



GULF STATES UTILITIES COMPANY

POST OFFICE BOX 2951 • BEAUMONT, TEXAS 77704

AREA CODE 713 838-6631

October 29, 1982
RBG- 13,631
File G9.5

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

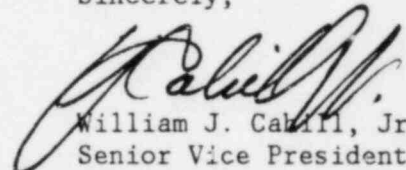
Dear Mr. Schwencer:

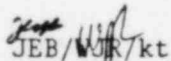
River Bend Station-Unit 1
Docket No. 50-458

Recently representatives of Gulf States Utilities met with the Nuclear Reactor Regulation Staff to discuss the River Bend instrument tubing program. As a result of this meeting please find enclosed the ASME/River Bend tubing program comparison table.

It is my understanding that the Staff review will be completed by December 1, 1982. Thank you for giving this matter your attention.

Sincerely,


William J. Cahill, Jr.
Senior Vice President
River Bend Nuclear Group


JEB/WJR/kt

Enclosures

Booi

8211030059 821029
PDR ADOCK 05000458
A PDR

RIVER BEND STATION

CLASSES 2 AND 3 (FROM ROOT VALVE TO INSTRUMENT)
INSTRUMENT TUBING REQUIREMENTS

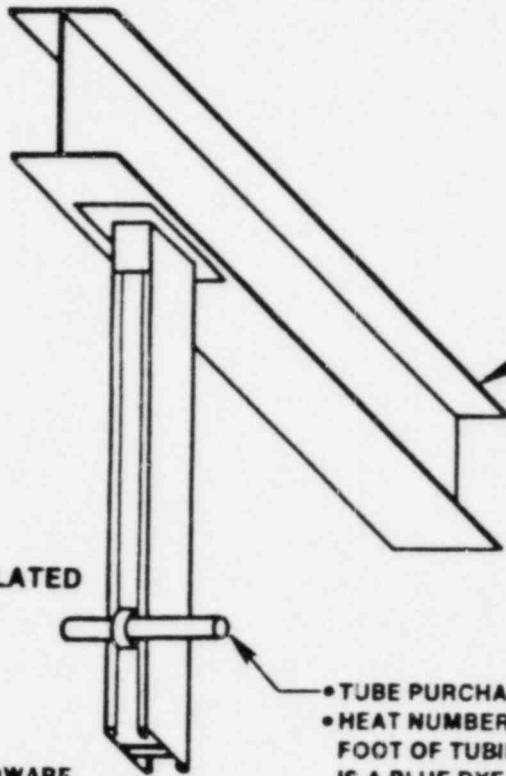
	ASME III	PROPOSED CATEGORY I PROGRAM
Organization	Required	Same
Training	Required	Same
Design Specifications	Pressure boundary integrity for SSE and dead loads, thermal	Same, except for code references to certification in spec.
Engineering, Design, and Document Control	Category I	Same
Procurement Control	ASME-approved suppliers CMTR or C of C	Same, except alternate Category I materials may be used (e.g., Unistrut) for supports. (See Attachment 1)
Receiving, Inspection, Identification, Storage, and Handling Control	Physical inspection and review of documentation, ANSI storage and material identification	Same
Fabrication and Installation Control	Control Drawing Package, FQC, and ANI review and established holdpoints, material traceability	Same, except no mandatory holdpoints; no third party documentation review; no individual packages per drawing; normal Category I IR System. (See Attachments 2, 3, 4)
Welding and Brazing Control	ASME III Procedures - Weld data package each weld; ASME IX welders	ASME IX welders; AWS procedures consistent with those performed on other Category I work. (See Attachments 3, 4, 5)
Bolted and Other Mechanical Joints	Data sheet for special bolted joints	Document special connection torque on IR
Heat Treatment and Special Operations and Repairs	Not Applicable	Same
Fabrication and Installation Inspection	FQC, ANI, ASME acceptance, material traceability required of each piece to specific material heat and lot number	Same, except limited third party surveillance; Category I material marking or exclusive purchase of Category I materials, control to point of use. (See Attachments 2, 3, 4)
Nondestructive Testing	Dye penetrant for Class 2, visual for Class 3, traceability	Visual in accordance with Attachments 2 and 3; surveillance LP of Class 2 pressure boundary welds.

