Supply Tank A.

The check valve cover was removed and visually inspected for corrosive metal blistering which was indicative of MIC. MIC was found on the check valve internals and on the inside surface of the check valve cover. Identified MIC blistering did not appear significant enough to impede water flow from Supply Tank A. The licensee stated that a spool piece on the motor-driven fire pump will be sent off site for analysis and biocide treatment to chemically remove and inhibit MIC in the FP system. The licensee stated that other FP system piping and valves have been inspected, and more will be inspected at a later date. The inspector concluded that the licensee's actions were acceptable.

The inspector verified that the system was appropriately isolated and tagged in accordance with the work package. The work package instructions incorporated fire impairment and cleanliness controls and also referenced torquing instructions for system restoration. No problems were identified with performance of the work.



5.2 WA 01094269: Vibration Testing of Emergency Diesel Generator (EDG) A

On May 26, 1992, the licensee's contractor performed vibration testing on EDG A. After evaluating the test data, the licensee noted slightly higher vibration readings near Cylinder 5L and then conservatively elected to perform a boroscopic examination of Cylinder 5L because of concern that the cylinder may be scored. The licensee stated that although the vibration was within allowable limits, it was greater than expected. During discussions with plant management, the inspector was informed of a previous problem on March 18, 1991, with this same cylinder which resulted in a crankcase overpressurization event. The problem was documented in the licensee's Special Report 91-002-00, -01, and -02 and was also addressed in NRC Inspection Reports 50-382/91-09 and -13.

On May 28, the inspector observed portions of the boroscopic examination and reviewed the work package being utilized to control the work. The inspector reviewed the special report and its revisions for additional background information on the current problem. The work was well controlled by a procedure that was appropriate to the circumstances with good supervisory and management involvement.

The examination of the cylinder did not disclose any signs of scoring. The inspector observed the examination process and discussed the results with the licensee system engineer, the EDG vendor, and other cognizant personnel at the work site. The licensee concluded that, based on vendor information, the cylinder was behaving normally but, having been replaced during the previous refueling outage, the liner may not have been fully worn in yet. Thus, the licensee's preparations to replace the piston and liner were not necessary. Subsequently, the mechanics restoring the cylinder noted a small amount of water on the cylinder cover. Upon further investigation it was decided that a jacket cooling water leak existed, and so the cylinder head was replaced. The inspector observed a portion of this remaining work and reviewed the work package. Previously, the inspectors were informed that the licensee had been finding water trapped in the EDG A crankcase vent after each operation, but could find no leaks, and water was not contaminating the lubricating oil. After replacing the leaking cylinder head, the water accumulations no longer occurred.

During the cover replacement process, the inspector observed packing-crate wood, which did not appear to be fire-retardant treated, and oil/lubricant barrels outside of the EDG room. The inspector noted, however, that a nearby fire watch had been assigned to maintain a watch of the area and was alert and fully cognizant of his duties. No problems were identified.

5.3 WA 01095116: Preventive Maintenance on EFW Pump AB

On June 9, 1992, the inspector observed the performance of preventive maintenance on the EFW Pump AB turbine. The work consisted of lubricating the throttle linkage, lubricating the overspeed trip linkage, and changing the turbine lubricating oil and filter element. The component was properly

isolated and taken out of service using an appropriate clearance. The operators entered the correct Technical Specification 72-hour shutdown action statement. The maintenance technicians performed the tasks as directed by the WA work instructions. Proper lubricants were verified in compliance with the licensee's lubrication manual. The technicians kept the work area clean and minimized oil spillage. No problems were identified.

#### Conclusions:

The licensee's approach to investigating and correcting the presence of MIC in the FP System was noteworthy and proactive. Also, good procedure compliance and professional work practices were observed during preventive maintenance activities performed on EFW Pump AB.

The licensee took a conservative approach when testing revealed vibration levels other than expected on EDG A. Plant management was thoroughly involved in the entire process of assuring a properly operating EDG. A fire watch provided appropriate coverage of transient combustibles resulting from EDG work.

#### 6. BIMONTHLY SURVEILLANCE OBSERVATION (61726)

The inspectors observed the surveillance testing of safety-related systems and components listed below to verify that the activities were being performed in accordance with the Technical Specifications. The applicable procedures were reviewed for adequacy, test instrumentation was verified to be in calibration, and test data was reviewed for accuracy and completeness. The inspectors ascertained that any deficiencies identified were properly reviewed and resolved.

