

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-458/84-02

Docket No. 50-458

License No. CPPR-145 Priority - Category A

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

Facility Name: River Bend, Unit 1

Inspection At: St. Francisville, La.

Inspection Conducted: February 13 - March 9, 1984

Inspectors:

J. P. Durr
Harry W. Kerch
Lead Reactor Engineer

4/17/84
date

J. P. Durr
Richard H. Harris, NDE Technician

4/17/84
date

J. P. Durr
Randy M. Campbell, NDE Technician

4/17/84
date

Approved by:

Jacque P. Durr
Jacque P. Durr, Chief, Materials
and Processes Section, EPB, DETP

4/17/84
date

Inspection Summary:

Inspection on February 13 - March 9, 1984 (Report No. 50-458/84-02)

Areas Inspected: A routine, announced NRC Independent measurements inspection was conducted at the utilities construction site using the NRC Mobile Nondestructive Examination (NDE) laboratory. Selected safety related piping, structural and support weldments fabricated to ASME Code, Section III, Classes 1, 2 and 3 and American Welding Society (AWS) Code D1.1 requirements were inspected. Three regional base inspection personnel assisted by two sub-contracted NDE personnel were utilized during this inspection. The inspection involved 422 onsite hours and 178 offsite hours.

Results: One violation was identified concerning weld ripples and densities in radiographs 458/84-02-03.

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DETAILS

1. Persons Contacted

Gulf States Utilities (GSU)

- * R. E. Bailey, Quality Assurance
- * T. C. Crouse, Quality Assurance
- * R. Carlyle, Construction
- * G. P. Davis, Engineering
- * W. M. Searcy, Quality Assurance
- * R. W. Helmick, Engineering
- * P. E. Freehill, Superintendent
- * J. Curless, Plant Manager
- * P. J. Davtel, Licensing

General Electric Company (GE)

- * W. A. Konkle, Mechanical, Technical Director
- * W. E. Smith, Site Manager

Stone & Webster Engineering Company (SWEC)

- D. Dudley, Construction
- C. Cox, Preoperational Testing Operation
- * W. I. Clifford, Plant Manager
- B. G. Schultz, Plant Manager
- * R. L. Spence, Field Quality Control
- D. M. Cowart, Field Quality Control
- J. R. Kinzer, Security
- * W. R. Whitley, Field Quality Control
- * D. P. Barry, Security
- * J. L. Whedbee, QA, Nondestructive Testing
- * J. J. Zullo, Quality Assurance

USNRC

- * R. E. Farrell, SRI
- * D. D. Chamberlain, SRI

* Denotes attendance at exit meeting on March 8, 1984.

2. Independent Measurements-NRC Nondestructive Examination and Quality Records Review of safety Related Systems:

During the period of February 13 - 24, 1984 quality records received from Gulf States Utilities were reviewed in the regional office for completeness and compliance with the licensee's FSAR commitment to applicable codes,

standards and specifications. Subsequently, an on-site independent verification inspection was conducted during the weeks of February 27, 1984 thru March 9, 1984 using the NRC Mobile Nondestructive examination (NDE) Laboratory. This inspection was conducted by regional based personnel in conjunction with NRC contract personnel.

The purpose of this examination was to verify the adequacy of the licensee's welding quality control program. This was accomplished by duplicating those examinations required of the licensee by the regulations and evaluating the results. In addition to the required examinations, several other confirmatory examinations designed to verify conformance with material specifications were performed and compared to quality assurance records.

An NRC inspector made a random selection of weldments. These were intended to provide a representative sample of piping systems, components, pipe size, shop and field weldments fabricated to AWS and ASME Class 1, 2 and 3 Codes. The items selected were previously accepted by the licensee based on Vender shop and onsite QA/QC records.

2.1 Material Traceability

Forty safety related piping system document packages containing the following documents were reviewed:

- Material Certification, including weld wire
- NDE records
- Fabrication records
- Drawings (isometrics)
- Physical Properties
- Procedures

These documents were reviewed to verify that NRC requirements and licensee's commitments to industry codes and standards were met and were selected from the systems and welds listed in the attached table.

Results: No violations were identified.

