

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-458/92-32

Operating License: NPF-47

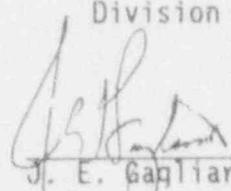
Licensee: Gulf States Utilities
P.O. Box 220
St. Francisville, Louisiana 70775-0220

Facility Name: River Bend Station

Inspection At: St. Francisville, Louisiana

Inspection Conducted: September 27 through November 7, 1992

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Approved: 
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12/8/92
Date

Inspection Summary

Areas Inspected: Routine, unannounced inspection of onsite response to events, operational safety verification, maintenance and surveillance observations, review of a complex surveillance test, followup of an unresolved item, review of motor operated valve signature testing errors, onsite review of a licensee event report, and occupational health and safety inspections.

Results:

- Overall, the licensee's response to operational events during the report period was acceptable (paragraph 2.8).
- A noncited violation was identified for failure to make a timely report of a plant shutdown initiation required by Technical Specification 3.0.3. The licensee's actions to identify and correct the problem were good (paragraph 2.3).
- The licensee's approach and response to increasing drywell pedestal sump levels were considered appropriate to the circumstances (paragraph 2.4).

- The licensee's response to a failed 120 Vac distribution panel was considered to be good. However, a noncited violation was identified for failure to follow preventive maintenance procedures prior to the event (paragraph 2.5).
- A violation was identified for initiating high volume containment purge with one train of the standby gas treatment system inoperable (paragraph 2.7).
- Overall, the licensee operated the facility in a safe manner during the report period (paragraph 3.5).
- A violation was identified for failure to demonstrate the operability of offsite ac power sources when one diesel generator was inoperable for greater than 1 hour. The Technical Specification action statement was not entered for this planned equipment outage (paragraph 3.1). A similar weakness was seen during surveillance testing of the diesel-driven fire pumps when both pumps were taken out of service and the condition was not logged (paragraph 5.2).
- While housekeeping improved in some areas of the plant, some areas required attention (paragraph 3.2).
- A noncited violation of security plan implementation procedures was identified for issuing of a key card to an individual whose training had expired. The Director of Nuclear Station Security committed to implementing an active computerized system to correct the root cause of this problem. This approach was excellent (paragraph 3.3).
- Overall, the maintenance activities observed during this report period were good (paragraph 4.4).
- The work and controls to repair a containment unit cooler breaker were considered good. System engineering support and electrical foreman oversight for the activity were identified as strengths (paragraph 4.2).
- The workers were knowledgeable of the job requirements and techniques for repair of the Division I standby diesel generator. The acceptance criteria were met for the work observed (paragraph 4.3).
- Overall, the licensee's performance of surveillance tests during the report period was good (paragraph 5.3).
- The licensee's performance of the Division I standby diesel generator surveillance on October 13 was excellent, with a possible weakness indicated in the implementation of the licensee's independent verification program (paragraph 5.1).

- During surveillance testing of diesel fire pumps, an operator used a broom handle to verify tank level when the permanent level indicator was out of service (paragraph 5.2).
- The completed documentation for surveillance inspections of the Division I standby diesel generator was good. The specific required sign offs were completed and the quality control hold points were observed. The procedure changes were well documented and were properly reviewed and approved (paragraph 6.1).
- One violation was identified for failure to have adequate procedural controls covering maintenance activities on the Division I standby diesel generator (paragraph 7.1). A similar weakness was seen during Feedwater Pump C maintenance in that work instructions were not sufficiently detailed and workers were not trained for the correct installation of the pump seal (paragraph 4.1).
- The licensee appropriately evaluated potential motor operated valve testing errors and was taking satisfactory corrective actions (paragraph 8.1).
- One noncited violation was identified for failure to comply with Technical Specification 3.0.4 when the automatic depressurization system was inoperable. The operators were alert in recognizing these problems, and the licensee took prompt corrective action. Operator identification of the problem was viewed as a strength (paragraph 9.1).

Summary of Inspection Findings:

- Violation 458/92032-1 was opened (paragraph 2.7).
- Violation 458/92032-2 was opened (paragraph 3.1).
- Violation 458/92032-3 was opened (paragraph 7.1).
- Four noncited violations were identified (paragraphs 2.3, 2.5, 3.3, and 9.1).
- Unresolved Item 458/92026-1 was closed (paragraph 7.1).
- Licensee Event Report 458/92-018 was closed (paragraph 9.1).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS

At the beginning of this inspection period, the reactor was in Mode 1, at 80 percent power.

Power had been reduced to facilitate repairs to Main Feedwater Pump C. On October 7, 1992, power was further reduced by about 1 percent upon initiating a plant shutdown as required by Technical Specification 3.0.3, in response to the inoperability of both trains of control room ventilation. One train was promptly restored and the shutdown was terminated. Following the feedwater pump repairs, the reactor was returned to 100 percent power on October 9.

On October 18, the licensee again entered the shutdown action statement for Technical Specification 3.0.3 because both trains of control room ventilation were inoperable. Power had been decreased to approximately 75 percent power, until one train was returned to an operable status. Reactor power was then restored to 100 percent.

At the end of this inspection period, reactor power was at 100 percent.

2 ONSITE RESPONSE TO EVENTS (93702)

2.1 Highly Radioactive Waste Labeled Low Level Waste

On October 1, 1992, the inspectors were informed by the licensee's acting radiological controls director that two bags of solid radioactive waste were found in a low activity box, each containing highly radioactive material. One bag was reading 14,000 millirem per hour on contact but was labeled less than 2 millirem per hour, and the other was reading 800 millirem per hour and was not labeled at all. These issues were addressed in NRC Inspection Report 50-458/92-33, dated November 10, 1992.

