North Atlantic

North Atlantic Energy Service Corporation
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The Northeast Utilities System

Ted C. Feigenbaum
Senior Vice President &
Chief Nuclear Officer

NYN-95 084

October 25, 1995

United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

References: (a) Facility Operating License No. NPF-86, Docket No. 50-443

(b) North Atlantic Letter NYN-95081, dated October 16, 1995, "Relief Request From ASME Code Section XI Requirements," T. C. Feigenbaum to USNRC

(c) North Atlantic Letter NYN-94115, dated October 12, 1994, "Service Water System Piping Degradation," T. C. Feigenbaum to USNRC

(d) NRC Generic Letter 90-05 "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping," June 15, 1990

Subject: Supplement to Relief Request From ASME Code Section XI Requirements and Results of Augmented Inspections

Gentlemen:

The purpose of this letter is to revise a relief request from the ASME Boiler and Pressure Vessel Code Section XI requirements as submitted by North Atlantic Energy Service Corporation (North Atlantic) in a letter dated October 16, 1995 [Reference (b)]. This letter also transmits the results of augmented inspections performed to support this relief request. The subject relief request, which was made pursuant to both NRC Generic Letter 90-05 and 10CFR50.55a(g)(6)(i), was in regard to a temporary non-code repair to a leak in the Service Water (SW) System line 1802-14-153-24" (Class 3) at field weld SW-1802-F0901. The non-code repair, a soft rubber gasket secured with a mechanical clamp, was completed on October 15, 1995, and had successfully isolated the leak.

Subsequently, on October 18, 1995, this same weld exhibited leakage from two additional locations. These new leaks were found on the portion of the weld that had previously been prepared (i.e., flat-topped) for ultrasonic examination. One of the leaks is located approximately 90 degrees circumferentially from the original flaw and the second leak is located less than 0.25-inches from the original leak and is part of the original flaw. The total leakage from both flaws at this field weld is estimated to be less than 0.5 gallons per hour. Additional ultrasonic examinations have been performed on this weld using both a scanning technique and a Digital Thickness Meter (DTM) to obtain the profile of the flaws and to determine if additional degradation was present. The scanning technique is more rigorous for identifying additional degradation than solely using a DTM, as was initially used on this weld for the results described in Reference (b). The scanning examination confirmed the profile of these flaws. No other areas of this weld were found to be less than the calculated minimum wall thickness. As before, approximately 25% of this weld was not examined since weld preparation for ultrasonic examination was stopped immediately upon discovery of the initial through-wall leak.

Accordingly, North Atlantic requests relief for a temporary non-code repair of the additional leak locations at this weld. Enclosure 1 revises the basis for relief that was submitted via Reference (b) to address the current condition of this weld. This enclosure addresses the elements of NRC Generic Letter 90-05 including safety significance, root cause, stress analysis, and flaw characterization for this degraded weld. North Atlantic believes that this condition is due to long term degradation or improper application of the compound used to seal the cement pipe liner between field welds, which permitted sea water to come in contact with the carbon steel piping causing localized pitting corrosion at this unprotected field weld. Code repair of the field weld SW-1802-F0901 will be completed during the upcoming refueling outage, which is scheduled to begin on November 4, 1995. The NRC Resident Inspectors for Seabrook Station were notified of the additional repairs, which successfully stopped the leakage.

In accordance with NRC Generic Letter 90-05, and as committed to in Reference (b), North Atlantic completed augmented ultrasonic inspections at five additional field welds in the Service Water System. These welds were of similar configuration, fabrication, and service environment. One weld, SW-1802-F0801, exhibited localized wall thinning (wall thickness of 0.110-inches) of less than the calculated minimum wall thickness of 0.120-inches. One other location on this weld exhibited somewhat less degradation (wall thickness of 0.220-inches). The degradation exhibited at this weld is believed to be caused by the same corrosion mechanism that was experienced at field weld F0901. North Atlantic has evaluated the degradation observed at this weld and has concluded that it does not adversely affect operability of the Service Water System. This evaluation is provided as Enclosure 2 to this letter. Code repair of field weld SW-1802-F0801 will be completed during the upcoming refueling outage.

It should be noted that one other field weld, SW-1802-F1001, initially exhibited two locations of wall thinning of less than minimum wall thickness. These readings were taken on the pipe wall outside of the weld area. Subsequent evaluation determined that these readings were caused by inclusions in the base metal during manufacturing and were not the result of corrosion. These inclusions are acceptable per the code and they do not adversely affect system operability nor require repair.

The three other welds in this first sample of five were found to be acceptable with no locations that are less than the calculated minimum wall thickness. However, as a result of the degradation found at field weld SW-1802-F0801, North Atlantic expanded the sample size of the augmented inspections to include a second set of five additional field welds. The results of these examinations indicate that all five additional welds are acceptable with no locations that are less than the calculated minimum wall thickness. The ultrasonic examination data sheets for these five welds, in addition to the four aforementioned welds that were also determined to be acceptable in the first set of five welds, are provided in Enclosure 3. The successful completion of the examinations for the second set of five welds satisfies and completes the augmented inspection requirements of NRC Generic Letter 90-05. Similarly, this letter satisfies the reporting requirements of the generic letter. Notwithstanding this, North Atlantic intends to ultrasonically examine 29 other above ground field welds in the "B" Train Service Water System by the completion of the upcoming refueling outage. North Atlantic had previously described its intent to perform these inspections in Reference (c).

This letter and its enclosures have been reviewed and approved by the Station Operation Review Committee (SORC).

Should you have any questions regarding this letter, please contact Mr. James M. Peschel, Regulatory Compliance Manager, at (603) 474-9521 extension 3772.

Very truly yours,

Bruce L. Drawbridge for

Ted C. Feigenbaum

TCF/JES:jes

Enclosures

cc: Mr. Thomas T. Martin
Regional Administrator
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Mr. Albert W. De Agazio, Sr. Project Manager
Project Directorate I-4
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Mr. John B. Macdonald
NRC Senior Resident Inspector
P.O. Box 1149
Seabrook, NH 03874

North Atlantic
October 25, 1995

ENCLOSURE 1 TO NYN-95084

OPERABILITY DETERMINATION FORM

ACR No. 95-316

ODF No. ____________

DESCRIPTION

PRELIMINARY ☒ FINAL ☐

1. Affected structure, system or component SERVICE WATER
2. Description of degraded or nonconforming condition THROUGH-WALL LEAK IN FW 1802-F0901
3. Operable ☒ Inoperable ☐
4. Basis for operability determination See attached
(use additional sheets as required)

Prepared by: [signature] Date: 10/19/95

APPROVAL

I. PRELIMINARY OPERABILITY DETERMINATION

Operations Manager: [signature] Date: 10/19/95 1515

II. FINAL OPERABILITY DETERMINATION

Assigned Responsible Manager: ____________ Due Date: ____________
(assigned by Operations Manager)