2.2 Nondestructive examinations:

Examinations were performed using NRC procedures with addenda written specifically for compliance to the licensee's PSAR commitment to the ASME B&PV Code, for onsite fabrication. The intent was to duplicate to the extent practicable the techniques and methods of the original examinations.

The following examinations were performed:

Radiographic Examination:

Forty-four welds were examined by radiography using an Iridium 192 source per NRC Independent Measurements Procedure, NDE-5, Rev.0,

addenda RB1-5-1. Welds examined were ASME Classes 1 and 2.
Results: All examinations were acceptable.

Liquid Penetrant Examination:

10 safety related pipe weldments were examined per NRC Procedure NDE-9, Rev.0, and addenda RB1-9-1 "Samples examined included ASME Class 1 and 2.
Results: All examinations were acceptable.

Visual Examinations:

Forty-nine weldments and adjacent base metal were visually inspected for weld reinforcement, overall workmanship and surface condition per NRC Procedure NDE 14, Rev.0.
Results: All areas inspected were acceptable.

Magnetic Particle Examination:

Nineteen safety related pipe and structural weldments were examined per NRC procedure NDE-6, Rev.0 and addendum RB1-6-1. Samples included ASME and AWS Code welds.
Results: All areas inspected were acceptable.

Ultrasonic Examination (Anchor Bolts):

Thirty-four anchor bolts were examined ultrasonically, for length only per NRC-18, Rev.0.
Results: All areas inspected were acceptable.

Concrete Test:

3 areas of safety related structural concrete were tested to determine the compressive strength using the Windsor Probe Test Kit
Results: All areas examined were within acceptable limits.

Hardness Measurements:

5 welds were checked for hardness (base material adjacent to welds) using the Equo-tip hardness tester per NRC procedure NDE-12, Revision 0. Hardness numbers were converted to Brinnell values and the approximate tensile strengths were determined by use of conversion tables.
Results: All areas inspected were acceptable.

Thickness Measurement:

The pipe walls of twenty-three weldments and adjacent pipe material were ultrasonically examined per NRC procedure NDE-11, Rev.0 using a

NORTEC NDT thickness gauge. Minimum wall thickness was determined by using ASTM standard pipe sizes and nominal thickness chart.
Results: All areas inspected were acceptable.

Ferrite Measurements:

Ten stainless steel pipe welds were checked for delta ferrite content using a Type II Ferrite Indicator (Severn Gauge).
Results: All measurements were within acceptable limits.

Alloy Analyzer:

Six pipe welds and adjacent base materials were examined using a Texas Nuclear Alloy Analyzer. A qualitative chemical analysis was made.
Results: Materials examined were within 2% of analysis indicated on corresponding certified mill test reports.

3. Additional Confirmatory examination

3.1 Visual:

Eighty-nine, fillet, partial and full penetration weldments were visually inspected per AWS D.1.1 and site visual inspection procedure (QAD-9.12-RB). Welds were inspected for size, surface and workmanship. Areas included structural supports, pipe hangers and electrical cable tray hangers.
Results: All areas examined were acceptable.

3.2 Welder Qualification Records

Thirteen Welder qualification records were reviewed for compliance to ASME section IX.
Results: No violations were identified.

3.3 Review of NDE Procedures

The following procedures were reviewed for compliance to the licensee's FSAR commitment to applicable code's, standards and specifications.

Stone and Webster

Radiography: QAD-9.41 Rev. 0, A and B

Liquid Penetrant: QAD-9.31 Rev. A
QAD-9.32 Rev. 0

Magnetic Particle: QAC-9.61 Rev. A
QAD-9.63 Rev. 0

Ultrasonic: QAD-9.52 Rev. O and B

Radiographic Acceptance Standards (ASME III)
1974 Edition (NB 5000)

Visual: QAD-9.12-RB Rev. A

ITT Grinnel

Radiography:	RT-R+P-3-1 RTA-1-1
Magnetic Particle:	MT-M+P-1-1 MTA-1-0
Liquid Penetrant:	PT-PTP-1-0 PTA-2

Associated Pipe and Engineering

Radiography:	RT-SPPQ-401-Rev.4
Liquid Penetrant:	PT-SPPQ-201-Rev.0 addenda R 1

Results: No violations were identified.