##### 6.1 Surveillance Procedure OP-903-068, Revision B, "Emergency Diesel Generator (EDG) and Subgroup Relay Operability Verification"

On May 11, 1992, the inspector observed licensee personnel performing portions of the EDG and subgroup relay operability verification for Train B and portions of the EDG B vibration data acquisition as part of the licensee's predictive maintenance program. Operations, maintenance, and engineering were involved in the performance of the test. The vendor also assisted in the performance of a portion of the test. The inspector noticed during the running of the EDG that there was fuel oil spewing from one of the fuel injectors, resulting in what appeared to be smoke in the area of the fuel injector. Maintenance personnel had placed absorbent material around the fuel injector to absorb the oil and a shield behind the fuel injector to keep the spewing fuel oil away from the exhaust manifold. The group completed the surveillance test and the acquisition of vibration data, and signed each off as satisfactory.

The inspector conducted an inspection of the EDG the following day and noticed that a condition identification (CI) tag was attached to the fuel injector and that the shield and the absorbent material had been removed. The inspector

questioned the operations superintendent about the fuel oil leak, at which time he was unaware of such a leak. The shift supervisor was also questioned concerning the leak. The inspector informed the shift supervisor that the shield, which was attached to direct the spewing oil while the EDG was operating, had been removed. The shift supervisor retrieved the CI on a control room computer and noted that it was given a low priority. The inspector informed the shift supervisor of a potential fire hazard that might exist if the EDG was to emergency start.

The shift supervisor contacted the maintenance supervisor to discuss the item. During the initial conversation, the maintenance supervisor informed the shift supervisor that there appeared to be smoke in the area of the fuel injector.

The shift supervisor and the inspector inspected the area of the fuel injector identified on the CI. The shift supervisor contacted maintenance personnel and requested that the shield used to direct the spewing fuel oil be re-installed to control the spraying of the oil in the event the EDG emergency started.

Operations contacted maintenance personnel a second time to discuss the leaking fuel injector. During the second conversation, the maintenance supervisor stated that the cloudiness he observed may have been a mist caused by the spraying of the fuel oil and not smoke as he had originally stated. There were telephone conversations between the licensee and Region IV to discuss how the oil spewing from the EDG fuel injector might affect EDG operability. The licensee reevaluated the condition and decided to take action to repair the leak. The licensee did not provide a written evaluation addressing the problems associated with the EDG fuel injector. The licensee took the position that there was not a concern for EDG operability. The inspector considered that to be a nonconservative call. The CI was then upgraded from a low priority work item to a higher priority work item and, on May 15, the leak was repaired.

The decision to further investigate/evaluate the EDG fuel injector problem was made by the licensee only after inquiries from the NRC inspector. The decision to notify the necessary level of management and increase the level of priority for completing the repair of the fuel injection pump was a result of prompting by the NRC. The licensee's failure to take a conservative approach to the potential operability problem with EDG B, and to promptly execute corrective action was viewed as a weakness.

#### 6.2 Procedure MI-03-350, Revision 7, "Containment Purge Isolation Area Radiation Monitor Channel A or B Functional Test"

On May 21, 1992, the inspector observed functional testing of a containment purge isolation area radiation monitor as required by Technical Specification 4.3.3.1. The functional test was performed in accordance with the current revision of Procedure MI-03-350. The surveillance test was properly authorized and performed by qualified personnel in accordance with the approved procedure using a calibrated pico ampere source and a digital

multimeter. The radiation monitor was functionally tested using the pico ampere source for the test signal to verify alert and alarm setpoints. The setpoints were verified to be within the acceptance criteria. The surveillance procedure was considered adequate for the task and was followed well by the technicians. No problems were identified.

### 6.3 Surveillance Procedure OP-903-046, Revision 09, "Emergency Feed Pump Operability Check"

On June 9, 1992, the inspector observed the performance of the operability check on EFW Pump AB, in accordance with Section 7.3 of Procedure OP-903-046. This activity was coordinated with the completion of preventive maintenance activities performed on the component earlier in the day (see paragraph 5.2 of this inspection report). While reviewing the initial conditions and test equipment, the inspector noted that the test gauge installed to measure pump suction pressure was labeled to indicate that the gauge contained radioactive contamination. Although the contamination was identified as "fixed," the EFW system was considered a noncontaminated system. Administrative Procedure ME-001-021, Revision 3, "M&TE Accountability Procedure," prohibited the use of contaminated metering and testing equipment (M&TE) on noncontaminated systems. The Nuclear Auxiliary Operator (NAO) who obtained the gauge from the tool room and installed it stated that he made the error in that he specified on the M&TE Record of Accountability card, which was Attachment 6.4 to MD-001-021, that the EFW system was contaminated. Therefore, he was issued a contaminated gauge. When the inspector identified the error, which was prior to the start of the test, no action was taken to correct the deficient condition, nor to document it, until the inspector informed the shift supervisor and a health physics supervisor.