2.2 118 Megawatt Electrical Grid Transient

At 9:46 a.m., on October 6, 1992, the facility experienced a 118 megawatt electrical grid transient. This was apparently caused by faulty switching at the Waterloo Substation. As a result of this transient, multiple uninterruptible power supply inverter and digital radiation monitoring system alarms were received, which was expected.

In addition to the expected alarms, the containment annulus pressure control system was lost, resulting in the initiation of Division I and II containment annulus mixing and standby gas treatment to control annulus pressure. Also, the Division I control building air handling unit and the supporting chiller tripped off (Division II was already out of service).

The standby gas treatment system, an engineered safety feature (ESF), started on the above non-ESF signal. The Shift Supervisor did not make a 4-hour

report pursuant to 10 CFR 50.72(b)(2)(ii) until 3:17 p.m., when directed to do so by his management, on the basis that reportability was in doubt. River Bend Nuclear Procedure RBNP-030, Revision 1, Change Notice 3, "Initiation and Processing of Condition Reports," specifically listed the initiation of standby gas treatment on annulus pressure control system low flow as a non-ESF control function and, therefore, was not reportable. The licensee concluded that ESF component actuations, such as this event, which are caused by non-ESF control functions were not reportable. The inspector reviewed the licensee's final reportability determination, and had no other questions on reportability.

2.3 Inoperability of Both Control Building Filter Trains

At 2:21 p.m., on October 7, 1992, the licensee was notified by an independent laboratory that the charcoal sample taken from control room ventilation filter Train A had failed the methyl iodide penetration test. After every 720 hours of operation the charcoal adsorbers must be sampled and analyzed for a methyl iodide penetration of less than 0.175 percent, as required by Technical Specification 4.7.2.d.

At 2:53 p.m., after validating the report, the licensee's radiological protection representative notified the control room. At the time, Filter Train B had been out of service for preventive maintenance. Consequently, the Shift Supervisor declared the plant in Technical Specification 3.0.3, which required initiation of a plant shutdown within 1 hour. The entry time was logged in as of 2:21 p.m. With the preventive maintenance work completed on Train B, and only closure paperwork remaining, the shift supervisor expedited completion of the paperwork. At 3:07 p.m., the shutdown was initiated by reducing reactor power from 79 percent to approximately 78 percent. Power was then held at 78 percent to allow time for the paperwork to clear on Train B to minimize the down power transient. At 3:48 p.m., the paperwork on Train B was cleared and the unit operationally tested. Technical Specification 3.0.3 was exited and, by 4:30 p.m., power was restored to 79 percent.

The licensee reported the shutdown initiation required by Technical Specifications at 5:41 p.m., but 10 CFR 50.72 requires a report to be made within 1 hour of the initiation of such a plant shutdown; therefore, the report was about 1 1/2 hours late. This was a violation of NRC regulations.

When the inspector questioned the delay, the licensee explained that the Shift Supervisor was in doubt as to the reportability of this event because he felt the shutdown would not be completed. Licensee management had already recognized and identified the violation and promptly counselled the shift supervisors involved in reporting the event, and the event described in paragraph 2.2 above. These untimely reports were incorporated into operating experience reviews so that all control room operators would understand the licensee's policy to report on time when in doubt. In view of the minor safety significance of this issue and the prompt corrective action taken, this violation will not be subject to enforcement action because the licensee's

efforts in correcting the violation meet the criteria specified in Section VII of the NRC's Enforcement Policy.

2.4 Overflow of the Reactor Drywell Pedestal Drain Sump

Between September 29 and October 2, 1992, the operators made several unsuccessful attempts to pump down the drywell pedestal sump to maintain sump water level within the detectable range of the sump level instruments. When either pump was energized, the sump level did not decrease, and the pump motor current was equivalent to a nonloaded value. The pumps, located in the drywell, were not accessible during power operation. The licensee's review concluded, based on drywell temperatures, radiation monitor readings, and a steady leak rate of about 0.02 gallons per minute (gpm), that the leak did not appear to be reactor coolant. Condition Report 92-0823 documented the problem and indicated that the unidentified leakage determination required by Technical Specification 3.4.3.1 could not be performed if pedestal sump level should rise above the level indicator range.

On October 6, while performing an operability evaluation, the licensee's engineers discovered that the sump was already filled to overflowing and that water level indications were changing at 185.4 gallons per inch of level, in lieu of 9.9 gallons per inch, which was true when the level was in the sump. At 6 p.m., the operators entered Technical Specification Action 3.4.3.1.b, which allowed operation to continue for only 24 hours; then, if the leakage detection system was not restored, required the plant to be shut down within the next 12 hours. By October 7, engineering provided a detailed operability evaluation and method to determine unidentified leakage using a manual calculation that accounted for the 185.4 gallon per inch level changes. The operators exited the action statement on October 7, after receiving the operability evaluation and making a change to the procedure used to determine leakage. The evaluation was reviewed by the inspector with assistance from the Region IV Division of Reactor Safety and the NRC Office of Nuclear Reactor Regulation. No unacceptable conditions were identified.

Throughout the period from identification of the sump pump failures on October 2 until the end of this inspection period, unidentified reactor coolant leakage remained steady at a rate of approximately 0.02 gpm. On October 15, the licensee implemented a prompt modification request to shift the indicating range of the pedestal sump level indicator from 0 to 36 inches, to 30 to 66 inches to allow for optimum outage planning for the sump pump repairs and leak investigation.