RIVER BEND STATION

CLASSES 2 AND 3 (FROM ROOT VALVE TO INSTRUMENT)
INSTRUMENT TUBING REQUIREMENTS

	ASME III	PROPOSED CATEGORY I PROGRAM
Nonconformances	N&D plus data package revision	Nonconformance & Disposition (N&D) reports
Control of Measuring and Test Equipment	Required	Same
Authorized Nuclear Inspector and Code Certification	N-stamp	Not Applicable
Quality Assurance Audit Program	SWEC, ASME, ANI	SWEC
Company Quality Assurance and Control Manual and Implementing Procedures	SWEC ASME QA Manual QS QAD	SWEC QA Manual (e.g., Constr. Methods Procedures 8.5, 6.5)
Final Documentation	AS-built data package FQC-ANI acceptance	Acceptance based on inspection to drawings, specification, and E&DCR requirements.
Certificate Holder (Subcontracting)	Not Applicable	Same
Pressure Testing	1.25 times design pressure FQC/ANI to witness	Same, FQC witness, ANI surveillance
SWEC's Responsibilities When Owner's Designee	Prepare code data forms N5, N3, ANI Witness N-stamp	Not Applicable
Exhibits	Numerous forms	Inspection Reports
SWEC Operations Under the ASME Section XI	Governs repair of components	Not Applicable

UNISTRUT DESIGN



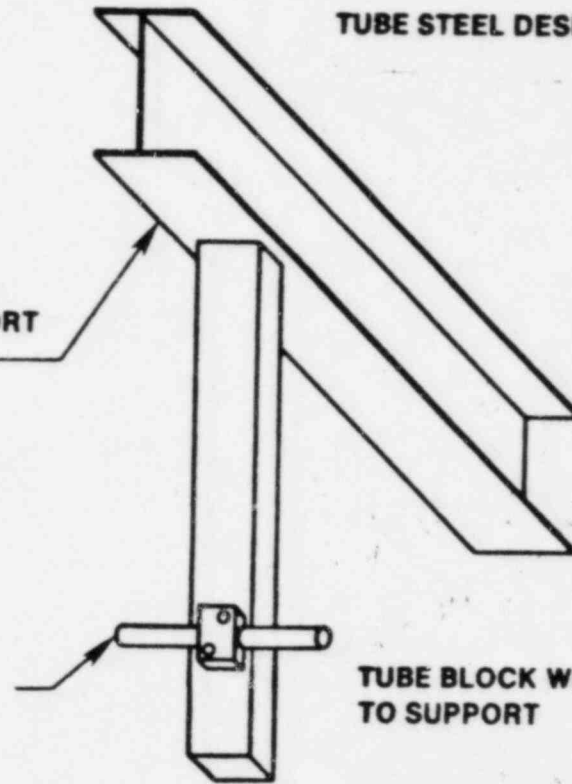
STANDARD TUBE
CLAMPS SIZED
FOR CODE CALCULATED
LOADS

- UNISTRUT AND HARDWARE
- PURCHASED TO A CAT I SPECIFICATION.
- CAT I QC ACCEPTANCE STICKER IS APPLIED.
- EXCLUSIVE PURCHASE OF CATEGORY I MATERIALS OR CATEGORY I MARKING
- CONTROL TO POINT OF USE.