The gauge was removed after the test was completed the first time. Since the gauge contained fixed contamination, the EFW system was probably not contaminated; however, the inspector expressed concern to the licensee that, once the NAO became aware of the error, he should have promptly informed the control room so that timely corrective action could be implemented. The shift supervisor took prompt and appropriate personnel action. A Quality Notice (QA-92-074) was initiated to enter the corrective action program. Operations Management implemented a Human Performance Evaluation System (HPES) study on this issue and, based on this compliance error and others (i.e., see paragraphs 4.5 and 6.3 of this report), stated they will be conducting one-on-one discussions with operators to refresh them on management's position on procedure compliance, self-checking, and the need for prompt identification of problems. This was last done in 1988 and yielded excellent results. On March 6, 1989, a maintenance technician connected a contaminated gauge to the essential chilled water system, which was uncontaminated. A violation was cited in NRC Inspection Report 50-382/E9-08. The corrective actions were adequate, but would not have prevented the NAO from making this cognitive error. Failure to comply with the requirements of ME-001-021 was in violation of NRC regulations; however, this violation is not being cited because the criteria specified in Section VII.B.(1) of the Enforcement Policy were satisfied.



After the test was completed, the operators noted that the steam pressure at the EFW pump turbine inlet was 860 psig, and the acceptance criterion was greater than 880 psig. In addition, Section 4.5 of the procedure specified, as an initial condition, that steam pressure shall be greater than 880 psig, but it did not specify where the pressure should be measured, i.e., at the steam generators or the main steam header. Steam header pressure was about 865 psig and steam generator pressure was about 890 psia depending on which one of the many instruments was read. The 880 psig criterion came from Technical Specification 4.7.1.2. With 860 psig at the EFW pump turbine inlet, pump discharge pressure was 1360 psig, which was acceptable. Typically, when the plant was at normal operating temperature and pressure, there was sufficient pressure at the secondary steam supply to meet the 880 psig criterion. However, on May 21, 1992, the average primary plant temperature was reduced and, therefore, steam pressure was reduced, after the licensee isolated main steam from Moisture Separator Reheater A due to heater tube leaks. This evolution was discussed in paragraph 4.2 above. The operators consulted with licensee management. They decided to shut main turbine GV-4, thereby raising steam pressure. The inspector noted that reactor power was reduced to about 95 percent as a result.

The test was repeated with 885 psig steam at the EFW pump turbine inlet. Pump discharge pressure was 1370 psig, but the operators noted that recirculation flow was 77.7 gpm when 80 or greater gpm was the acceptance criterion in order to verify full opening of the recirculation check valve, Valve EFW-204AB. However, 77.7 gpm met the ASME Code Section XI flow acceptance criterion. Upon reviewing the previous inservice test data taken on March 26, 1992, the licensee discovered that the person taking the data had indicated 78 gpm as being satisfactory, which was an error. The surveillance test reviews failed to notice the deficiency and, therefore, EFW Pump AB was declared operable in error. The operators initiated a potentially reportable event report (PRE 92-016) to document the deficiency and, this time, did not declare the pump operable. An engineering evaluation, including discussions with the pump vendor, was initiated immediately. The pump vendor agreed that 72 gpm was sufficient flow to cool the pump as required. Therefore, 72 gpm was an acceptable value to verify full opening of the recirculation check valve. The licensee promptly revised Procedure OP-903-046 to reflect the new acceptance criterion, and the change was reviewed by the Plant Operations Review Committee and approved by the plant manager. At 12 midnight on June 10, the pump was declared operable.