ACR Responsible Manager: ____________ Date: ____________

Manager of Engineering: ____________ Date: ____________
(when supplying analyses or evaluations)

Technical Support Manager: ____________ Date: ____________

Regulatory Compliance Manager: ____________ Date: ____________

Operations Manager: ____________ Date: ____________

SORC REVIEW

SORC Chairman: ____________ Meeting No. ____________

EXTENSION APPROVAL

PRELIMINARY ☐ FINAL ☐ Extended Due Date: ____________

Station Manager: ____________ Date: ____________

SEABROOK STATION
FORM FOR RELIEF REQUEST FROM ASME SECTION XI REQUIREMENTS

ACR # 95-316 DATE: 10/18/95 TIME: Approx. 1600

1.0 ORIGINATOR

1.1 DESCRIPTION OF FLAW

There are two through wall flaws causing leakage from Field Weld SW-1802-F0901 on line 1802-14-153-24". One flaw has leakage at two locations approximately 1/4" apart. This field weld connects line 1802-14 to line 1802-5-153-24" and is downstream of the normally closed "B" train strainer bypass valve SW-V66. (Refer to Attachment 1)

These leaks are located in the Service Water Strainer Room at elevation 53' in the PAB. Since routine strainer basket cleaning is performed in this room, the area is very well drained. Each leakage location can be characterized as a pinhole. The first flaw which has two leakage sites is located at approximately 285° relative to plant North (75° relative to the UT coordinate system). The second flaw which has a single leakage site is oriented at plant North (0° on the UT coordinate system). The total leak rate is estimated to be less than 0.5 gallons per hour.

Piping/Component Drawing No.:

The piping is carbon steel with 3/8" thick cement lining as detailed on sketch 804998 of specification 248-2 (Refer to Attachment 2).

P&ID No.:

1-SW-B/D20795

1.2 IMPRACTICALITY OF CODE REPAIR

It was determined not practical to perform a code repair of the leaking SW line at this time. A code repair on this line would require partial draindown of SW Train "B", resulting in the inoperability of the two ocean SW pumps and the cooling tower pump within this train.

Inoperability of an entire SW Loop is allowed by Technical Specification 3/4.7.4a "Service Water System/Ultimate Heat Sink" for up to a 72 hour period. However, due to system configuration, both trains are needed to disipate normal plant heat loads. Furthermore, the allowed outage time may not be sufficient to perform a code repair, thus entry into Technical Specification 3.0.3 would be required and a plant shutdown would ensue.

1.3 DESCRIPTION OF PROPOSED TEMPORARY REPAIR

A soft rubber gasket with mechanical clamp has been installed.

1.4 **SAFETY SIGNIFICANCE** System Interaction Evaluation

Flooding:

There is a leak of less than 0.5 gallons per hour coming from these pinhole through-wall flaws in this 24" diameter field weld. Ultrasonic Examination has confirmed that there are no additional locations below required Code minimum wall thickness at this field weld.

The leakage is well contained within the Service Water Strainer Room, elevation 53' of the PAB. More than adequate drainage exists to preclude flooding.

Jet Spray:

There are no safety related power supplies that could be disabled as a result of the jet spray from these flaws. Motor operated valves SW-V4 and V5, located in this room, have an active safety related function. The valves are at least 20 feet from the location of the leakage and are well shielded by large pipe and grating from any spray, should it develop.

Loss of Flow:

Loss of SW through these flaws is insignificant to the Service Water Pump or Cooling Tower Pump capacity to supply design flow during an accident combined with LOP. One Service Water Pump must supply 8,550 gpm or 12,215 gpm from one Cooling Tower Pump to satisfy design heat loads from ECCS and the Emergency Diesel Generator. These requirements assume maximum permissible IST pump degradation (93% Head) and maximum IST instrument uncertainty in a Post-LOCA/Loss of Offsite Power scenario. Since the SWP's and CTP's are currently capable of operating at 100% capacity with no observable degradation, there is significant flow margin available with respect to these values.

Other Interactions:

None

Failure Consequences:

Significant degradation of this weld could result in SW "B" train inoperability. Because of system configuration, both trains of SW are needed to dissipate normal plant heat loads. Thus, a forced shutdown would commence.

System pressure loss via the postulated break would most likely cause a tower actuation signal to occur. Since this line is within the pressure boundary of the SW system when on the tower, a manual shutdown of cooling tower pump SW-P-110B would be required to preclude basin pumpdown to an unacceptable level.

There is no interaction with the SW "A" train which alone can accommodate design base heat loads.

Impact to Safe Shutdown Capability:

As described above, the SW "A" train would be unaffected by significant degradation of this "B" train weld. The "A" train alone is sufficient for safe shutdown decay heat removal heat loads or heat loads during a design base event with LOP. The SW "B" Train is also fully capable of bringing the plant to a safe shutdown condition even with the presence of leakage through these two flaws.

1.5 ROOT CAUSE INVESTIGATION

Root Cause Description:

Localized long term degradation or improper application of X-Pando or Sikadur Low-Mod-Gel joint compound permitted sea water to come in contact with the carbon steel piping substrate/weld. Pitting corrosion then caused accelerated local attack at this unprotected field weld.

Other Systems Affected:

None

1.6 AUGMENTED INSPECTION

Assessment of overall degradation of the affected system:

These leaks are typical of localized joint compound flaws at field welds in the carbon steel SW piping. This is the first case of a through wall leak in a 24" piping field weld. UT inspections conducted during OR-03 on A-Train PAB and CT field welds revealed that of 49 welds inspected, 2 had base metal degradation. Each of these welds had sufficient margin with respect to required Code minimum wall thickness. One of the two degraded welds (1801-F0701) was the identical A-Train counterpart to the weld currently being evaluated (1802-F0901). Visual and UT inspection of A and B Train field welds in the SWPH during OR-03 also revealed several degraded field welds. None of these welds were below Code minimum required wall thickness.

Based on past system history, once pitting commences the resulting flaws are very localized in nature and do not represent a piping structural integrity problem. Based upon the data collected to date, only a small percentage of the total population of field welds are potentially subject to this degradation mechanism.

An ultrasonic examination of the weld circumference was performed. The only wall loss reported is local to the flaw locations. It should be noted that approximately 25% of this weld could not be examined because the weld preparation needed for UT was stopped upon discovery of the initial through wall leak.

Additional examinations required (based on root cause) - specify number of inspection locations - also specify frequency of inspections: (ten most susceptible and accessible locations for high energy systems and five for moderate energy piping systems)

Preliminary Ultrasonic Examinations have been performed at five additional locations in the SW "B" train (Attachment 3):

24" shop weld at the strainer bypass Tee (upstream side)
24" shop weld at the strainer bypass Tee (downstream side)
24" shop weld in the strainer bypass (elbow below flaw location)
16" field weld at the 24"x16" Tee to the DG Heat Exchanger
24" field weld at an elbow downstream of SW-V-67

All additional locations evaluated were found acceptable. At least three additional field weld locations will be included in the augmented inspection plan. These locations and finalized UT results will be submitted in a supplement to this Relief Request.