4. Review of Licensee's Radiographs:

A random sample of the licensee's safety related radiographs were reviewed to verify the adequacy of the radiographic and QA/QC programs. Radiographs were reviewed for technique, film quality and weld integrity. Seventy nine complete packages of radiographs were reviewed. Results: No violations were identified.

5. Review of Vendor Radiographs:

A random sample of the vendor radiographs were reviewed to verify the adequacy of the vendor radiographic program and the licensee's vendor acceptance program. Forty complete radiographic film packages from vendors were reviewed. Results: Unresolved item #1

Weld B21-G001-RA017X. The radiographic film for this weld identifies the weld as "A" and the date on film is August 22, 1977. The radiographic report identifies the weld as H and the date on report was August 19, 1977. Also, this radiographic report has white outs. This item is unresolved pending clarification of the identification of the proper film and documentation (458/84-02-01).

Unresolved item #2

Radiographic reports used at this facility are preprinted forms with series of blocks that identifies common indications that radiographic film interpreters generally encounters. Proper

radiographic interpretation requires each discontinuity to be identified, characterize and its location on the radiographic report recorded. The licensee's radiographic film interpreters are not properly interpreting the radiographs, they are checking blocks and are not recording the locations of all the discontinuities that have been identified by check blocks on the radiographic report. Subsequent reviewers are unable to determine what indications have been identified and dispositioned on the radiographic report.

This is a unresolved item pending licensee review and action (458/84-02-02).

One Violation:

Review of vendor radiographs for Weld B21-G001/893001, item 16, disclosed weld ripple images in the radiographs that could mask or be confused with rejectable discontinuities. Therefore, the radiographs do not comply with the requirements of ASME Code Section V, paragraph T-221.2. Further, it was disclosed that three inspected and accepted class 1 vendor welds, Weld B21-G001-RA-01-9X(F), Weld 5177J/193001/603 SN39-7, and Weld 5377J/193001/601SN35-7, exceeded the plus 30% density requirements of ASME Code Section V, paragraph T-263.2.

The failure to comply with the requirements imposed by 10 CFR 50.55a for constructions of the reactor coolant pressure boundary in accordance with the applicable codes is a violation (458/84-02-03).

6. Verification of NDE Personnel Qualifications

The NRC inspector made a random selection of nine NDE personnel records of past and present employees. Records were reviewed and accepted based on SNT-TC-1A and ASME criteria.

Results: All areas examined were acceptable per applicable criteria.

7. Attachments:

Attachment No. 1 is a tabulation of the specific items examined and results.

Attachment No. 2 is a list of specific radiographs reviewed.

8. Exit Interview

An exit interview was held on March 8, 1984, with members of the licensee's staff. The inspector summarized the scope and findings of this inspection. No written material was provided to the licensee during this inspection.

INDEPENDENT MEASUREMENT PROGRAM
RIVER BEND N.P.

ATTACHMENT NO. 1

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WELD NUMBER LINE/ISO	CLASS	SIZE	DATE	THICK	M.T.	R.T.	ALLOY ANAL.	P.T.	HARDNESS	VISUAL	FERRITE	REMARKS
FW-A4 RCS-800-A	1	20"	ACC	ACC	N/A	ACC	ACC	ACC	ACC	ACC	ACC	
FW-A5 RCS-800-A	1	20"	ACC	ACC	N/A	ACC	ACC	ACC	ACC	ACC	ACC	
SW-A RCS-800-A	1	20"	ACC	ACC	N/A	N/A	ACC	ACC	ACC	ACC	ACC	
FW-B11 RCS-900-C	1	20"	ACC	N/A	N/A	ACC	ACC	N/A	N/A	ACC	ACC	
FW-B12 RCS-900-C	1	10"	ACC	ACC	N/A	ACC	ACC	ACC	ACC	ACC	ACC	
SW-A RCS-900-C	1	16"	ACC	ACC	N/A	ACC	ACC	ACC	ACC	ACC	ACC	
FW-003 WCS-001-A	1	4"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-002 WCS-171-A	2	4"	ACC	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	
FW-001-R3 FWS-038-A	1	12"	ACC	N/A	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-003 FWS-038-A	1	12"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
SW-1 FWS-038-A	1	12"	ACC	N/A	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-001 FWS-039-A	1	20"	ACC	ACC	N/A	N/A	N/A	N/A	N/A	ACC	N/A	
FW-004 FWS-063-A	2	20"	ACC	ACC	N/A	ACC	N/A	N/A	N/A	ACC	N/A	

