

WATTS BAR NUCLEAR PLANT

TECHNICAL INSTRUCTION

TI-31.13

WALL THICKNESS MEASUREMENT OF
PIPING, TANKS, FLANGES, AND VESSELS

CURRENT REVISION LEVEL: 2

Responsible Section Codes and Standards

Prepared By S. L. Lingenfelter

Revised By G. L. Johnson

Submitted By *Joseph L. Singer*
Supervisor

PORC Review Date 8/23/85

Approved By *M. L. Ull*
Plant Manager

Date Approved 8/23/85

- IC Doc Control Unit, 1520 CST2-C
- NRC
- IC NSRS, 249 A HBB-K
- IC Plant Master File
- Plant Manager
- Supt (C&E)
- Supt (Maint)
- Plant Adm Svs Supv
- ASE Duty Station
- Building Services Supv
- Chem Lab
- Chem Engg Unit Supv
- Chief, Nuclear Safety Staff
- IC Chief, Nuclear Training Branch
- Chief, Quality Audits Br, 1350 CUBB-C
- Compliance Unit
- Component Engg & Svs Group
- DPSO-WBN
- Dwg & Vendor Manual Supv
- Elect Maint Supv
- IC Engg Section Supv
- Health Physics Supv
- Health Physics Lab
- Industrial Safety Supv
- IC Instr Maint Supv
- IC Instr Shop
- Materials Unit Supv
- IC Mech Maint Supv
- IC Mech Engg Unit Supv
- IC Modifications Manager
- Operating Instruction Coordinator
- IC Operations Supv
- IC Operations Training Sect Supv
- Operator Training Classroom
- P&S Supv
- IC Plant QA Supv
- Plant Training Officer
- Power Stores Unit Supv
- Preop Test Supv
- Public Safety
- Reactor Engg Unit Supv
- IC Shift Engr's Office
- Staff Reference Copy
- Support Svs Supv
- Tech Support Center
- IC Unit 1 Control Rm
- IC Unit 2 Control Rm
- IC John Raulston, NEB, W10A63 C-K
- Site Director
- IC Watts Bar Tech Svs
- Design Svs Manager
- IC Inservice Inspection
- IC Mech. Maint Shop Office
- IC Metallurgy & Cells Section - 1416 2512

Last page of this instruction: 5

OS/6 353

WBN
TI-31.13
Page 1 of 1
Revision 2

PUNCHLIST

1. RCW grids 4 and 5 and main steam grids 1 thru 17 to have minimum wall thickness established later.
2. TS-09.01.01.14.02 revision changing responsibility for data review from NCR Metallurgy and Codes Section to Site Services Codes and Standards has not been issued yet.

Joseph L. Inger | *Aug 23, 1985*
Signature Date

1.0 SCOPE

This instruction is for ultrasonic examination of piping, tanks, flanges, and vessels for wall thinning conditions, such as pitting, erosion, and corrosion.

2.0 REFERENCES

2.1 Source Document

- 2.1.1 Inspection program IS 09.01.01.14.02
- 2.1.2 Memo D. W. Wilson to J. C. Sandifer dated 4/22/85 (B26 850422 041)
- 2.1.3 Memo J. C. Standifer to D. W. Wilson dated 7/5/85 (B26 850705 010)

2.2 Other Document

- 2.2.1 Quality Engineering Manual, procedure N-UT-26 and N-UT-35

3.0 TEST EQUIPMENT

- 3.1 Krautkammer-Branson flow detection/thickness measurement instrument Model USL-38.
- 3.2 A 5 MHZ, longitudinal wave, 1/2 to 3/4 inch, pulse echo transducer.
- 3.3 A dual element, 1/4- to 1/2-inch diameter search unit.
- 3.4 Couplant material (petroleum jelly or Ultra-Gel), TI-35 approved.

4.0 PRECAUTIONS AND PREREQUISITES

- 4.1 Use proper ear and eye protection.
- 4.2 Prior to working in any suspected radiation or contaminated areas notify HP for assistance.
- 4.3 Personnel must be qualified Level II or III for reading scope.

5.0 RESPONSIBILITIES

- 5.1 The Codes and Standards Section shall be responsible for proper location, marking, and identification of grids.
- 5.2 The Codes and Standards Section shall complete the top portion of the data sheet and furnish drawings/sketches showing identification and location of each grid to be examined.
- 5.3 The NDE Inspection Section shall be responsible for performance of wall thickness measurements. They shall complete the remaining portions of the data package. The completed data package shall be forwarded to the Codes and Standards Section.
- 5.4 The Codes and Standards Section shall be responsible for reviewing and evaluating wall thickness measurements.