The inspector reviewed the modification documentation and noted that it was complete and in compliance with 10 CFR 50.59. There was sufficient margin (about 5 feet) before the water could touch the cables extending downward from the withdrawn source range and intermediate range nuclear instruments. The slow and steady rise of the water on the pedestal area floor indicated that the leak was not deteriorating. The licensee planned to reduce power on November 17 to inspect the drywell pedestal area, to assess the leakage

source, and to repair the pedestal sump pumps. The inspector concluded that the licensee's corrective actions were appropriate.

2.5 Loss of Neutral from 120 Vac Power Supply

On October 16, while troubleshooting equipment problems, electrical technicians determined that the neutral wire from the feeder transformer to Division I 120 Vac Distribution Panel 1SCV*PNL8A1 had failed open. This placed the two bus bars in the panel electrically in series. The licensee measured phase-to-ground potentials of approximately 260 volts on one phase and 0 volts on the other phase of the panel. Subsequently, the licensee de-energized Panel 1SCV*PNL8A1 and declared it inoperable. De-energizing this panel affected the following Division I equipment:

- Control Room Chillers 1A and 1C
- Control Room Local Intake Radiation Monitor RMS*RE13A
- Fuel Building Filtration Train Fan 3A
- Main Steam Leakage Control System
- Penetration Valve Leakage Control System
- Remote Shutdown Panel

Technical Specification 3.8.3.1 requires that the Division I ac power distribution system be energized with the reactor at power. Therefore, with Panel 1SCV*PNL8A1 deenergized, the action statement requires the licensee to reenergize the panel within 8 hours or be in at least hot shutdown within the next 12 hours. The licensee repaired the neutral cable and verified that the voltages were acceptable. The operators declared the power distribution system operable. However, because the loads on the panel may have been subjected to overvoltage conditions, the licensee declared each of the loads from Panel 1SCV*PNL8A1 inoperable until appropriate testing and inspection could be performed to evaluate the circuits.

The operability evaluations included inspection, replacement of parts, continuity checks, and engineering evaluations of equipment voltage ratings for each load. Subsequent actions included energized voltage checks and conducting applicable functional checks or surveillance tests, as appropriate. The inspectors reviewed the licensee's operability evaluations and determined that the licensee appeared to have taken appropriate measures to declare each load operable.

As of the end of this inspection period the licensee had not determined the root cause of the failed neutral connection in Panel 1SCV*PNL8A1. As part of the overall corrective action, the licensee performed visual inspections of other distribution panels and found no similar problems. However, several old

construction and startup tags were identified that had not been removed. Also, some panels were found to contain an excessive amount of dirt and debris. The licensee documented these findings for future corrective action.

The inspectors reviewed the licensee's maintenance history for 120 Vac distribution panels. The licensee had completed preventive maintenance on six of the 21 safety-related 120 Vac distribution panels associated with Divisions I and II. The inspectors reviewed the six completed work packages. For Panel 1SCV*PNL2G1, the inspectors noted that the recorded neutral bus-to-station ground resistance value was "1m+," which could be interpreted to mean greater than 1 megohm. That was well above the acceptance criteria limit of less than 1 ohm specified in Preventive Maintenance Procedure PMP-1015, "Preventive Maintenance of 125, 120/208V Distribution Cabinets (AC&DC)." The licensee promptly checked that panel, and other panels inspected and tested by the same individual, and found the resistances to be satisfactory.

The licensee concluded that this was a documentation error and that the safety significance was minimal. In view of the licensee's prompt action to reconcile the data and the absence of safety significance, a violation will not be cited, because the licensee's efforts met the criteria specified in Section VII of the NRC's enforcement policy.

2.6 Main Circulation System Hypochlorite Tank Leak

On October 20, 1992, while filling, the licensee discovered a leak on the 10,000 gallon hypochlorite receiving tank. The leak rate was a out 0.2 gpm. The fill was terminated, and the licensee installed a temporary patch. The tank was surrounded by a berm, so no leakage was released to the adjacent ground. No chlorine fumes were sensed in the plant vital and protected area. The licensee's environmental personnel were notified, and the appropriate authorities were notified. The Senior Resident Inspector was also informed. The event was reported to NRC pursuant to 10 CFR 50.72(b)(2)(vi). The inspector reviewed the licensee's corrective actions and concluded that the licensee's approach appeared appropriate.

2.7 Containment Purge with Standby Gas Treatment Inoperable

On September 24, 1992, at 12:05 a.m., control room operators initiated a containment purge through the standby gas treatment system Filter Train A. At the time, Filter Train B was removed from service for maintenance. Technical Specification 3.6.1.9 requires that the primary containment purge 36-inch supply and exhaust isolation valves be closed, except if the standby gas treatment system is in the purge flow path and both trains of the standby gas treatment system are operable.

Upon reviewing the control room logs the next day, the shift supervisor realized that the Technical Specification did not allow this operation. Technical Specification 3.6.1.9, Action Statement b, states that, without both trains of the standby gas treatment system operable, discontinue 36-inch purge system operation and close the open 36-inch valves or otherwise isolate the

penetration within 4 hours or be in at least hot shutdown within the next 12 hours.

According to the logs, the control room operators secured the purge and isolated the system at 4:05 a.m. The licensee complied with the Technical Specification action statement time frame.