The licensee informed the inspector that, although there was no excusing the data review error on March 26, the data sheet of Procedure OP-903-046 could have been human factored better to assure that both flow acceptance criteria were considered and, as a result, intended to take action to clarify the procedure. The licensee conducted a data review, backing up about 3 years, to determine if there were any other similar errors made. The only error found was the March 26, 1992, error discussed above. They also looked at other procedures that could have had similar conflicting acceptance criteria and found four examples of where clarification was in order, but no errors were made. The licensee informed the inspector that the four procedures, involving

Containment Spray A and B, EFW B, and Low Pressure Safety Injection B will be clarified along with Administrative Procedure UNT-006-021, Revision 0, "Pump and Valve Inservice Testing." These actions will be reviewed for completion during a future inspection, and will be tracked under IFI 92012-1.

Failure to identify and correct unacceptable surveillance test results on March 26, 1992, was a violation of NRC regulations. Since the June 10 engineering evaluation showed the data to be acceptable, the licensee will not be required to report this issue pursuant to 10 CFR Part 50.73. This violation will not be subject to enforcement action because the licensee's efforts in identifying and correcting the violation meet the criteria specified in Section VII.B.(2) of the Enforcement Policy.

#### Conclusions:

The licensee's approach to correct the fuel injector leak on EDG B after completing the May 11 surveillance was nonconservative in terms of the initial prioritization of the work. The decision to reconsider the timeliness was only made after prompting by the NRC. This was considered a weakness.

During the EFW AB surveillance test, after a deficiency was identified by the NRC inspector, the operator failed to promptly inform the control room of the deficiency such that timely corrective action could be taken. This was viewed as a weakness and an issue of concern for the inspector. Once licensee management, including the shift supervisor, became aware of the deficiency, prompt and appropriate corrective action was implemented. This was viewed as a strength and a violation was not cited. Similar strengths were demonstrated when the control room operators identified insufficient recirculation flow during the same surveillance test. The prompt identification, documentation, and followup corrective actions met the criteria of Section VII.B.(2) of the Enforcement Policy and, therefore, a violation was not cited.

#### 7. OPERATIONAL SAFETY VERIFICATION (71707)

The objectives of this inspection were to ensure that this facility was being operated safely and in conformance with regulatory requirements, to ensure that the licensee's management controls were effectively discharging the licensee's responsibilities for continued safe operation, to assure that selected activities of the licensee's radiological protection programs were implemented in conformance with plant policies and procedures and in compliance with regulatory requirements, and to inspect the licensee's compliance with the approved physical security plan.

The inspectors conducted control room observations on a daily basis when on site, made plant inspection tours, reviewed logs, and reviewed licensee documentation of equipment problems. Through in-plant observations and attendance of the licensee's plan-of-the-day meetings, the inspectors maintained cognizance over plant status and Technical Specification action statements in effect. No significant problems were identified.



During the week of May 4, 1992, the inspector observed NAOs performing daily rounds. The rounds were conducted in the reactor auxiliary building and the fuel handling building. Each NAO was very familiar with his assigned equipment/component location and functions. Each NAO was attentive to the requirements of his assigned rounds. Several of the NAOs performed inspections of components/areas that were not specified on the daily rounds sheets. When questioned about the performance of the extra duties, the NAOs stated that the extra tasks were performed to assure themselves that other components were operating properly and that certain areas remained in the desired condition.

The inspector observed shift turn-over and control room activities for both the day and night shift. The shift turn-overs were conducted in a professional manner and in accordance with plant procedures. The oncoming shift reviewed appropriate logs, performed panel walkdowns, and received briefings from the operators they were relieving. The inspector also observed licensed operators respond to control room alarms. Each alarm was verbally acknowledged and, when necessary, the appropriate alarm response procedure was obtained and the actions were completed in accordance with the procedures.

On May 22, the inspector accompanied an NAO for a plant walkdown in accordance with approved Procedure OI-004-000, Revision 1b, "Watch Station and Shift Logs." The inspector verified no discrepancies between actual and recorded values in the operator logs. The inspector noted that the NAO was knowledgeable and qualified to complete the task and that no operator errors were identified during the walkdown.

On May 28, the inspector toured the outside area of the plant with the operations shift supervisor to assess general conditions, radiological laydown areas, and personnel adherence to appropriate work practices and to examine the integrity of the security fence fabric. No discrepancies were noted and all personnel encountered had proper badging displayed.

#### Conclusions:

The licensee has continued to operate the plant in an exemplary manner, with emphasis on safety and good housekeeping practices. Detailed reviews of NAO performance indicated that they have been well trained and approach their duties in a dedicated and professional manner.