Description of areas selected for augmented inspection:

These locations will be of similar fabrication, configuration, and service environment.

2.0 STRESS ANALYSIS

2.1 DESIGN DETAILS

System: Service Water "B" train. In the bypass line for Strainer SW-S-11 and Downstream of valve SW-V-66.

Component: Field weld connecting a straight section of 24" diameter pipe and a 24 " diameter Tee fitting.

Component Size: 24" diameter cement lined carbon steel pipe.
24" x 24" x 24" cement lined carbon steel Tee.

Nominal Wall Thickness: 0.375"

Safety Code Class: Class 3

Material: SA-106, Gr B

Design Pressure: 150 psig

Design/Operating Temperature: 200/34-90 degrees F

Code Minimum Wall Thickness: 0.121"

2.2 FLAW CHARACTERIZATION

Flaw Description/Size: (i.e., flaw size, adjacent wall thickness, single/multiple flaw, total area examined, etc.)

The flaws are localized. The first flaw (75° location on the UT coordinate system) has two pinhole leakage points approximately 1/4" apart. The flaw is eliptical in shape and shown in detail in the attached UT Examination Report per Attachment 3, page 5. The second flaw (0° location on the UT coordinate system) has a single leakage location and is shown in detail on Attachment 3, page 4.

Flaw Location: The flawed field weld is located downstream of SW-V-66.

Method Examination: UT
Note: Approximately 25% of this weld could not be examined since weld prep. for UT was stopped immediately upon discovery of the first through wall leak)

Flaw Type: Through wall flaws due to joint compound degradation and subsequent pitting corrosion.

Referenced UT Measurements: Attachment 3

2.3 FLAW EVALUATION SUMMARY

Method Used:

"Through-Wall Flaw" Approach (GL 90-05). This method very conservatively utilizes a through wall flaw of 1" length and evaluates the flaw stability by a linear elastic fracture mechanics methodology.

Results of Evaluation:

Loading conditions included dead weight, pressure, thermal, and seismic. All code stress equations were considered and determined to be acceptable. The stability of the flaws was evaluated for all loading conditions and determined to be acceptable. Results of this evaluation are summarized below:

ASME III, SUBSECTION ND, STRESS EVALUATION			
DESIGN CONDITION	ACTUAL STRESS (PSI)	ALLOWABLE STRESS (PSI)	ACTUAL / ALLOWABLE
Normal	2,556.	15,000.	0.11
Upset	5,818.	18,000.	0.32
Faulted	7,600.	27,000.	0.28

FLAW STABILITY CHECK		
STRESS INTENSITY FACTOR (KSI(IN)$^{1/2}$)		FACTOR OF SAFETY
ACTUAL	CRITICAL	CRITICAL/ACTUAL
23.24	35.0	1.50

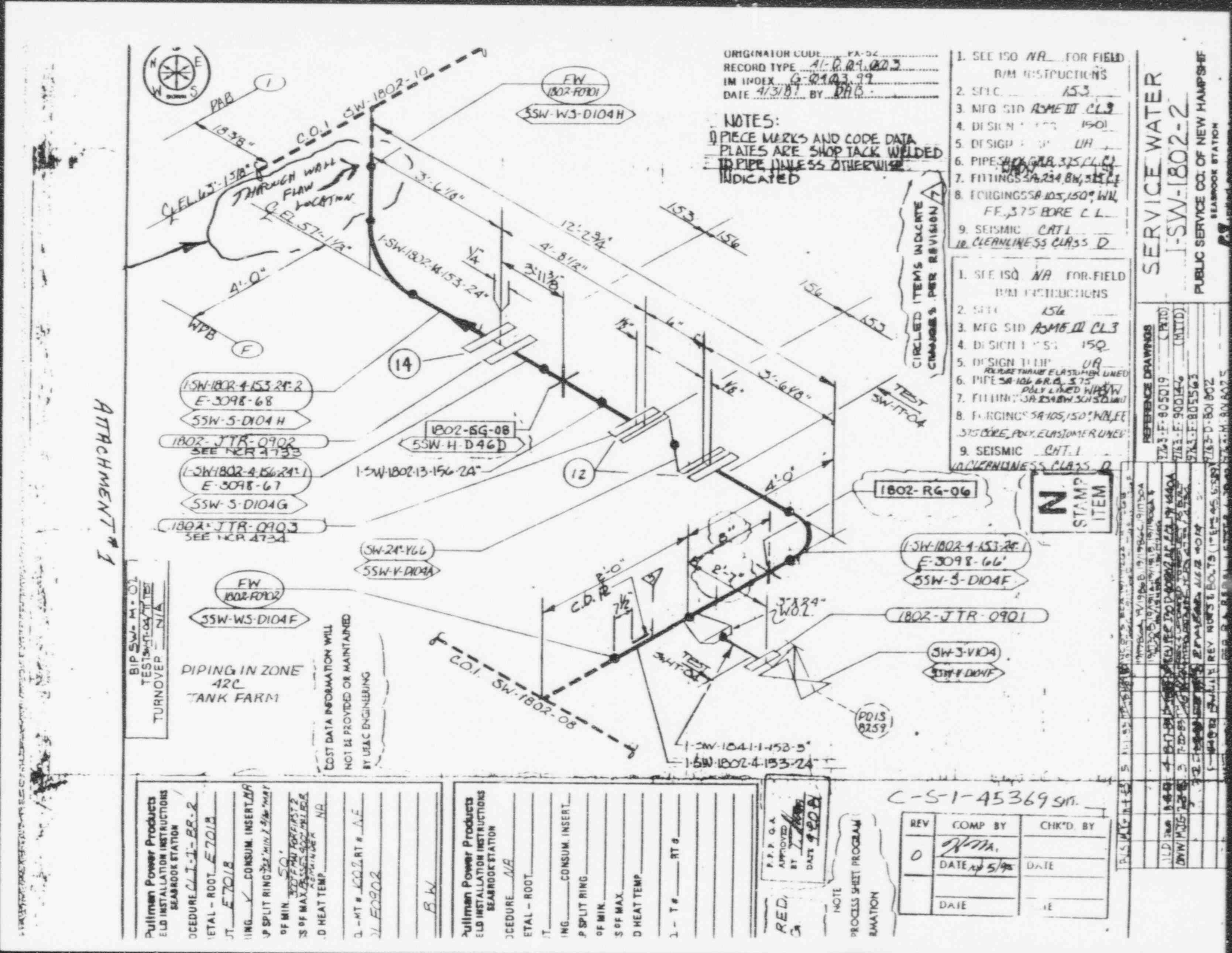
2.4 FLAW MONITORING

Walkdown Frequency: (for leak monitoring)