6.0 INSTRUCTIONS

- 6.1 Wall thickness measurements shall be performed in accordance with Quality Engineering Manual, procedure N-UT-26 for thicknesses up to and including 1/2 inch and N-UT-35 for flanges. Record only minimum thickness.
- 6.2 Field calibration of the test instrumentation shall be in accordance with the requirements of the referenced procedure number.

7.0 ACCEPTANCE CRITERIA

- 7.1 Wall thicknesses less than the listed minimum shall be either repaired prior to return to service or evaluated by the Office of Power and Engineering and determined acceptable.

ERCW GRIDS

GRID NUMBER	MIN WALL (IN)	GRID NUMBER	MIN WALL (IN)
1,2,3,6,7,8,14 59,61,63	0.127	22	0.135
9,13,15,16,17,18 60	0.096	23,24	0.1085
10	0.153	25,31,37,43	0.1195
11	0.060	26 thru 30	0.1085
12	0.107	32 thru 36	0.1085
19	0.206	38 thru 42	0.1085
20	0.215	44 thru 46	0.1085
21	0.101	47 thru 54	0.091
51A, 51B, 62	0.227	52A	0.240
52B	0.236	56, 57	0.168
53	0.074		

RCW grids 4 and 5, and main steam grids 1 through 17 to have minimum wall thickness established later.

DATA PACKAGE COVER SHEET

WALL THICKNESS MEASUREMENT OF
PIPING, TANKS, FLANGES, AND VESSELS

Reason for inspection:

- Periodic
- Repairs Complete on Grid _____
- Other

Number of data sheets attached _____

Data package assembled by: _____ Date _____
Codes and Standards

Data package reviewed by: _____ Date _____
Codes and Standards

Remarks:

PIPE GRID DATA SHEET

UNIT _____ SYSTEM _____ GRID NUMBER _____ PIPE DIAMETER _____
SCHEDULE/NOMINAL WALL _____ EXAMINER _____ DATE _____
INSPECTION INSTRUMENT ID # _____ CAL DUE DATE _____

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A																					
B																					
C																					
D																					
E																					
F																					
G																					
H																					
I																					
J																					
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V																					
W																					
X																					
Y																					
Z																					

FLANGE DATA SHEET

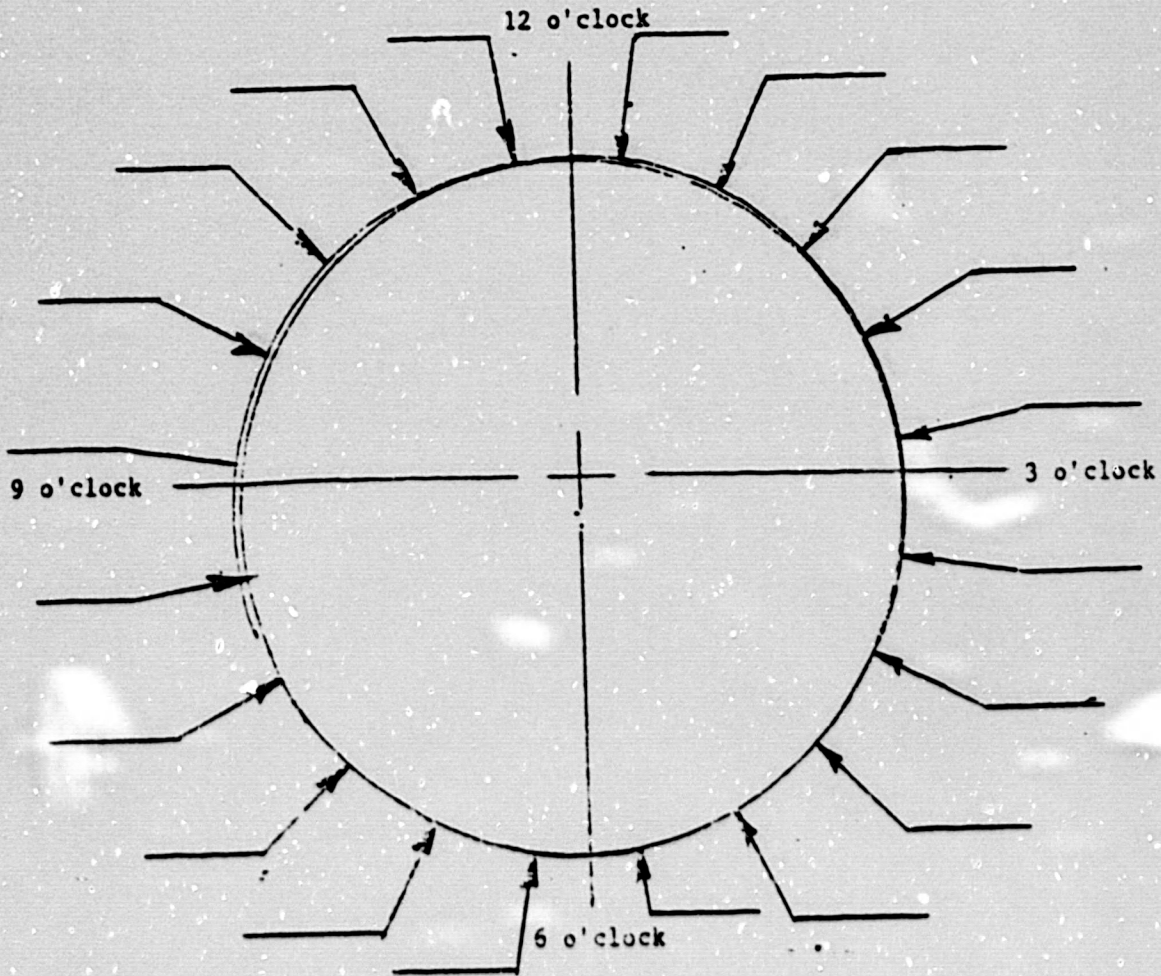
UNIT _____ SYSTEM _____ GRID NUMBER _____ PIPE DIAMETER _____

