

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/85-29

Construction Permit: CPPR-145

Docket: 50-458

Licensee: Gulf States Utilities (GSU)
P. O. Box 2951
Beaumont, Texas 77704

Facility Name: River Bend Station (RBS)

Inspection At: River Bend Station, St. Francisville, Louisiana

Inspection Conducted: April 1, 1985-August 9, 1985

Inspectors: *B M Hannicutt* 9/11/85
for L. E. Ellershaw, Reactor Inspector Date

D. P. Tomlinson 9-11-85
D. P. Tomlinson, Reactor Inspector Date

Approved: *J. P. Jaudon* 9/17/85
J. P. Jaudon, Reactor Project Section A Date

Inspection Summary

Inspection Conducted April 1, 1985-August 9, 1985 (Report 50-458/85-29).

Areas Inspected: Routine, announced inspection of safety-related heating ventilating and air conditioning systems (HVAC), and verification of as-built welded structural steel connections. The inspection involved 359 inspector-hours onsite by 2 NRC inspectors.

Results: Within the two areas inspected, one violation was identified (failure to assure conformance of safety-related structural steel welds with requirements paragraph 2).

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DETAILS

1. Persons Contacted

Gulf States Utilities

- *C. L. Ballard, Project Supervisor
- *B. Bryson, Quality Assurance (QA) Engineer
- *W. J. Cahill, Senior Vice President
- *T. L. Crouse, Manager, QA
- *P. J. Dautel, Licensing Staff Assistant
- G. Davis, Area Coordinator
- *J. Deddens, Vice President RGMG
- *L. A. England, Supervisor, Nuclear Licensing
- *D. R. Gipson, Assistant Plant Manager, Operations
- *P. D. Graham, Assistant Plant Manager
- D. Hathcock, QA Engineer
- *R. W. Henkel, Engineer, Nuclear Licensing
- *B. E. Hey, Engineer
- *G. R. Kimmell, Supervisor, Operations QA
- *G. A. King, Supervisor, Plant Services
- *A. D. Kowalczyk, Assistant Project Manager
- *I. M. Malik, Supervisor, Quality Engineering
- *T. W. Overlid, Process Systems Supervisor
- *T. F. Plunkett, Plant Manager
- *S. R. Radebaugh, Assistant Superintendent, Start-up and Test
- *C. D. Redding, Operations QA Engineering
- *R. D. Ruby, Systems Engineer, Fire Protection
- *J. E. Spivey, Operations QA Engineer
- *R. Stafford, Directory Quality Services
- *L. R. Sutton, QA Engineer
- *P. F. Tomlinson, Director, Operations QA
- *R. E. Turner, QA Engineer

Stone and Webster

- D. Barry, Superintendent of Engineering
- *T. M. Bates Jr., Assistant Superintendent, Engineering
- *G. M. Brynes, Assistant Superintendent, FQC
- *W. I. Clifford, Resident Project Manager
- S. Gray, Senior Construction Engineer
- *B. R. Hall, Assistant Superintendent, FQC
- R. Phillipi, Assistant Superintendent, FQC
- C. F. Reeves, Consulting Engineer to Director, SWEC Engineering
- B. J. Rogers, QC Inspector
- D. M. Scheele, QC Engineer
- D. Smith, QC Inspector
- *R. L. Spence, Resident QA Manager

*H. E. Stubbs, Supervisor, Mechanical QC

*W. T. Tucker, Assistant to Superintendent of Engineering

*Denotes those attending one or more of the management meetings conducted during this inspection period.

2. Verification of As-Built Welded Structural Steel Connections

The NRC inspectors selected 35 welded, safety-related, structural steel connections located in the auxiliary building (7), control building (6), reactor building (7), fuel building (5), standby service water building (2), and the diesel generator building (8), for verification of actual installation against the latest approved design drawings, and requirements of the AWS D1.1-75 Structural Steel Welding Code.

The following is a list of the applicable SWEC drawings used in making the selections for the indicated buildings:

- a. Auxiliary Building - Drawings 12210-ES-66G-9 and 12210-ES-66A-10
- b. Control Building - Drawings 12210-ES-70A-8 and 12210-ES-70B-9
- c. Reactor Building - Drawings 12210-ES-54E-5 and 12210-ES-54B-7
- d. Fuel Building - Drawings 12210-ES-62C-7 and 12210-ES-62A-6
- e. Standby Service Water Building - Drawings 12210-ES-44BB-2
- f. Diesel Generator Building - Drawings 12210-ES-29C-7 and 12210-ES-29B-9.

In addition, a review of the following detail drawings used to delineate the specific joint configurations and weld requirements was performed:

- a. Reactor Building - Drawings 12210-ES-54K-4, 12210-ES-57B-5, and 12210-ES-57C-3
- b. All Other Buildings - Drawing 12210-ES-70K-7.

The NRC inspectors accompanied a SWEC Certified Welding Inspector (CWI) for verification of the acceptability of the 35 selected structural steel connections. The NRC inspectors observed and randomly verified the results of the CWI's inspection effort. As a result of this verification, 15 welded connections were identified as not meeting certain requirements of AWS D1.1-75; i.e., undersized weld returns, arc, strikes, slag, undercut, crater crack, and missing weld returns.

The NRC inspectors requested the original inspection reports (IRs) for these particular connections. A review of the IRs, all dated prior to May 1983,

did not indicate that the welds were anything but acceptable. However, as stated above, the verification activities of the NRC inspectors in conjunction with the SWEC CWI's inspection effort identified 15 welded connections which did not meet the acceptance criteria of AWS D1.1-75.

Therefore, the failure to execute the required welding inspection program is a Violation of Criterion X of Appendix B to 10 CFR Part 50. (458/8529-01).