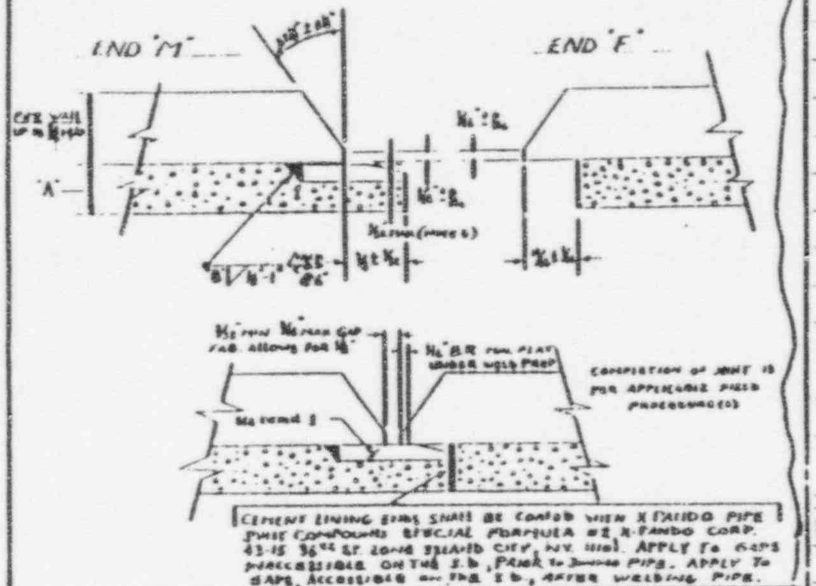
At least once per week.

Frequency of Follow-up NDE: (for erosion rate assessment)

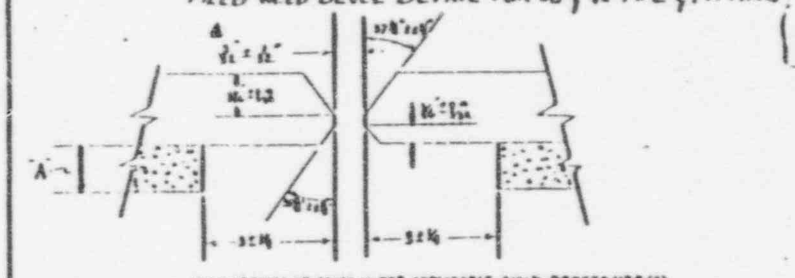
At least once every three months

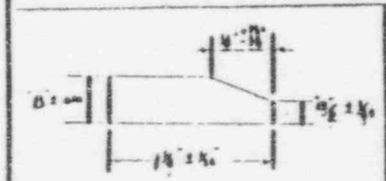

ORIGINATOR CODE PX-52
RECORD TYPE A1-C04.003
IM INDEX G-0103.99
DATE 4/3/87 BY DAB
NOTES:
1) PIECE MARKS AND CODE DATA PLATES ARE SHOP TACK WELDED TO PIPE UNLESS OTHERWISE INDICATED
1. SEE ISO NA FOR FIELD B/M INSTRUCTIONS
2. SPEC. 153
3. MFG STD ASME III CL3
4. DESIGN PRESS 150
5. DESIGN TEMP UR
6. PIPE SA 106 GR.B .375 C.L.
7. FITTINGS SA 234 BW .375 C.L.
8. FORGINGS SA 105, 150# WN, FF, .375 BORE C.L.
9. SEISMIC CAT I
10. CLEANLINESS CLASS D
1. SEE ISO NA FOR FIELD B/M INSTRUCTIONS
2. SPEC 156
3. MFG STD ASME III CL3
4. DESIGN PRESS 150
5. DESIGN TEMP UR
6. PIPE SA 106 GR.B .375 POLY LINED WPBW
7. FITTINGS SA 234 BW SCH 80 LINED
8. FORGINGS SA 105, 150# WN, FF, .375 BORE, POLY ELASTOMER LINED
9. SEISMIC CAT. I
10. CLEANLINESS CLASS D
CIRCLED ITEMS INDICATE CHANGES PER REVISION
SERVICE WATER
1-SW-1802-2
PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
REFERENCE DRAWINGS
PAB
WPB
C.O.1 SW-1802-10
C.O.1 SW-1802-08
THROUGH WALL FLAW LOCATION
C.EL 57'-1 1/2"
C.EL 63'-1 3/8"
FW 1802-F0901
5SW-WS-D104H
FW 1802-F0902
5SW-WS-D104F
1-SW-1802-4-153-24"
1-SW-1802-4-153-24"-2
E-3098-68
5SW-S-D104H
1802-JTR-0902
SEE NCR 4733
1-SW-1802-4-156-24"-1
E-3098-67
5SW-S-D104G
1802-JTR-0903
SEE NCR 4734
1802-SG-08
5SW-H-D46D
1-SW-1802-13-156-24"
SW-24"-V66
5SW-V-D104A
1802-RG-06
1-SW-1802-4-153-24"-1
E-3098-66
5SW-S-D104F
1802-JTR-0901
SW-3-V104
5SW-V-D104F
1-SW-1841-1-153-3"
1-SW-1802-4-153-24"
TEST SW-IT-04
N STAMP ITEM
ATTACHMENT #1
BIP SW-M-01
TEST SW-IT-04
TURNOVER N/A
PIPING IN ZONE 42C TANK FARM
COST DATA INFORMATION WILL NOT BE PROVIDED OR MAINTAINED BY UE&C ENGINEERING
Pullman Power Products
FIELD INSTALLATION INSTRUCTIONS
SEABROOK STATION
C-S-1-45369 SHT.
REV
COMP BY
CHK'D. BY
DATE
PROCESS SHEET PROGRAM