WELD NUMBER LINE/ISO	CLASS	SIZE	DATE	THICK	M.T.	R.T.	ALLOY ANAL.	P.T.	HARDNESS	VISUAL	FERRITE	REMARKS
FW-B2 MSS-700-A	1	24"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-001 CSH-045-A	1	10"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-004 CSH-041-A	1	10"	ACC	ACC	ACC	ACC	N/A	ACC	N/A	ACC	N/A	Partial P.T.
FW-004 CSL-043-A	1	10"	ACC	N/A	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
SW-2 CSL-043-A	1	10"	ACC	N/A	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-002 RHS-153-C	2	10"	ACC	ACC	N/A	ACC	N/A	N/A	N/A	ACC	N/A	
FW-001 RHS-158-A	2	10"	ACC	ACC	N/A	ACC	N/A	N/A	N/A	ACC	N/A	
FW-005 ICS-007-B3	1	6"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
SW-1 RHS-19-A	1	10"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-003 RHS-19-B3	1	10"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-004 RHS-19-A	1	10"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-002 MCS-001-A	1	4"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-004 MCS-001-A	1	4"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-B14 RCS-900-C	1	10"	ACC	ACC	N/A	ACC	N/A	ACC	N/A	ACC	ACC	

WELD NUMBER LINE/ISO	CLASS	SIZE	DATE	THICK	M.T.	R.T.	ALLOY ANAL.	P.T.	HARDNESS	VISUAL	FERRITE	REMARKS
FW-006 ICS-007-B3	1	6"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-007 ICS-007-B3	1	6"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-004 ICS-007-B3	1	6"	ACC	ACC	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-045 MCS-171-A	1	4"	ACC	N/A	ACC	ACC	N/A	N/A	N/A	ACC	N/A	
FW-A15 RCS-900-C	1	10"	ACC	N/A	N/A	N/A	N/A	ACC	N/A	ACC	ACC	
FW-A16 RCS-900-C	1	10"	ACC	ACC	N/A	N/A	N/A	ACC	N/A	ACC	ACC	
FW-A14 RCS-900-C	1	10"	ACC	N/A	N/A	N/A	N/A	ACC	N/A	ACC	ACC	
FW-002 MSS-008-A	1	24"	A/C	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Partial R.T.
FW-003 MSS-008-A	1	24"	ACC	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Partial R.T.
FW-004 RHS-071-A		4"	ACC	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	
FW-005 RHS-071-A		4"	ACC	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	
FW-00 RHS-071-A		4"	ACC	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	

WELD NUMBER LINE/ISO	CLASS	SIZE	DATE	THICK	M.T.	R.T.	ALLOY ANAL.	P.T.	HARDNESS	VISUAL	FERRITE	REMARKS
FW-011 MSS-008-A	N/A	1"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-012 MSS-008-A	N/A	1"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-013 MSS-008-A	N/A	1"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-014 MSS-008-A	N/A	1"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-015 MSS-008-A	N/A	1"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-004 MSS-008-A	N/A	1½"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-005A MSS-008-A	N/A	1½"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-008A MSS-008-A	N/A	1½"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-009A MSS-008-A	N/A	1½"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds
FW-010A MSS-008-A	N/A	1½"	N/A	N/A	N/A	ACC	N/A	N/A	N/A	ACC	N/A	Socket Welds

WELD NUMBER LINE/ISO	CLASS	SIZE	DATE	THICK	M.T.	R.T.	ALLOY ANAL.	P.T.	HARDNESS	VISUAL	FERRITE	REMARKS
FW-001 BZ71JR	AWS	N/A	N/A	N/A	ACC	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-003 BZ71JR	AWS	N/A	N/A	N/A	ACC	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-004 BZ71JR	AWS	N/A	N/A	N/A	ACC	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-001 BZ970P	AWS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-002 BZ970P	AWS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-003 BZ970P	AWS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-001 BZ970L	AWS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-002 BZ970L	AWS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-003 BZ970L	AWS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
FW-004 BZ970L	AWS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
12210-EE-34-AE-2 LN1B0012	AWS	ACC	Fillet Welds	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
LN1B0013	AWS	ACC	Fillet Welds	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
LN1B0014	AWS	ACC	Fillet Welds	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports
12210-EE-34-AA-4 001A	AWS	ACC	Fillet Welds	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Pipe Supports