Control room operators started the containment purge to support the backwash of a reactor water cleanup system demineralizer. The task was being performed in accordance with System Operating Procedure (SOP)-0090, "Reactor Water Cleanup System." SOP-0090 directed the operator to Section 5.4 of SOP-0059, "Containment HVAC System."

The inspector reviewed Section 5.4, SOP-0059, and noted that a caution statement read, "Only one Standby Gas Treatment train shall be operating in the Containment Purge mode and both trains of Standby Gas Treatment must be operable to use Standby Gas Treatment in the Containment Purge mode (Tech Spec 3.6.1.9.b.)." The operators failed to heed this statement in performing the containment purge.

The inspector concluded that the operators' failure to follow SOP-0059 is in violation of the licensee's Technical Specifications (Violation 458/92032-1).

Condition Report 92-0806 was initiated on September 24, 1992; however, as of the end of this inspection period, the licensee had not implemented appropriate corrective action. On November 6, the licensee discussed plans to revise SOP-0059 to add a procedural step in lieu of the caution discussed above, to incorporate the event into departmental training, to add a similar caution to SOP-0090, and to add a related question to the operator qualification test data bank.

2.8 Conclusions

- Overall, the licensee's response to operational events during the report period was acceptable.
- The plant responded as designed to the large, 118 megawatt electrical grid transient. The licensee's reportability determination of the event was appropriate.
- A noncited violation was identified for failure to make a timely report of a plant shutdown initiation required by Technical Specifications. The licensee's actions to identify and correct the problem were good.
- The licensee's approach and response to increasing drywell pedestal sump levels were considered to be adequate to ensure safety.

- The licensee's response to a failed 120 Vac distribution panel was considered to be good. However, a noncited violation was identified for failure to follow preventive maintenance procedures prior to the event.
- The licensee's approach to control a leak in the hypochlorite receiving tank was considered adequate.
- A violation was identified for initiating high volume containment purge with one train of the standby gas treatment system inoperable.

3 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, and that the licensee's management control system was effectively discharging its responsibilities for continued safe operation.

3.1 Control Room Observations

On October 10, 1992, the inspector noted a control room log entry at 1:43 p.m., where the Division I standby diesel generator was inoperable in the maintenance mode to allow pre-start checks. At 3:01 p.m., a log entry was made returning the diesel generator to an operational status. Technical Specification 3.8.1.1, Action b, required, with one diesel generator inoperable, the demonstration of the operability of certain offsite AC sources within 1 hour. The operators indicated that the checks were not performed. The operators stated that, even though placing a diesel generator in maintenance mode rendered it inoperable, the Technical Specification action statement was not normally entered since it has taken less than 1 hour to do the prestart checks.

Condition Report 92-0833 was written to enter the problem into the licensee's corrective action program. The inspector concluded that the practice of not entering the Technical Specification action statements for planned, short equipment outages was poor. The inspector discussed the issue with the licensee. The licensee issued a night order requiring the operators to enter into the control room log any short duration equipment inoperability as a "short term limiting condition for operations." Failure to comply with Technical Specification 3.8.1.1 is a violation of NRC regulations (Violation 458/92032-2).

3.2 Plant Tours

During this inspection period, the inspectors conducted numerous inspection tours of the plant. While some improvement was seen in housekeeping, some areas of the plant required attention. In particular, at elevation 95 feet of the turbine building near the south door, anticontamination clothing, trash, pieces of material, and maslin cloths were scattered. This area had been set up for release of nonradioactive material. This reflected a poor attitude on

the part of the licensee's staff to ensure the careful and orderly release of material. The inspectors discussed the issue with the licensee and corrective actions were taken.

3.3 Security Observations

Throughout the inspection period, the inspectors verified that persons within the protected area properly displayed their key cards. Vital area portals were verified locked and alarmed based on passing through the portals and upon visiting the central and secondary alarm stations.

On October 15, 1992, a visiting NRC inspector was issued his protected area badge and key card and entered the protected area. Several hours later a dosimetry clerk identified that the inspector's general employee training had expired several months earlier. The inspector exited the area and his key card access was deleted from the system.

The licensee determined that the training department had failed to notify the security department that the inspector's training had expired. The training department prepared a list of those individuals no longer qualified once each month. This list was used by security to remove the individuals' key cards from active status. The visiting inspector's name was inadvertently overlooked during this process.

The licensee's investigation identified three problem areas:

- The computer printouts were not user-friendly and required a manual search to prepare the list each month.
- There was no verification process. One clerk prepared and issued the monthly list independently.
- The list was hastily prepared on the last day of each month, resulting in a high potential for error.

Training department personnel revised Training Program Procedure TPP-7-018, "General Employee Training," under Interim Procedure Change IPC-7-018-5-3, to define how this list of unqualified individuals will be prepared. This revision included time frames designed to eliminate haste, independent verification of the list prior to issuance, and use of a better quality computer printout, more suited to developing this list. In addition, the licensee performed an audit to determine that key cards were only issued to trained, qualified individuals. No additional discrepancies were identified.

Additionally, the licensee has committed to change the data in the access computer program to make it an active system. Under this system, individual key cards would carry an expiration date based on the training expiration date. Therefore, if a personnel error allows an expired badge to be issued,

the computer would not allow the individual access to the protected area. The licensee established a schedule date of December 1, 1992, for implementation.

Issuance of a key card to an individual who was not properly trained is a violation of security plan implementation procedures. However, the licensee-identified violation is not being cited because the criteria specified in Section VII of the NRC's Enforcement Policy were satisfied.