FIELD WELD BEVEL DETAIL FOR 4" THROUGH 32" PIPE & FITTINGS



FIELD WELD BEVEL DETAIL FOR 38" & 42" PIPE & FITTING





DETAIL 1

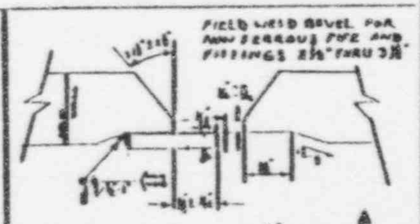


TABLE 1

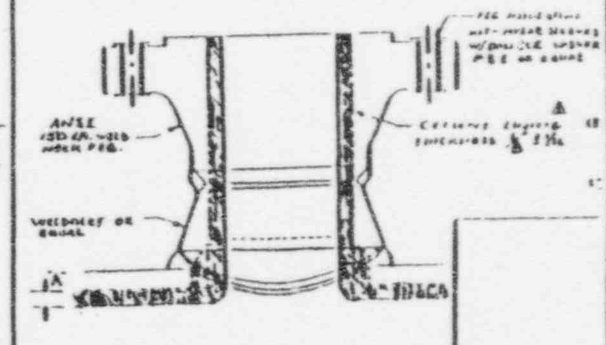
O.D.	I.D.	C-Bore	t_{min}	t_{nom}	"A"	"B"
42"	41.000	—	—	.500"	1/2"	0.250
38"	37.000"	—	—	.300"	3/8"	0.250
32"	31.000	30.938"	—	.300"	3/8"	0.250
24"	23.250"	23.303	.375"	—	3/8"	0.250
20"	19.250	19.303"	.375"	—	5/16"	0.187
16"	15.250	15.303"	.375"	—	5/16"	0.187
12"	12.000	12.053	.375"	—	5/16"	0.187
10"	10.020"	10.070"	.365"	—	1/4"	0.125
8"	7.981"	8.030"	.322"	—	1/4"	0.125
6"	6.065	6.094"	.280"	—	1/4"	0.125
4"	4.026"	4.044"	.237"	—	1/4"	0.125

TABLE 2 / DETAIL 2

PIPE SIZE	TAPER LENGTH "L"	[illegible]
4"	3"	3 1/2
6"	3 1/2	4"
8"	4"	4 1/2
10"	4"	4 1/2

1. A COATING OF GREGG'S SEAL COAT SHALL BE APPLIED TO THE I.D. OF THE CEMENT LINING PRIOR TO THE CEMENT CURE.
2. ACCESSIBLE TO THE I.D. SHOP WELDS CAN BE OPEN JOINT WITH A TIG ROOT PROVIDED THE DEFECTIVE AREAS OF THE ROOT WELD ARE BACK CHIPPED TO SOUND METAL AND REWELDED FROM THE I.D. (COUNTERBORE AS NEEDED)
3. INACCESSIBLE TO THE I.D. SHOP WELDS SHALL REQUIRE A "Y" TYPE CONSUMABLE INSERT. (COUNTERBORE AS NEEDED)
4. THE SELLER SHALL [illegible] CALIPER (APPROVED BY PURCHASER) FOR DETERMINING WHEN COUNTERBORING/[illegible] OF PIPE ENDS IS REQUIRED FOR PIPING 4" NPS THROUGH 32" NPS.
5. PRIOR TO CEMENT LINING APPLICABLE SPOOLS SHALL HAVE BACKING RINGS WHICH FIT TO PIPE ENDS. AFTER TACK WELDING OF RING THE MAXIMUM GAP BETWEEN RING AND PIPE I.D. SHALL BE 1/32 INCH. SPLIT RINGS SHALL HAVE SPLIT WELDED DURING OR PRIOR TO FIT UP TO FORM A SOLID RING. THE SPLIT RING WELD SHALL MEET THE SAME QUALITY REQUIREMENTS AS THE WELD JOINT.
6. 4", 6", 8" AND 10" NPS FLANGE END SPOOLS WHICH ARE NOT RECEIVING POLYURETHANE INSERTS PER D-804779 AND ARE ABUTTING TO BUTTERFLY VALVES SHALL HAVE [illegible] CEMENT TAPER LINING AS SHOWN ON TABLE 2/DETAIL 2 (SEE FIELD PROCEDURES AND SPECIFICATION 9763-006-248-2 FOR FURTHER DETAILS)

2" THROUGH 3 1/2" INSTRUMENT CONNECTIONS TO CEMENT LINED PIPE



NOTE: THIS DWG SUPERCEDES 9763-M-804778 REV 8
THIS DWG NOT TO SCALE
THIS DWG IS PART OF SPEC 9763-006-248-2

3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible] SPEC 248-2	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible] TO SPEC 248-2	[illegible]	[illegible]	[illegible]	[illegible]
0	[illegible]	ISSUED FOR CONSTRUCTION	[illegible]	[illegible]	[illegible]	[illegible]
NO.	DATE	REVISIONS				

PIPE END JOINT DESIGN FOR CEMENT LINED AND NON FERROUS PIPING

PUBLIC SERVICE CO OF NEW HAMPSHIRE

SEABROOK STATION

United Engineers [illegible]

9763-D-804778

SPEC 9763-006-248-2
PAGE NO. 35

ATTACHMENT #2

ATTACHMENT 3 P. 1 pg 1 of 3

ULTRASONIC THICKNESS EXAMINATION REPORT

LOCATION 1SW1802-F0901 SYSTEM SW WORK REQUEST 95W002446

EXAMINATION AREA/RESULTS

DESCRIPTION OF EXAMINATION AREA AND RESULTS

SW 1802-F0901

SKETCH (Include obstructions, components, extensions, etc.)

☑ ATTACHED

EXAMINED [signature] LEVEL III DATE 10-18-95

EXAMINED [signature] LEVEL II DATE 10-18-95

EXAMINATION RESULTS

☐ ACCEPTABLE ☑ EVALUATION REQ'D

REVIEWED ______ LEVEL ___ DATE ____

REVIEWED ______ DATE ____

Responsible Engineer

INSTRUMENT DATA

INSTRUMENT: MFG/MODEL Sonic 136 GTE/SN GTE 2646

☑ CRT ☐ CRT/DIGITAL ☐ DIGITAL ☑ HORIZONTAL LINEARITY PERFORMED (Acceptable)

COMP SURFACE TEMP >125° ☑ NO ☐ YES FLS No. N/A CAL DUE DATE N/A

					TIME CHECKED
CAL BLOCK MAT'L ___	THICKNESS	.100"	.300"	.500"	
	FLS NO.	6330	6330	6330	
	Cal. Due Date	9-20-98	9-20-98	9-20-98	
CALIBRATION CHECK	INITIAL	.100"	.300"	.500"	1540
	INTERIM				
	INTERIM				
	INTERIM				
	FINAL	.100"	.300"	.500"	1810

TRANSDUCER

☐ PITCH / CATCH

☑ PULSE / ECHO

MFG. KRAUTKRAMER

SER# 06894

SIZE 3.5x10mm FREQ. 4 MHz

COUPLANT

MFG. ULTRAGEL II

BATCH # 092121

ENGINEERING EVALUATION ☐ N/A ☐ ATTACHED ☐ SEE BELOW

EVALUATION/COMMENTS

☐ ACCEPT ☐ REPAIR/REPLACE Responsible Engineer ______ Date ____

ATTACHMENT 3
D. 2

Line No. 1902 Weld No. F0901

QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90 U/S	.24"	@ 0°	0°	.75" FROM ℄
WELD	.10"	3 3/8"	90°	U/S SIDE OF CROWN
D/S	.38"	4 1/2"	90°	.75" FROM ℄
90-180 U/S	.35"	3 1/2"	180°	.75" FROM ℄
WELD	.20"	3 1/2"	180°	U/S SIDE OF CROWN
D/S	.35"	3 1/2"	180°	.75" FROM ℄
180-270 U/S	.36"	3"	180°	3" FROM ℄
WELD	.35"	@180°	180°	@ ℄
D/S	.36"	5 1/2"	180°	.75" FROM ℄
270-0 U/S	.24"	@0°	0°	.75" FROM ℄
WELD	.08"	@0°	0°	@ ℄
D/S	.36"	@ 0°	0°	.75" FROM ℄

NOTE: WELD CROWN NOT SCANNED FROM 1" CW OF 0° TO 6" CCW OF 90° DUE TO AS-WELDED CONDITION.