WELD NUMBER LINE/ISO	CLASS	SIZE	DATE	THICK	M.T.	R.T.	ALLOY ANAL.	P.T.	HARDNESS	VISUAL	FERRITE	REMARKS
12210-EE-340-AA-4 002A	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 003A	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 004A	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 005A	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 006F	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 007F	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 008AS	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 009AS	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 010AS	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 011AS	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 012	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 013	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 014AS	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports
12210-EE-340-AA-4 091AS	Fillet Welds	ACC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ACC	N/A	Structural Steel for Electrical Supports

C - CRACK
 SL - SLAG
 P - POROSITY
 T - TUNGSTEN

LF - LACK FUSION
 IP - INADEQUATE PENETRATION
 LI - LINEAR INDICATION
 UI - UNFUSED INSERT

A - ARTIFACTS
 S - SURFACE
 CC - CONCAVITY
 CV - CONVEXITY

SYSTEM/LINE	WELD ID	ACC	REJ	C	SL	P	T	LF	IP	LI	UI	A	S	CC	CV	COMMENTS
L-FWS-038-1	FW003	X										X				
L-FWS-038-1	SW-1	X														
FWS-035-A	FW001	X										X				
FWS-035-A	SW2	X										X				
MSS-700-A	FWB2	X														
MSS-800-A	FWC1	X										X				
MSS-800-A	FWC020	X														
MSS-800-A	FWC8	X										X				
MSS-800-A	SW-A	X														
CSH-041-A	FW004	X										X				
CSH-020-A	FW002	X			X	X						X				
CSH-041-A	SW-1	X														
CSL-043-A	SW-2	X										X				
CSL-015-A	SW-1	X														
RHS-054-A	FW002	X														
RHS-053-C	SW-6	X										X				
ICS-19-1	SW-1	X														
RHS-19-1	FW004	X														
RHS-19-1	SW-1	X										X				
RHS-158-2	SW-6	X														
RCS-900-C	SW-B	X														Pullman Kellogg
RCS-900-C	SW-C	X														Pullman Kellogg
RCS-900-C	SW-D	X														Pullman Kellogg
MSS-800-A	SW-AR1	X														ITT Grinnell
1-RHS-004-071-2	FW004R1	X					X					X		X		@8½ - 24

C - CRACK
 SL - SLAG
 P - POROSITY
 T - TUNGSTEN

LF - LACK FUSION
 IP - INADEQUATE PENETRATION
 LI - LINEAR INDICATION
 UI - UNFUSED INSERT

A - ARTIFACTS
 S - SURFACE
 CC - CONCAVITY
 CV - CONVEXITY

SYSTEM/LINE	WELD ID	ACC	REJ	C	SL	P	T	LF	IP	LI	UI	A	S	CC	CV	COMMENTS
1-RHS-010-019-1	FW003	X										X				
1-RHS-010-158-2	FW001	X										X		X		
1-WCS-004-001-1	FW002	X														
1-WCS-004-001-1	FW003	X										X				
1-FWS-063A-2	FW004	X														
1-FWS-047-1	FW002	X														
1-FWS-039-1	FW001	X				X						X				@11 & 16
1-FWS-038-1	FW001 ^{R3}	X				X	X					X		X		cc@20 - 30
1-RHS-010-153-2	FW002	X														
1-ICS-006-007-1	FW005	X										X				
1-ICS-006-17-2	FW002	X										X				
1-RHS-018-055-2	FW003	X										X				
1-CSL-020-012-2	FW001 ^{R3}	X				X	X									
1-CSL-010-009-2	FW004A	X				X						X		X		cc@10 - 25
1-CSH-010-45-1	FW001	X				X						X				
1-CSL-010-043-1	FW004	X				X						X				Check Surface
1-CSL-004-015-2	FW002	X														
1-CSL-004-005-2	FW001A	X										X				
1-RCS-800-A	FWA4	X														
1-RCS-800-A	FWA5	X										X				
1-RCS-800-A	SW-A	X														Pullman Kellogg
RCS-900-C	FWB11	X														
RCS-900-C	FWB12	X														
RCS-900-C	SW-A	X														Pullman Kellogg
WCS-004-171-2	FW004	X				X						X				