3.4 Radiation Protection Activities

On October 28, while inspecting the "hot" (radiologically controlled) machine shop area, the inspectors observed radwaste workers sorting out numerous yellow poly bags containing potentially radioactive trash, tools, and material. The workers were in street clothes and were wearing cotton glove liners, apparently to protect their hands from possible contamination. Some of the bags were torn due to sharp edges on the material inside. While no clothing or skin contaminations occurred, the inspectors questioned the practice of handling these bags without protective clothing such as rubber gloves. The licensee upgraded the protective clothing requirements for this work.

3.5 Conclusions

- Overall, the licensee operated the plant in a safe manner.
- A violation was identified for failure to determine within 1 hour the operability of offsite ac power sources when one diesel generator was declared inoperable. A poor operating practice in entering Technical Specification action statements was revealed by this issue.
- While housekeeping improved in some areas of the plant, some areas required attention.
- A noncited violation of security plan implementation procedures was identified for issuing of a key card to an individual whose training had expired. The Director of Nuclear Station Security committed to implement an active computerized system to correct the root cause of this problem. This planned approach was excellent.

4 MONTHLY MAINTENANCE OBSERVATIONS (62703)

The station maintenance activities addressed below were observed and documentation reviewed to ascertain that the activities were conducted in accordance with the licensee's approved maintenance programs, the Technical Specifications, and NRC Regulations.

4.1 Repair of Reactor Feed Pump

On October 2, 1992, the inspector observed portions of the replacement of the rotating assembly for Reactor Feed Pump C. The work was authorized under Maintenance Work Order (MWO) R158697. The pump had been vibrating excessively and, thus, it became necessary to reduce plant power to about 80 percent and secure the pump for repairs. The inspector reviewed the work package and found that it did not contain a high level of detail. The inspector noted from the documentation that the repairmen doing the work were trained and qualified to do the job. They performed the work in a professional manner and exhibited good radiological and housekeeping practices. The radiological protection measures appeared appropriate to prevent the spread of contamination and minimize exposures. Work steps were appropriately documented.

On October 6, after the pump was reassembled, the operators attempted to fill the pump by opening the suction valve, but the inboard mechanical shaft seal leaked and water began to flash to steam. The operator then isolated the pump. The inspector discussed the possible causes for the failure of the seal with maintenance supervisory and management personnel and found that an O-ring gasket had moved out of position during assembly of the seal. Special clips to hold the seal together during the assembly and alignment process were not used and, as a result, the seal did not function as designed. The inspector noted that the repair procedure, Corrective Maintenance Procedure CMP 9019, Revision 6B, "Reactor Feed Pump Disassembly, Inspection, Rework, and Reassembly," did not address the clips, and the training and briefings given to the repairmen did not assure correct assembly of the seal. Maintenance personnel explained to the inspector that there once was a detailed procedure in place that addressed the seals, but they could not find it. Failure to have an adequate procedure and/or adequate training of the repairmen demonstrated a weakness in the licensee's maintenance program which resulted in over 8 hours delay in getting the pump back in service and also caused unnecessary additional work in a radiologically contaminated area. The seal was successfully reworked and the pump returned to service.

4.2 Repair of Containment Unit Cooler 1B Breaker

On October 30, 1992, the inspector observed maintenance activities associated with Breaker IEFS*ACB076 for Containment Unit Cooler 1B. The work was authorized under MWO R158388 and was initiated to correct deficiencies identified during preventive maintenance activities. The inspector noted that, while there was no clearance established for this work, there were sufficient electrical interlocks to permit a safe breaker rack-out. The operators properly authorized the work. The inspector also noted that the appropriate shutdown Technical Specification action statement had been entered. The job was witnessed by a quality control representative, who verified the correct replacement parts and ensured that the shelf life of consumables had not expired. The inspector verified that the electricians were trained and qualified to perform the work.

The electricians noted excessive wear on the frame where the holding pawl shaft was attached and the system engineer decided to replace the breaker with a spare currently installed in another panel. The MWO was properly revised within 2 hours, and the system engineer assisted in verifying the spare as being the proper breaker. The spare breaker was installed and retested in accordance with the MWO, and the faulty breaker was retained for inspection and evaluation by the vendor. The inspector verified that the operators had conducted an operational test of the unit cooler before exiting the Technical Specification action statement. In view of the short outage time (72 hours) allowed by the Technical Specifications, the electrical maintenance foreman provided full time supervision and support of the electricians. The system engineer and foreman involvements were strengths.

4.3 Leak in Diesel Generator Cylinder Head

On October 16, 1992, the inspector observed maintenance on Division I standby diesel generator. The work was being performed under MWO R059324. This work order was written to troubleshoot lubricating oil flow to the turbocharger.

During the maintenance, the licensee identified a small amount of water in the oil and concluded that the leak was caused by a defect in a subcover hold down bolt socket in Cylinder Head No. 4. The licensee planned to issue a special report on the causes and corrective actions for this failure.

The inspector observed the maintenance repairmen replace the cylinder head. The proper clearances were in place, and the repairmen were following the job plan. Administrative signoffs and approvals were in place. Cleanliness controls were in effect and the repairmen were policing fellow workers on materials controls. The repairmen appeared knowledgeable of the job requirements and techniques.

The inspector evaluated the results of the rocker arm test as described in Step 10 in Revision 4 of the job plan. The repairmen blue checked the valves and checked the rockers in accordance with the vendor manual recommendations. The clearances were checked against the acceptance criteria and found to be satisfactory.