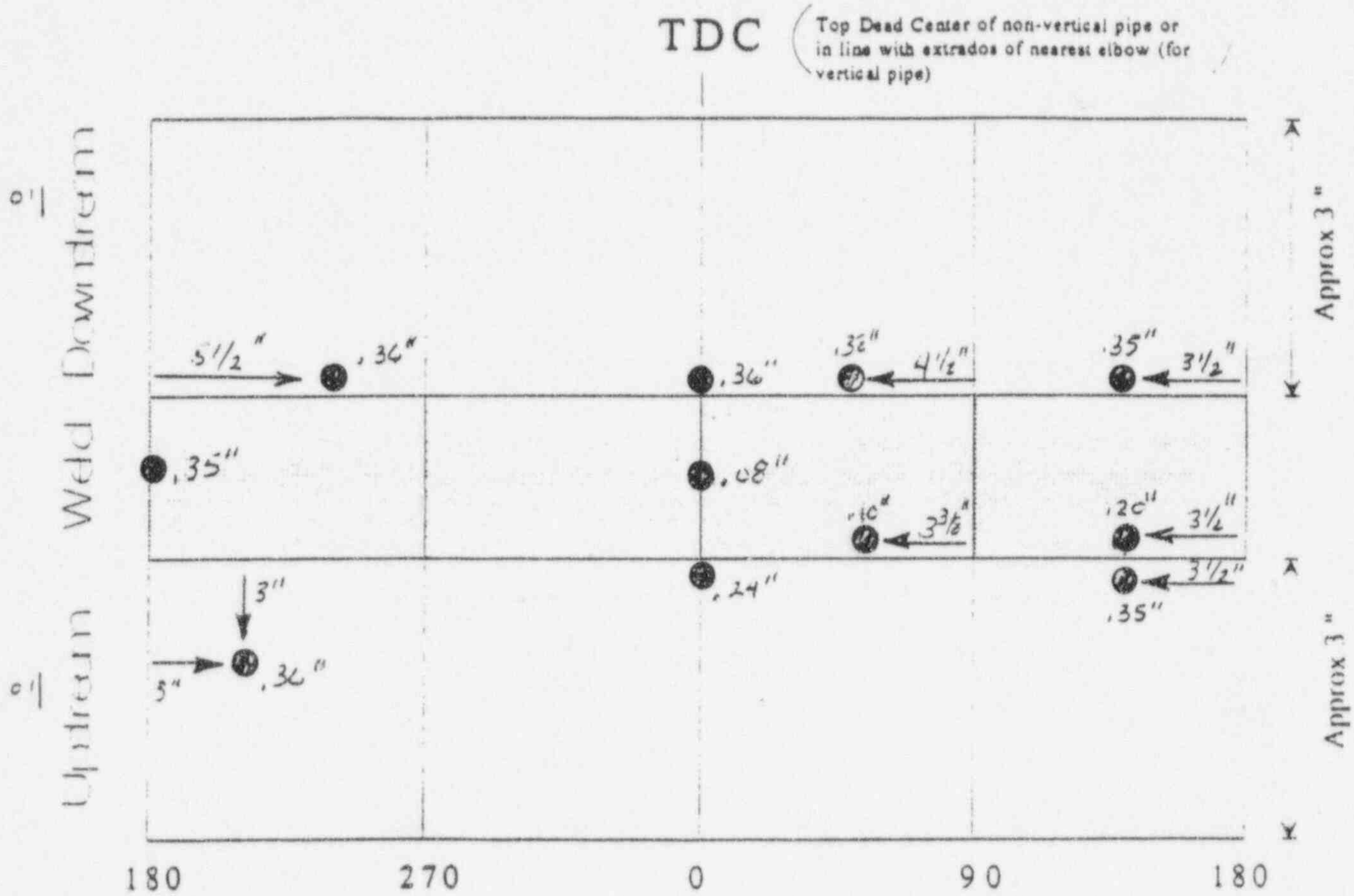
ATTACHMENT 3
P. 3

Service Water System

Corrosion Monitoring Program

Line 1802 Weld No. F0901 Date 10-18-95

Show location and thickness of thinnest point in each sector



The location of the N/A
Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1")

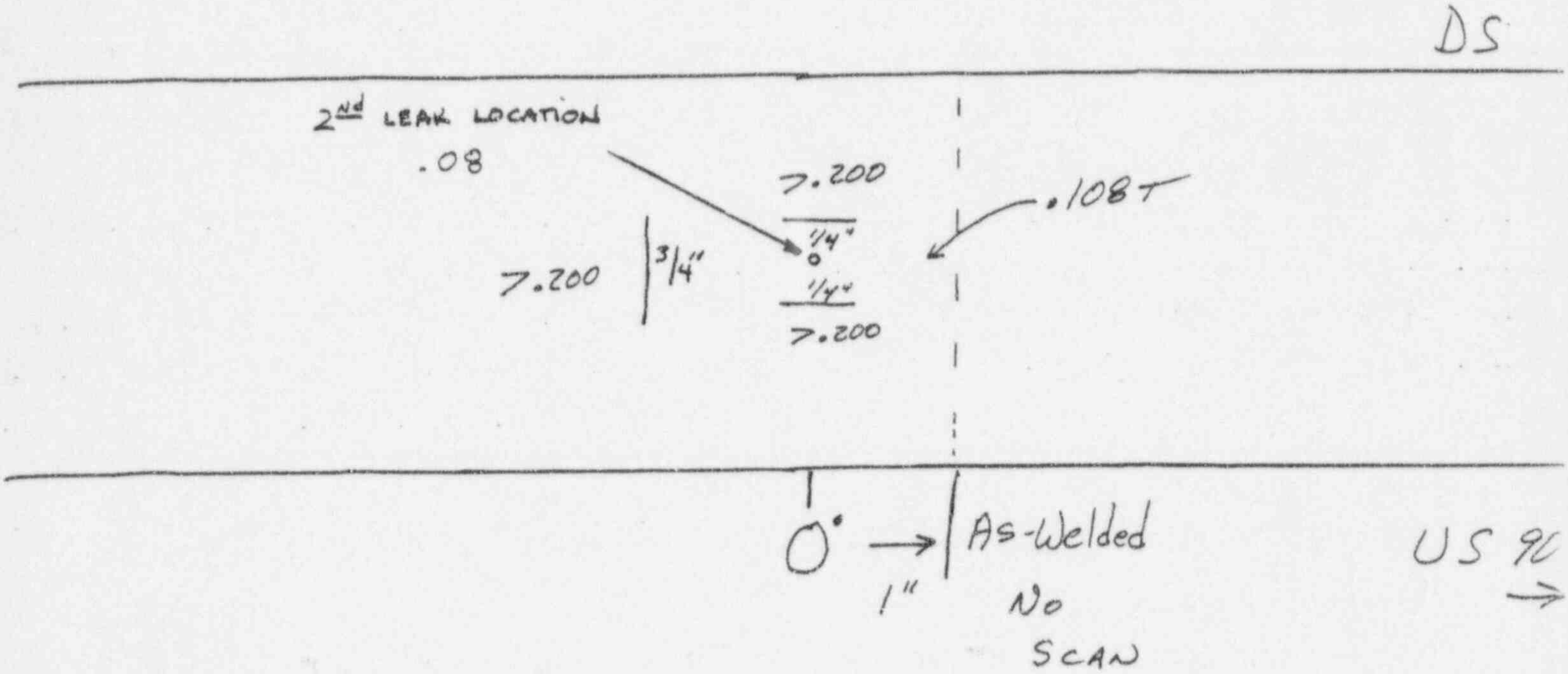
Recorded by: D. M. Donovan Level II Date 10-18-95