#### 8. LICENSEE EVALUATIONS OF CHANGES TO THE ENVIRONS (TI 2515/112)

The inspectors conducted a review to determine if the licensee had adequate programs in place to evaluate public health and safety issues resulting from changes in population distribution or in industrial, military, or transportation hazards that could arise at or near Waterford 3, and to determine if the licensee reflected such changes in updates to the FSAR.

Subsequent to the publication of NRC Inspection Manual Temporary Instruction (TI) 2515/112, the licensee's Independent Safety Engineering Group

(ISEG) assessed Waterford 3 programs for evaluating and updating the FSAR to accurately reflect public health and safety issues from changes in population or industrial, military, or transportation hazards. The assessment was completed on November 26, 1991. ISEG used the inspection guidance provided by the TI as a basis for the review. The inspector reviewed the ISEG assessment, interviewed licensee personnel involved with the program, and inspected documentation associated with the implementation of the Waterford 3 program.

Waterford 3 has been required by Technical Specification 6.9.1.9 and 6.9.1.10 to submit an industrial survey of toxic or hazardous chemicals report to NRC every 4 years since the plant was licensed. The first such survey was reported by licensee Letter W3P84-2152, on August 9, 1984. The last report was made by licensee Letter W3P88-0310 on May 12, 1988. The 1992 survey and report was in process during this inspection and the licensee anticipated publishing the report by July 31, 1992. This process was not delineated in a specific program but was being tracked as a license commitment by the licensee's Commitments Management System database. In addition, Procedure EP-004-010, "Emergency Plan Implementing Procedure - Toxic Chemical Contingency Procedure," required a 4-year review and update of the Toxic Chemical List, which was Attachment 7.3 to that procedure.

The inspector reviewed the May 12, 1988, report, which was the 1988 survey and analysis of toxic chemicals and pipelines. The report was divided into two sections. The first was a survey and analysis of toxic chemicals stored, processed, or transported in the vicinity of Waterford 3. The second discussed the review of major pipelines (greater than 4 inches in diameter) carrying explosive or flammable materials within a 2-mile radius of Waterford 3. The reports appeared to be comprehensive and licensee committed to include the results in the next annual update of the FSAR. The licensee's sensitivity to changes in surrounding industrial hazards was further demonstrated in April 1992, when the inspectors were informed that a 20 inch natural gas line was going to be buried just over 1/4 mile east of the plant, running north to supply a power plant (Little Gypsy) across the Mississippi River. The pipe has since been installed, and the licensee performed an evaluation pursuant to 10 CFR Part 50.59. The licensee stated they did not allow the line to operate until the evaluation was approved.

The licensee had no program to periodically review the demographic predictions made in Chapter 2 of the FSAR. The ISEG assessment stated that the FSAR had based accident analyses on population projections for both steady state and transient population considerations.

FSAR Section 2.1.2, "Exclusion Area Authority and Control," gave a detailed description of the Waterford 3 exclusion area usage and outlined controls over this area. No programs existed to periodically review the exclusion area usage; however, any changes in the use of this area would require licensee concurrence.

The licensee had no program to periodically evaluate the transient population for comparison with FSAR estimates.

The licensee had no program for periodically evaluating the erection of dams, dikes, or other structures that affect the supply of cooling water. However, in their assessment of November 26, 1991, ISEG stated that such a program may be unnecessary as all of the plant's ultimate heat sink was maintained within the exclusion area.

Finally, the licensee had no program for periodically evaluating naturally occurring changes in geological, seismological, hydrological, or meteorological features in the area of the site.

ISEG recommended, in short, that Waterford 3 Licensing should consider each of the inspection criteria discussed in the TI, and determine if the licensee should establish a periodic review program to evaluate each criterion. The inspector noted, based on the Licensing response of March 11, 1992, that Licensing submitted the ISEG Assessment to the licensee's Safety Analysis Group to review each inspection requirement identified in the TI. Licensing stated that the Safety Analysis Group's review will result in recommendations for ongoing assessments for select criteria and justification for those criteria considered not applicable to Waterford 3. The inspector was told that this could ultimately result in new or revised procedures to implement applicable criteria, and completion was estimated for June 1993.

#### Conclusions:

The licensee was proactive in assessing the criteria listed as inspection requirements in TI 25.5/112. As a result of Technical Specification 6.9.1.9 and 6.9.1.10, the licensee had administrative tracking controls in place to ensure there was a 4-year periodic survey of toxic chemicals and pipelines in the vicinity of Waterford 3 and that appropriate FSAR updates were being made.