- TUBE PURCHASED AS ASME CLASS 2
- HEAT NUMBERS IDENTIFIED ON EACH FOOT OF TUBING BY THE SUPPLIER IS A BLUE DYE MARKING WITH EITHER 6 DIGITS OR 5 DIGITS DEPENDING ON WHICH VENDOR SUPPLIED THE MATERIAL.
- THE HEAT NUMBERS ARE UNIQUE TO RIVER BEND. NO BATCH NUMBER IS ASSIGNED FOR TUBING.

BUILDING
OR SUPPORT
STEEL

TUBE STEEL DESIGN



TUBE BLOCK WELDED
TO SUPPORT

- TUBE STEEL MARKED WITH A UNIQUE BATCH NUMBER TRACEABLE TO A SPECIFIC HEAT NUMBER. AN EXAMPLE OF A BATCH NUMBER IS AA 47 F2. AA 47 IS A ALPHANUMERICAL NUMBER ASSIGNED BY THE SITE. THE F2 DESIGNATION IDENTIFIES THE ITEM AS ASME NF CLASS 2.
- OR MARKING SYMBOL SIMILAR TO THAT BEING USED PRESENTLY ON A-36 MATERIAL

ATTACHMENT 1

TYPICAL SAFETY CLASSES 2 AND 3
TUBE SUPPORTS AND MARKING

EXAMINATION AND TESTING PROGRAM

- Safety Class 2 Socket and Butt Welds

1. Perform a surveillance liquid penetrant (LP) inspection consisting of one weld per day per welder. (This provides for checking specific welder performance each day). This projects to about 10 percent surveillance.
2. 100-percent visual inspection by the construction department prior to release to Field Quality Control (FQC) - (document via construction checklist).
3. 100-percent FQC visual inspection - document via (inspection report - IR).
4. 10-percent surveillance by a third party inspector - (document via SIS report).
5. In-process surveillance inspections performed by FQC - (document via IR).
6. 100-percent pressure tested to 1.25 times the design pressure with 100 percent visual inspection of welds - (document via Pressure Test Report)
7. Bend and tensile tests initially performed on butt welds to document design conservatism - (document via construction checklist).

- Safety Class 3 Socket and Butt Welds

1. 100-Percent Construction visual inspection - (document via construction checklist).
2. 100-percent FQC visual inspection - (document via IR)
3. FQC in-process inspections - (document via IR)
4. Pressure test to 1.25 times the design pressure - (document via Pressure Test Report)
5. Surveillance by a third party inspector - (document via SIS report)

- Safety Classes 2 and 3 Supports

1. 100-percent Construction visual inspection of all field welds - (document via construction checklist)
2. 100-percent FQC visual inspection of all field welds (using NF acceptance criteria) - (document via IR).

- Visual Examination acceptance Criteria - Pressure-Retaining Welds

The following acceptance criteria shall be used:

All weld surfaces shall be sufficiently free from coarse ripples, grooves, overlaps, abrupt ridges, and valleys to allow examination. The following indications are unacceptable:

1. Cracks - external surface
2. Fillet weld dimension not meeting Figure NC/ND 4427-1 or butt weld reinforcement greater than specified in Figure NC/ND 4427-1.
3. Lack of fusion on the surface.

Basis

ASME Code LP Acceptance Criteria (NC5352), items (b), (c), and (d), would allow indications that are large compared with the typical 1/2-in. and 0.065-in. tubing wall thickness. Item (2) surface cracks or linear indications may be detected more readily by LP than by visual; however, experience with these criteria has not indicated a significant problem. Austenitic stainless steel welds at ambient temperature (the material experiences little time at high temperature) are not susceptible to cracking, even from cycling pressure loads. Hot source piping (design temperature above 150°F) is decoupled by use of a flexible metal hose to eliminate thermal expansion or vibration loads on the tube.

The above acceptance criteria are composite ASME III/ANSI B31.1 criteria that are applicable to tubing. The pressure test to the ASME III code value with a 100-percent visual inspection of the welds is conclusive in determining pressure boundary integrity.