Reviewed by: ______________________ Date ______

LINE NO.- 1802 WELD NO.- F0901 WR # 95W002446

ATTACHMENT 3 P. 4

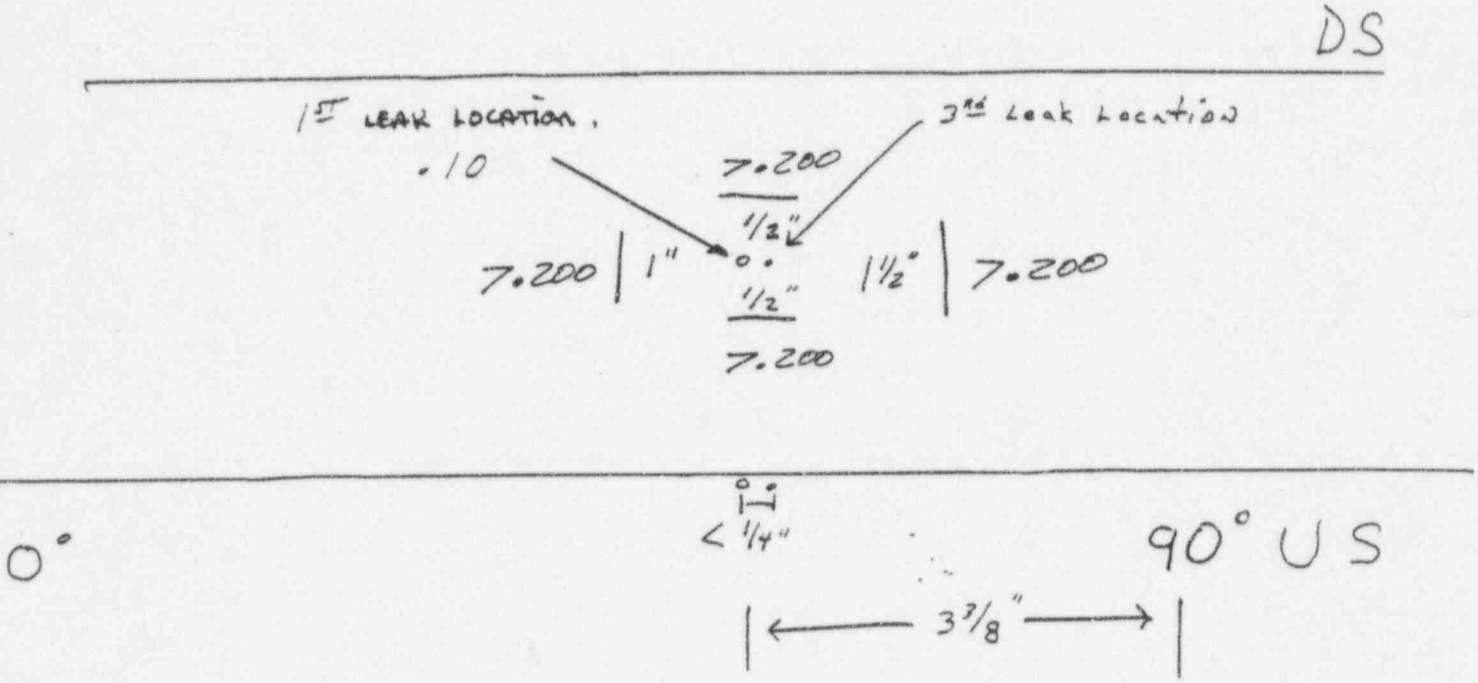
Pg 4 of 5



[signature] UT LIII 10.18.95

LINE NO. - 1802 WELD NO. - F0901 WR# 95W002446

ATTACHMENT 3 P. 5 Pg 5 OF 5



UT LIII 10-18-95

North Atlantic
October 25, 1995

ENCLOSURE 2 TO NYN-95084

OPERABILITY DETERMINATION FORM

ACR No. 95-316

ODF No. ____________

DESCRIPTION

PRELIMINARY ☒ FINAL ☐

1. Affected structure, system or component SERVICE WATER

2. Description of degraded or nonconforming condition WALL THINNING IN FIELD WELD SW1802-F0801

3. Operable ☒ Inoperable ☐

4. Basis for operability determination See attached
(use additional sheets as required)

Prepared by: [signature] Date: 10/24/95

APPROVAL

I. PRELIMINARY OPERABILITY DETERMINATION

Operations Manager: for J. Grillo RJ Strickland Date: 10/24/95
Joseph M Grillo Oct 24, 1995

II. FINAL OPERABILITY DETERMINATION

Assigned Responsible Manager: ____________ Due Date: ____________
(assigned by Operations Manager)

ACR Responsible Manager: ____________ Date: ____________

Manager of Engineering: ____________ Date: ____________
(when supplying analyses or evaluations)

Technical Support Manager: ____________ Date: ____________

Regulatory Compliance Manager: ____________ Date: ____________

Operations Manager: ____________ Date: ____________

SORC REVIEW

SORC Chairman: ____________ Meeting No. ____________

EXTENSION APPROVAL

PRELIMINARY ☐ FINAL ☐ Extended Due Date: ____________

Station Manager: ____________ Date: ____________

SEABROOK STATION
OE4.5 OPERABILITY DETERMINATION

ACR # 95-316 DATE: 10/24/95 TIME: Approx. 1000

1.0 ORIGINATOR

1.1 DESCRIPTION OF FLAW

UT inspection has revealed wall thinning due to pitting at field weld 1802-F0801 on line 1-SW-1802-5-153-24" This field weld joins a vertical riser pipe with a 90° elbow downstream of SW-V67 , the SW-S-11 outlet isolation valve (Refer to Attachment 1). The flaw discovered at this location is characterized as elliptical in shape and has a minimum wall thickness of 0.110". The flaw is located in the weld area as detailed in the Ultrasonic Thickness Examination Report provided in Attachment 3.