FLANGE: Adjacent To Grid Examiner _____

Opposite Grid Date _____

Inspection Instrument ID # _____

Cal Due Date _____



1C Document Control Unit-C
 1C Nuclear Safety Review Staff
 1C Plant Master File
 Plant Manager
 Plant Supt. (Oper & Eng)
 Plant Supt. (Maint)
 ASE Duty Station
 Building Svs. Supv.
 Chemical Laboratory
 Chemical Unit Supv.
 Chief, Operations QA Branch
 1C Chief, Nuclear Training Branch
 Chief, Nuclear Safety Staff
 Compliance Unit Supv.
 DPSO Supv. - WB
 Drawing & Ven. Man. Unit Supv.
 Electrical Maint. Supv.
 Engineering Group Supv.
 1C Engineering Supv.
 1C Plant QA Supv.
 1C Health Physics Supv.
 1C Instrument Maint. Supv.
 1C Instrument Shop
 1C Mechanical Maint. Supv.
 1C Inservice Inspection

1C Mech. Maint. Shop Office
 1C Mech. Unit Supv.
 1C Modifications Mgr.
 NRC
 Materials Unit Supv.
 Operating Instruction Coord.
 1C Operations Supv.
 Operations Training Classroom
 Planning & Scheduling Supv.
 Plant Training Officer
 1U Plant Training Shift Eng.
 1C Power Stores Supv.
 Preop Test Supv.
 Public Safety Supv.
 1C John Raulston, NEB
 Reactor Unit Supv.
 1U Regulatory Engineer
 Safety Section Supv.
 1C Shift Engineer's Office
 Component Engg & Svs Group
 Support Svs. Supv.
 Technical Support Center
 1C Unit 1 Control Room
 1C Unit 2 Control Room
 1U Metallurgy & Codes Section-1410 CST2

TRW

TO: Those Listed

FROM: Document Control Supv., NUC PR, Watts Bar Nuclear Plant

DATE: 2/25/85

SUBJECT: Transmittal of Watts Bar Nuclear Plant Instructions

Due to our requirements, there is a ten-day limit:

1. to acknowledge receipt of the following material,
2. to affirm that it has been placed in the appropriate manual,
3. to update the table of contents, and
4. to remove and discard the superseded instruction.

<u>INSTRUCTION #</u>	<u>REMOVE AND DESTROY PAGES</u>	<u>INSERT PAGES</u>	<u>DATE/REVISION</u>
TI-31.13	All	All	2/26/85 R1

Return to: Document Control Supv., TSOB, NUC PR, Watts Bar Nuclear Plant

Signature/Date