The weld and welder qualification, inprocess surveillance, final visual inspection, surveillance liquid penetrant examination for Class 2 pressure boundary welds, visual inspection during the hydrostatic test, and a third party surveillance provide a high degree of assurance appropriate for the scope of work, without the additional NDE and documentation otherwise required by the code.

ATTACHMENT 3

COMPARISON OF PROPOSED EXAMINATION AND TESTING
WITH ASME III REQUIREMENTS

ASME PROGRAM CLASS 2/3

PROPOSE EXAM/TESTING PROGRAM

- | | |
|---|--|
| I. 100 percent visual inspection | I. 100 percent visual inspection |
| *II. 100 percent LP inspection | *II. Surveillance LP inspection consisting of one weld per day per welder |
| III. Surveillance by ASME and ANI Approximately 10 percent in process activities | III. Surveillance by a third party inspector approximately 10 percent in process activities |
| IV. Hydro - 100 percent inspection by FQC and ANI at 1.25 times design | IV. Hydro - 100 percent inspection by FQC at 1.25 times design |
| V. Surveillance inspection performed by FQC, i.e., Inprocess Welding, Weld Material Control, Material Control | V. Surveillance inspection performed by FQC, i.e., Inprocess Welding, Weld Material Control, Material Control |
| VI. All inspections performed, with the exception of Item V, are documented in the weld data packages, i.e., Weld Data Sheets | **VI. Inspections performed by FQC to be documented on Inspection Reports, Hydro Reports, and LP Reports. Inspections performed by the third party to be documented on the SIS Report. |
| VII. Welders and procedures to be qualified to ASME IX | VII. Welders and procedures to be qualified to ASME IX, except as stated in Attachment 4. |

*NOTE: For Class 3, LP is not required by ASME III.

**NOTE: No third party review of documentation, but surveillance of actual work and pressure test.

ATTACHMENT 4

ADDITIONAL WELDING PROCEDURE
QUALIFICATION FOR AUTOMATIC BUTT WELDS

1. Welding shall be limited to the gas tungsten-arc welding process.
2. The welding procedure shall be qualified in accordance with Section IX. Two full section tension tests are included as part of the qualification. In addition, one sample weld shall be prepared for each nominal pipe or tube size, nominal wall thickness, P-Number group, welding position, and welding machine model in accordance with the welding procedure specification, and the sample shall be tested in accordance with the information below.
3. Two consecutive acceptable sample welds shall be prepared after setup and prior to the start of production welding for each welding machine, welding procedure specification, welding position, nominal pipe or tube size, nominal wall thickness, and P-Number group of materials. Each sample shall be sectioned approximately 1/4 in. from the weld so that the root of the weld is accessible for visual examination. Acceptance shall be based on complete root penetration.
4. During production, welding, voltage, current, and travel speed shall not vary more than $\pm 10\%$ from that used in Item 2 above, and the position of the welding head relative to the centerline of the weld shall not vary more than 1/64 in. from that used in Item 2.
5. Each production welding machine shall have line voltage input corrected within ± 10 percent.
6. During production welding, written instructions and precautions shall be implemented to preclude changes in machine settings and the position of the welding head.
7. Concavity that exceeds 10 percent, but not more than 20 percent, of the nominal wall thickness may be repaired by building up the concave weld area, using weld metal deposited by the manual GTAW process.
8. All welds shall be visually examined.

(The above program is based on code case N-127, which applies to Safety Classes 1 and 2 tubing. The proposed program adds two full section tension tests, but deletes the requirement to produce a sample weld after each 4-hr. period of production welding. The values S_m and S are not reduced because this is already included in the design and for the reason given in Item 6 above.)

ATTACHMENT 5

PROPOSED WELDING PROCEDURE
QUALIFICATION FOR MANUAL SOCKET WELDS

1. The welding procedure shall be qualified in accordance with Section IX.
2. Each welder shall demonstrate proficiency by performing a sample socket weld prior to the start of production welding. The sample shall be liquid penetrant inspected, using the acceptance criteria of ASME III NC-5350.