4.4 Conclusions

- Overall, maintenance activities observed during this report period were good.
- During Feedwater Pump C maintenance, the licensee exhibited a weakness in getting sufficient detail into the procedure and/or providing sufficient training or briefing of the repairmen. As a result, potentially contaminated feedwater sprayed out of the inboard seal, causing delays and otherwise avoidable rework in a contaminated zone.

- The work and controls to repair a containment unit cooler breaker were considered good. System engineering support and electrical foreman oversight for the activity were identified as strengths.
- The workers were knowledgeable of the job requirements and techniques for repair of the Division I standby diesel generator. The acceptance criteria were met for the work observed.

5 BIMONTHLY SURVEILLANCE OBSERVATIONS (61726)

The inspectors observed the surveillance testing of safety-related systems and components to verify that the activities were being performed in accordance with the licensee's approved programs and the Technical Specifications.

5.1 Division I Diesel Generator Operability Test

On October 13, 1992, the inspector observed the performance of an operability test of the Division I standby diesel generator, as required by Technical Specification 4.8.1.1.2.a using Surveillance Test Procedure STP-309-021, Revision 9A, "Diesel Generator Division I Operability Test." The test was performed by a reactor operator trainee under the direct supervision of a licensed reactor operator. The control operating foreman provided additional oversight. The operator followed the applicable procedure in a step-by-step manner, and self-checking was evident. The inspector watched as the control room operator verified prerequisites completed and then performed a manual start of the diesel generator. The timing test was satisfactorily completed using a calibrated stopwatch.

The inspector went to the diesel generator room after the machine achieved rated load. The diesel was functioning well with no fuel oil or lubricating oil leaks of any consequence. Upon reviewing the official, signed off copy of the above referenced procedure, the inspector noted that the independent verification signature blank was not signed off at Step 7.5.1 This step closed the turbocharger prelube valve after starting the diesel to prevent the electric lubricating oil circulating pump from tripping during diesel shutdown, thus starving hot bearing surfaces from needed lubricating oil. Upon questioning the equipment operator, he stated that the verification was done, and then another operator, who stated he did the verification, promptly signed the verification signature blank. This demonstrated a possible weakness in the licensee's independent verification program. This was discussed between the inspector and the Assistant Plant Manager-Operations, Radwaste and Chemistry, who agreed to review the procedure for possible revision to clearly indicate what must be independently verified and when.

The remainder of the diesel generator surveillance test was conducted in an excellent manner. All acceptance criteria were met.

5.2 Diesel-Driven Fire Pump Operability Test

On October 26, 1992, the inspector observed the performance of Surveillance Test Procedure STP-251-3205, "Diesel Fire Pump Operational Test," and STP-251-3101, "Fire Protection Water System Minimum Water Volume Check." The portions observed included the operability test of Diesel Fire Pump 1A as required by Technical Specification 4.7.6.1.2.a.1 and 4.7.6.1.2.a.2.

The inspector observed preparations for these tests and determined that the prerequisites were met. The inspector noted that the operator used a broom handle as a dip stick to determine the level in Fuel Oil Tank 1F0F-TK1A because the permanent level indicator was out of service. Technical Specification 4.7.6.1.2.a.1 required the licensee to verify that the fuel day tank contained at least 300 gallons of fuel. Additionally, Surveillance Test Procedure STP-251-3205 required that the operator verify that there was sufficient fuel to operate the engine without going below 300 gallons.

The operations supervisor agreed that using a broom handle as a substitute dip stick was not the appropriate way to perform this procedure. Initially, the licensee measured the broom handle and determined that the mark was 1 inch above the level that is equivalent to 300 gallons. Therefore, the licensee concluded that the Technical Specification requirements had been met.

Previously, the licensee had reviewed the maintenance history on the process level indicator for the tank. The indicator had failed a number of times. Therefore, the licensee had placed a hold on the repair of the indicator for engineering to evaluate the use of a better design. This review had been delayed for some time. By the end of the inspection period, the licensee had repaired the process level indicator for Fuel Oil Tank 1F0F-TK1A.

The inspector reviewed the records for nuclear equipment operators and determined that the operator was qualified to perform these tests.

The inspector reviewed both procedures and determined that they met the Technical Specification surveillance requirements. The tests were appropriately released for performance and were included in the surveillance test progress log. The inspector noted that Surveillance Test Procedure STP-251-3205 removed both Fire Pumps A and B from service. However, the control room log did not document entry into the action statement. The licensee indicated that the practice had been to not enter action statements for short-term items. This issue is discussed in paragraph 3.1 of this report.

The inspector reviewed the calibration records for Level Indicator 1FPW-LI13A and Flow Indicator 1FPW-FI109. Each instrument was within its calibration cycle. The inspector reviewed the data sheets following the tests and determined that all parameters met the Technical Specification acceptance criteria. Both tests were performed within the time frames required by Technical Specifications.

5.3 Conclusions

- Overall, the licensee's performance of surveillance tests during the report period was good.
- The licensee's performance of the Division I standby diesel generator surveillance on October 13 was excellent, except for a possible weakness indicated in the implementation of the licensee's independent verification program.
- Weaknesses were identified during the surveillance of the fire pumps in that an operator was forced to use a broom handle to verify tank level when the permanent indicator was out of service, and the removal of both diesel-driven pumps from service was not logged to allow tracking of Technical Specification requirements.