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A - ARTIFACTS
 S - SURFACE
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SYSTEM/LINE	WELD ID	ACC	REJ	C	SL	P	T	LF	IP	LI	UI	A	S	CC	CV	COMMENTS
RCS-800-A	SW-C	X														Pullman Kellog
RCS-800-A	SW-D	X														Pullman Kellog
MSS-800-A	SW-BRI	X														Pullman Kellog
RHS-071-A	FW004R1	X											X	X		@2½ - 3½
CSL-005-D	FW004	X											X			
CSL-043-B	FW002	X			X								X			Intermittent @32½
1-CSL-004-005-2	FW001A	X														
1-CSH-150-030-2	FW001B	X														
1-CSH-010-041-1	FW004RI	X														
1-CSL-004-005-2	FW001A	X														
1-CSH-150-030-2	FW011B	X														
1-CSH-014-142-2	FW007	X														
1-CSH-014-4-2	FW008	X														
1-CNS-004-18-2	FW002	X														
1-CNS-004-18-2	FW002	X														
1-CSH-014-004-2	FW001A															Insert (Area 14)
1-CSL-010-043-1	FW008	X														
1-CSL-010-043-1	FW007	X														
1-DTM-002-097-1	FW001B	X														
1-DTM-003-072-1	FW004	X														
1-CSL-010-043-1	FW002 ^{RI}															Area 32½ has linear indic.
1-FWR-008-003-4	FW006	X														
1-DER-008-286-2	FW002	X														
1-CSL-010-042-2	FW007A ^{R6}	X														
1-FWS-020-001-4	FW001															Density was marginal.
1-FWS-020-007-4	FW008A	X														

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SYSTEM/LINE	WELD ID	ACC	REJ	C	SL	P	T	LF	IP	LI	UI	A	S	CC	CV	COMMENTS
1-RHS-020-001-2	FW021	X														
1-RHS-020-001-2	FW021	X														
1-RHS-158-A	FW009	X														
1-RHS-154-B	FW001A	X														
APE-B336G001																
G006-A-006-1	B	X														
G006-A-006-1	C	X														
G006-A-006-1	D	X														
G005-A-005-1	H	X														
G005-A-005-1	G	X														
G005-A-005-1	A	X														
G005-A-005-1	F	X														
G005-A-005-1	E	X														
G012-A-012-1	A	X														
G012-A-012-1	C	X														
G010-A-010-1	CC	X														
G010-A-010-1	BB	X														
G010-A-010-1	AA	X														
G010-A-1 SS#13A	W-A	X														
G010-A-1 SS#13A	W-B	X														
G010-A-1 SS#13A	W-C	X														
G010-A-1 SS#13B	A	X														
G010-A-1 SS#13B	B	X														
G010-A-1 SS#13B	C	X														
G010-A-1 SS#14	A	X														
G010-A-1 SS#14	B	X														

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SYSTEM/LINE	WELD ID	ACC	REJ	C	SL	P	LF	IP	LI	UI	A	S	CC	CV	COMMENTS
G010-A-1 SS#22	A	X													
G010-A-1 SS#22	B	X													
ITT Grinnell															
B21-G001															
RA-01-9X	F		X			V									Density Stringer Beads
893001 Item 16	16		X			V					V				
Taylor Forge															
RA019X	3378RI B0212	X													
RA019X	ARI	X													
RA-01-9X	B	X													
RA-01-9X	C	X													
RA-01-9X	D	X													
RA-01-4X	B	X													
RA-01-9X	A	X													
5177J-193001	Taylor		X			V									Density
601SN33-7	Forge														
RA-01-7X	BRI	X													
RA017X	A														RT film date on Film 8/22/77. (White out on reports)
RA017X	H														RT Report Date on Report 8/19/77.
RA-01-9X	E	X													
5377J/193001	Taylor		X			V									Density
601SN35-7	Forge														
RA01-14X	BVZA21 121377														
RA01-14X	ABCD	X													

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ITT Grinnell																
B21-G001																
RA-01-14X	BVA		X													