3. Licensee Actions on Previously Identified Items

(Closed) Violation (458/8529-01) In response to the above violation the licensee determined that the cause of the deficiency was the inability of field quality control (FQC) inspectors to consistently apply adequate inspection techniques. At the request of the NRC inspectors the licensee selected for reinspection additional welds that had been previously accepted by these FQC inspectors. This additional inspection was originally planned to include ten connections accepted by each of the eight inspectors involved. This was found to be impossible due to the limited number of connections accepted by some of the FQC personnel and the present inaccessibility of other connections. Because of this the reinspection effort was limited to 74 welds on 42 beam connections. Three discrepancies were noted during the reinspection but these were considered to be minor as they were noted only on the return welds which are not factored into the joint strength calculations. The expanded reinspection revealed no conditions detrimental to the structural connections. Refresher training was provided on June 18, 1985, for those structural inspectors currently performing visual weld inspections, emphasizing the acceptance criteria applicable to current structural welding.

The licensee has recently incorporated into "Weld Acceptance Criteria" specification 210.310, Revision 4, Addendum 2, the acceptance standards delineated in NCIG-01, Revision 2. These criteria, approved and endorsed by the NRC, are less restrictive than those required by the American Welding Society Document, AWS D1.1, used for the above inspections, original and expanded. None of the discrepancies noted during this verification inspection or this expanded inspection violated the NCIG criteria.

Based upon the results of these reinspections and the number and nature of the discrepancies identified it was determined that these were isolated discrepancies which will have no adverse effect on the integrity of the welds. As stated, all of the welds reinspected are acceptable to the revised inspection criteria incorporated into Specification 210.310, Revision 4, Addendum 2.

This item is closed.

4. Heating, Ventilating and Air Conditioning Inspection (HVAC)

The NRC inspectors reviewed the River Bend FSAR, Chapters 6.4. and 9.4, and Site QA Manual to assure that the fabrication, installation, and inspection of the HVAC System was accomplished in accordance with all requirements and commitments. The NRC inspectors selected HVAC installation drawings for the fuel building, control building, auxiliary building, and radwaste building. These were used to perform a partial walk-down inspection and as-built verification of the systems. Particular attention was given to location, configuration, identification, and appearance of the various components and completed system. The NRC inspectors verified these attributes for 10 supports, 4 fans, 6 dampers, and a varying number of ductwork pieces in each of the four buildings. In each instance the installed components were as shown on the drawings.

The NRC inspectors reviewed the receiving and final inspection records, including environmental qualification records, for two fan motors, two dampers, and one cable purchase order. Each attribute was documented on an IR, signed and dated in accordance with approved procedures. The NRC inspectors also reviewed the IRs for 10 HVAC supports that had been inspected and accepted by QC. The drawings for these supports were taken to the field and a verification inspection was performed to ascertain the effectiveness of the QC inspection. The NRC inspectors verified that each support was properly identified, dimensionally correct, and that all welding and bolting was as shown on the drawings.

The NRC inspectors selected and reviewed 8 Nonconformance and Disposition Reports (N&D's) for adequacy. These were selected to represent a variety of nonconforming conditions and were considered to be a good representation of the HVAC N&D's on file. Each N&D described the particular nonconformance in sufficient detail to make it understandable to the reader. Each had been initiated and approved by the proper personnel prior to issuance. The dispositions stated for each nonconformance appeared to be appropriate and each was accompanied by the technical justification for that disposition. Each was reviewed and approved by the licensee and an acceptable final inspection was performed prior to the closing of the N&D.

The NRC inspectors reviewed the final test data packages for 19 areas of duct and components. Certain discrepancies were noted during the original testing which resulted in a violation and necessitated a retest of the entire HVAC System. The NRC inspectors found that the retest boundaries for each test area were clearly marked on the working drawings and were accurately described in each of the test data packages. Each test data package reviewed contained all of the pertinent information including the test procedures used, specific equipment used, time and date of test, duration of test, checklist of attributes verified, and the signatures of qualified inspectors for each step witnessed. The NRC inspectors noted that several packages contained records of tests that were not acceptable. Each of the unacceptable test data sheets was followed by a more current

one which indicated that later testing was satisfactory. A final test summary sheet was included in each package stating that each area had been completed with acceptable test results for pressure testing and for leakage testing.

Based upon the NRC inspectors review of the final test data packages, Open Item 458/8523-05 is closed.

During this inspection the NRC inspectors were notified by the licensee that problems had been identified with the HVAC damper shaft bushings. When the dampers were repeatedly cycled some of the bushings moved axially on the shaft to the point where they were totally free of the damper housing. This movement not only negated the bearing action of the bushing, causing undue wear on the shafts, but created an air leak path. Dampers with bushings in this condition can not pass the pressure and leak tests required on the HVAC system. After considering several possible means of correcting this condition it was decided that three methods would be used depending on the configuration and accessibility of shafts and bushings. In some cases a split bushing was installed on the damper shaft with retention accomplished with an off-set split collar. In some other cases the bushing was retained and sealed by the use of valve-type packing and a screw clamp. The remainder of the bushings were moved out of position, cleaned, and secured in their proper positions by the application of LOCTITE #680 adhesive. The NRC inspectors monitored the rework of 90 dampers in safety-related systems and ascertained from the test results that the modifications were adequate to retain the bushings and maintain system integrity.

The NRC inspectors did not witness or verify any installation or testing of HVAC filters during this inspection. Documentation of NRC inspections performed on HVAC filters will be found in report No. 458/8553.

No violation or deviations were noted during this portion of the inspection.

5. Management Interview

The NRC personnel met with licensee and SWEC management personnel as noted in paragraph 1 of this report to provide summary information on the overall scope of the inspection and the findings resulting therefrom. The licensee and SWEC personnel acknowledged their understanding of the findings.