6 REVIEW OF A COMPLEX SURVEILLANCE TEST (61701)

This portion of the inspection consisted of the review of the documentation for the surveillance activities associated with Division I Standby Diesel Generator 1EGS*EG1A performed during Refueling Outage 4. This review was started with inspections and observations of the work as documented in NRC Inspection Report 50-03/92-24.

6.1 Discussion

The inspector reviewed four of the completed diesel generator vendor procedures implemented by STP-309-7614, "Diesel Generator Inspection - Division I and Division II." The procedures were performed on the Division I diesel generator. The four vendor procedures reviewed were:

- RFO-430, "Inspect gear train for Worn, Broken, Chipped or Otherwise Impaired Gear Teeth"
- RFO-412, "Fuel Injection Equipment Examination and Maintenance"
- RFO-448, "Cylinder Head Removal and Reinstallation"
- RFO-459, "Cylinder Block Top Deck Inspection by Visible Dye Penetration Method"

The inspector reviewed the above completed procedures to verify that they were the correct revision, changes were properly annotated in the procedure and had been approved, quality control hold points were identified, and acceptance criteria (documented where required) and step sign-offs had been completed. The inspector noted that the procedures were vendor generic procedures and were updated prior to use.

6.2 Conclusions

- The completed documentation for surveillance inspections of the Division I standby diesel generator was good. The specific required sign offs were completed and the quality control hold points were observed. The procedure changes were well documented and properly reviewed and approved.

7 FOLLOWUP OF AN UNRESOLVED ITEM (92701)

7.1 (Closed) Unresolved Item 458/9226-01: Appropriateness of Procedural Controls for the Inspection and Reassembly of the Division I Standby Diesel Generator

On July 8, 1992, while licensee personnel were adjusting the valve settings on the Division I standby diesel generator, the engine failed to turn past top dead center on Cylinder 5 using the barring device. This event was reviewed and documented in NRC Inspection Report 50-458/92-26.

The inspector further reviewed the actions taken by the mechanics in reassembling the engine. Specifically, the licensee stated that, when installing the valve rocker arm, a good routine practice was to back out the adjusting screw first. Had this step been performed, the engine would not have been damaged.

Procedural controls are required by Technical Specification 6.8.1 for maintenance affecting safety-related equipment. The procedures and job plans for the work performed failed to require that the mechanics properly set the adjusting screw prior to reassembly. This is a violation (Violation 458/92032-3).

This violation was considered for enforcement discretion; however, the licensee did not take adequate corrective action following the discovery of the problems with Cylinder 5. The licensee did not perform inspections which would have identified the additional three bent push rods, prior to running the diesel generator, which had the potential for further damaging the safety-related engine. Although the bent rods were found during a scheduled inspection, it is unclear that the bent push rods would have been readily identified by inspecting personnel. Additionally, the licensee has had several recent events involving inadequate procedures and the acceptance of the inadequacies by plant maintenance personnel. Important maintenance steps have been missed because of the licensee's reliance on the skill-of-the-craft when specific procedural steps would have been more appropriate.

7.2 Conclusions

A violation was identified for failure to have adequate procedural controls covering the maintenance activities on the Division I standby diesel generator.

8 REVIEW OF MOTOR OPERATED VALVE SIGNATURE TESTING ERRORS (92701)

8.1 10 CFR Part 21 Notification from Liberty Technologies

On October 2, 1992, the licensee received a 10 CFR Part 21 notification from Liberty Technologies that discussed errors in the software supplied with the vendor's valve operation and test evaluation system (VOTES). The notification discussed two defects. First, the values for Young's Modulus and Poisson's Ratio used in the software was not precise enough to provide the +/- 3.5 percent accuracy assumed in the VOTES error analysis. The second problem involved calibration errors of the strain gauge when the calibrator was placed on the threaded portion of the stem above the antirotation device on small diameter high-lead stems. This error was based on the fact that smaller stems tended to twist, which caused a thinning of the diameter that offset the thickening caused by the thrust of the motor.

The effect was that the actual torque of the valve motor was as much as 7 percent higher than previously calculated for valve stems made of 410-SS material. This is the most commonly used material for valve stems at River Bend Station. However, the concern affected all valves already tested.

The licensee identified 34 valves in which the calibrator could have been attached to the threaded portion of the stem above the antirotation device. For the stem geometries at River Bend Station, the licensee determined that the predominant torque correction factor was less than 8 percent. However, the licensee indicated that for a few valves it may be somewhat higher.

Both of these issues caused the indicated thrust to be less than the true thrust. Therefore, the licensee determined that the thrust margins were not in question. The concern was in exceeding the maximum allowable thrust limits. The vendor performed weak link calculations for the licensee in the past that showed considerable margins. Additionally, these margins were based on continuous duty ratings. Therefore, based on a limited number of cycles the margins would be even larger.

Based on this preliminary review, the licensee had provided an interim operability call for all motor-operated valves previously tested with the VOTES. Valve specific reviews were underway, and the licensee had obtained new software which would make corrections to the recorded test data. The licensee stated they would evaluate the specific valve operability if any of the corrected values exceeded the allowable limits.

On October 28, the inspectors observed testing of the VOTES system on a licensee mock-up. The technicians involved were knowledgeable of the system and the restrictions. The problems identified in the 10 CFR Part 21 notification were well understood, and the impact was being evaluated. The NRC is still reviewing the implementation of Generic Letter 89-10 on motor-operated valve testing at River Bend Station.

8.2 Conclusions

The technicians involved were knowledgeable of the VOTES system and the restrictions. The problems identified in the 10 CFR Part 21 notification were well understood, the impact was being evaluated, and the licensee was taking appropriate corrective actions.