#### 9. MIDCYCLE PERFORMANCE REVIEW

On June 4, 1992, the NRC senior resident inspector and deputy division director met with licensee management (listed in paragraph 1.1). The purpose of the meeting was to discuss with the licensee the activities completed through the first half of the Systematic Assessment of Licensee Performance (SALP) Period. The current SALP Period for Waterford 3 was May 1, 1991, through August 1, 1992. The discussion covered inspections from May 1, 1991, through April 21, 1992.

#### 10. OFFSITE SUPPORT STAFF

On May 4, 1992, T. F. Westerman from Region IV, F. Jape from Region II, and D. L. Wigginton from NRR, visited the licensee's Corporate Engineering in the corporate offices of Entergy Operations, Inc. in followup to the inspection conducted on January 6-10, 1992 (NRC Inspection Report 50-382/92-01), of Waterford 3 engineering activities.

Discussions were held with the Vice President, Engineering; the Manager, Engineering Programs; the Manager, Engineering Support; the Director Nuclear

Engineering Analysis; and the Corporate Planning and Assurance group. The subjects of discussions included organizations, 1991 accomplishments, benefits of consolidation and the 1992 challenges/initiatives.

With regard to organization, it was noted that the corporate piping group was decentralized to the sites to improve site design capability. Changes in the nuclear analysis organization were in process, with the intent to provide additional centralization of this function.

Among the 1991 accomplishments, it was noted that charters and corporate sponsors had been established for the 19 engineering peer groups and that there appeared to be progress in the development of engineering direction for the sites. It was also indicated that there was a low engineering turnover rate during the past years.

The consolidation of engineering was viewed by corporate to have provided benefits to the following activities:

- o Waterford 3 Self-Assessment
- o Arkansas Nuclear One, Unit 2 Electrical Self-Assessment
- o Motor Operator Valve Program
- o Erosion/Corrosion Program
- o Piping Analysis
- o Nuclear Analysis Assessment

Corporate engineering continued to address the 1992 challenges/initiatives in the support of plant needs, regulatory initiatives, organizational needs, engineering program enhancements at all three sites, and overall effort to improve design quality.

Four draft corporate directives, referenced in NRC Inspection Report 50-382/92-01, were issued for implementation by all three Entergy Operations, Inc. sites. They relate to the following subjects:

- o Design Engineering Excellence (objectives and goals)
- o Design Engineering (division responsibilities)
- o Configuration Management
- o The Design Process

The planning and assurance organization, which is responsible for the corporate self-assessment function, reported to the Senior Vice President of Entergy Operations Planning and Assurance. By corporate directive, this was a "customer" driven resource. Assessments are performed by request. Periodic assessments of functional areas were not currently performed by the corporate office. In addition to corporate staff, one or more staff members were assigned at each site on a voluntary basis. An assessment team was composed of members from the staff group, corporate, the sites, and personnel from outside Entergy Operations. An assessment report was issued to the

"customer." A "Nuclear Best Practices Program" was under development to provide dissemination of best practices identified during assessments.

#### Conclusions:

During the NRC corporate visit, Entergy Operations' corporate engineering was observed to be continuing their efforts to improve their organization structure to better support the Entergy Operations sites. The establishment of 19 engineering peer groups was viewed as one of the more significant 1991 accomplishments. Corporate engineering has realized major benefits from the consolidation of engineering. Corporate engineering was continuing to address their plans for the 1992 challenges and their implementation of planned initiatives.

The discussions with the corporate planning and assurance organization indicated that the assessments performed by the corporate office were performed on an as-requested basis, and the report was provided to the "customer" requesting the assessment. A "Nuclear Best Practices" program was under development to provide dissemination of the best practices identified during the assessment to the rest of Entergy Operations, Inc. organization.

#### 11. SUMMARY OF TRACKING ITEMS OPENED IN THIS REPORT

The following is a synopsis of the status of all open items generated, closed, or left open in this inspection report:

- IFI 90015-1 was closed.
- IFI 91009-1 was closed.
- VIO 91025-1 was closed.
- LER 92001 was left open pending further review.
- LER 92002 was closed.
- LER 92004 was closed.
- IFI 92012-1, "Tracking of changes to procedures to preclude acceptance criteria conflicts," was opened.

#### 12. EXIT INTERVIEW

The inspection scope and findings were summarized on June 25, 1992, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspectors' findings. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.