9 ONSITE REVIEW OF A LICENSEE EVENT REPORT (92700)

9.1 (Closed) Licensee Event Report 458/92-018: Trip System for the "A" Automatic Depressurization System Inoperable due to Mispositioned Root Valve

This licensee event report involved a failure to comply with Technical Specification 3.0.4, which prohibits entry into an operational condition when the condition required for the Limiting Conditions for Operation are not met. On September 6, 1992, reactor steam dome pressure was raised to about 100 psig with the Train A automatic depressurization trip system inoperable, due to an improperly positioned instrument root valve. The instrument and trip system monitored the discharge pressure of Residual Heat Removal System Pump A to provide a permissive to the Train A automatic depressurization trip system. The cause was failure to follow administrative requirements to properly change a surveillance test procedure on August 22, when it became necessary to connect a test gauge to a different point, thereby requiring the root valve to be closed for installation and removal of the gauge. The procedure did not provide for this and, as a consequence, the restoration of this particular valve was not covered.

While taking logs, the reactor operator noted that the trip units monitoring the Pump A discharge pressure was reading about 65 psig higher than those monitoring Pump B. Subsequent investigation revealed that the root valve was inappropriately shut. Due to the reactor operator's promptness in identifying the discrepancy, the safety significance of this event was minimal. Train A automatic depressurization was inoperable for about 1 1/2 hours while it was required by Technical Specification 3.3.3 to be operable. The action statement allowed Train A to be inoperable for up to 7 days before the plant must be shut down and depressurized to below 100 psig. In addition, reactor pressure did not exceed the operating range of Pump A, thus the pump could have injected if called upon. The reactor operator's actions were considered to be a strength.

The licensee promptly initiated verification of accessible emergency core cooling system valves. No additional discrepancies were identified, based on the inspector's review of the documented valve lineup checksheets. The licensee also counseled the personnel involved and issued a night order to inform operations personnel on the lessons learned from this event.

Failure to comply with Technical Specification 3.0.4 was a violation of NRC regulations; however, this licensee-identified violation is not being cited

because the criteria specified in Section VII of the NRC's Enforcement Policy were met.

9.1 Conclusions

A noncited violation was identified for failure to comply with Technical Specification 3.0.4 when one automatic depressurization system trip system was inoperable upon changing plant modes. The operators were alert in recognizing these problems, and the licensee took prompt corrective action. Operator identification of the problem was viewed as a strength.

10 OCCUPATIONAL HEALTH AND SAFETY INSPECTIONS (93001)

10.1 Corrective Actions to an Industrial Accident

On June 18, 1992, an individual working inside the drywell was injured by a falling hoist, when the trolley carriage failed. This event was documented in NRC Inspection Report 50-458/92-24.

NRC Inspection Report 50-458/92-24 concluded that the trolley was installed outside of the manufacturer's recommendations, that side lifts were being performed against the manufacture's recommendations, that frequent inspections of specific lifting equipment had not been performed, and that inspections of lifting equipment were poorly documented and the inspection criteria was vague.

The inspector reviewed the licensee's corrective action for this event. The licensee determined that one of the root causes for inadequate inspections was inadequate training for tool room facility employees. Previously these personnel had been expected to inspect trollies without appropriate training or inspection criteria. The licensee had provided training for all tool room employees on the proper configuration and inspection criteria for beam trollies, to ensure that all parts were included and in good condition at the time of issue. The licensee was in the process of developing a more specific inspection document which will be included in General Maintenance Procedure (GMP) 0014, "Control of Load Lifting Equipment."

The inspector reviewed a revision to GMP-0017, "General Rigging Practice." This revision, in Change Notice 92-1264, held the individual in charge of the lift responsible for ensuring that the trolley had been properly inspected and identified per the requirements of GMP-0014. The licensee provided a Training Material Discrepancy Report M-92-018 to incorporate this event into the training program for rigging practices. The licensee stated that this will ensure that qualified rigging personnel are trained on the proper configuration and installation practices associated with trolley use and installation. The inspector reviewed this training material discrepancy report and verified that it covered the appropriate material.

The inspector noted that the current procedure revisions do not allow the use of generic beam trollies for applications which require specific trolley

hoists. In addition, the licensee had painted "NOT FOR USE IN DRYWELL" on all Harrington type trollies to prevent inadvertent misapplication on the drywell monorail system.

This occupational health and safety administration item is closed.

10.2 Conclusions

The licensee's corrective actions for the June 18, 1992, event were considered adequate and should preclude similar events.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

D. L. Andrews, Director, Quality Assurance
J. W. Cook, Senior Technical Specialist
T. C. Crouse, Manager, Administration
W. L. Curran, Cajun Site Representative
K. D. Garner, Licensing Engineer
P. D. Graham, Plant Manager
D. N. Lorfing, Supervisor, Nuclear Licensing
S. R. Radebaugh, Assistant Plant Manager, Maintenance
J. E. Spivey, Senior Quality Assurance Engineer
M. A. Stein, Supervisor, Balance of Plant Design Engineering
K. E. Suhrke, General Manager, Engineering and Administration
R. J. Vachon, Senior Compliance Analyst
J. E. Venable, Operations Supervisor

1.2 Other Personnel Contacted

The personnel listed above attended the exit meeting. In addition to the above personnel, the inspectors contacted other personnel during this inspection period.

2 EXIT MEETING

An exit meeting was conducted on November 6, 1992. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not identify as proprietary, any information provided to, or reviewed by the inspectors.