This field weld is located in the Service Water Strainer Room at elevation 53' in the PAB. Since routine strainer basket cleaning is performed in this room, the area is very well drained.

Piping/Component Drawing No.:

The piping is carbon steel with 3/8" thick cement lining as detailed on sketch 804998 of Specification 248-2 (Refer to Attachment 2).

P&ID No.:

1-SW-B/D20795

1.2 IMPRACTICALITY OF CODE REPAIR

The discovery of this flaw occurred as a result of the GL 90-05 Augmented Inspection due to through-wall leaks found in field weld SW-1802-F0901. It was determined not practical to perform a Code repair of this leaking service water weld at that time. A Code repair on this line would have required partial draindown of SW Train "B", resulting in the inoperability of the two ocean SW pumps and the cooling tower pump within this train.

Inoperability of an entire SW Loop is allowed by Technical Specification 3/4.7.4a "Service Water System/Ultimate Heat Sink" for up to a 72 hour period. However, due to system configuration, both trains are needed to dissipate normal plant heat loads. Furthermore, the allowed outage time may not have been sufficient to perform a Code repair, thus entry into Technical Specification 3.0.3 would have been required and a plant shutdown would have ensued.

1.3 DESCRIPTION OF PROPOSED TEMPORARY REPAIR

Since this flaw was discovered as part of a GL90-05 Augmented Inspection and through-wall leakage is not occurring and is not predicted to occur up to OR-04, a temporary repair is not required at this time.

1.4 SAFETY SIGNIFICANCE System Interaction Evaluation

Flooding:

Ultrasonic Examination has confirmed that there are no additional locations below required Code minimum wall thickness at this field weld. The flaw is highly localized. In the event that a pinhole leak develops in this weld, the leak rate would be expected to be less than 1 gph. The leakage would be well contained within the Service Water Strainer Room, elevation 53' of the PAB. More than adequate drainage exists to preclude flooding.

Jet Spray:

There are no safety related power supplies that could be disabled as a result of the jet spray from this flaw. Motor operated valves SW-V4 and V5, located in this room, have an active safety related function. The valves are at least 20 feet from the location of any possible leakage and are well shielded by large pipe and grating from any spray, should it develop.

Loss of Flow:

Loss of SW through this flaw would be insignificant in comparison with the Service Water Pump or Cooling Tower Pump capacity to supply design flow during an accident combined with LOP. One Service Water Pump must supply 8,550 gpm or 12,215 gpm from one Cooling Tower Pump to satisfy design heat loads from ECCS and the Emergency Diesel Generator. These requirements assume maximum permissible IST pump degradation (93% Head) and maximum IST instrument uncertainty in a Post-LOCA/Loss of Offsite Power scenario. Since the SWP's and CTP's are currently capable of operating at 100% capacity with no observable degradation, there is significant flow margin available with respect to these values.

Other Interactions:

None

Failure Consequences:

Significant degradation of this weld could result in SW "B" train inoperability. Because of system configuration, both trains of SW are needed to dissipate normal plant heat loads. Thus, a forced shutdown would commence.

1.3 DESCRIPTION OF PROPOSED TEMPORARY REPAIR

Since this flaw was discovered as part of a GL90-05 Augmented Inspection and through-wall leakage is not occurring and is not predicted to occur up to OR-04, a temporary repair is not required at this time.

1.4 SAFETY SIGNIFICANCE System Interaction Evaluation

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Ultrasonic Examination has confirmed that there are no additional locations below required Code minimum wall thickness at this field weld. The flaw is highly localized. In the event that a pinhole leak develops in this weld, the leak rate would be expected to be less than 1 gph. The leakage would be well contained within the Service Water Strainer Room, elevation 53' of the PAB. More than adequate drainage exists to preclude flooding.

Jet Spray:

There are no safety related power supplies that could be disabled as a result of the jet spray from this flaw. Motor operated valves SW-V4 and V5, located in this room, have an active safety related function. The valves are at least 20 feet from the location of any possible leakage and are well shielded by large pipe and grating from any spray, should it develop.

Loss of Flow:

Loss of SW through this flaw would be insignificant in comparison with the Service Water Pump or Cooling Tower Pump capacity to supply design flow during an accident combined with LOP. One Service Water Pump must supply 8,550 gpm or 12,215 gpm from one Cooling Tower Pump to satisfy design heat loads from ECCS and the Emergency Diesel Generator. These requirements assume maximum permissible IST pump degradation (93% Head) and maximum IST instrument uncertainty in a Post-LOCA/Loss of Offsite Power scenario. Since the SWP's and CTP's are currently operating at 100% capacity with no observable degradation, there is significant flow margin available with respect to these values.

Other Interactions:

None

Failure Consequences:

Significant degradation of this weld could result in SW "B" train inoperability. Because of system configuration, both trains of SW are needed to dissipate normal plant heat loads. Thus, a forced shutdown would commence.

System pressure loss via the postulated break would most likely cause a tower actuation signal to occur. Since this line is within the pressure boundary of the SW system when on the tower, a manual shutdown of cooling tower pump SW-P-110B would be required to preclude basin pumpdown to an unacceptable level.

There is no interaction with the SW "A" train which alone can accommodate design base heat loads.

Impact to Safe Shutdown Capability:

As described above, the SW "A" train would be unaffected by significant degradation of this "B" train weld. The "A" train alone is sufficient for safe shutdown decay heat removal heat loads or heat loads during a design base event with LOP. The SW "B" Train is also fully capable of bringing the plant to a safe shutdown condition even with the presence of leakage through this flaw.

1.5 ROOT CAUSE INVESTIGATION

Root Cause Description:

Localized long term degradation or improper application of X-Pando or Sikadur Low-Mod-Gel joint compound permitted sea water to come in contact with the carbon steel piping substrate/weld. Pitting corrosion then caused accelerated local attack at this unprotected field weld.

Other Systems Affected:

None

1.6 AUGMENTED INSPECTION

Assessment of overall degradation of the affected system:

This weld degradation is typical of localized joint compound flaws at field welds in the carbon steel SW piping. This weld and weld SW-1802-F0901, which was initially evaluated under an ASME XI Relief Request in ACR 95-316 for through-wall leakage, are the only cases whereby wall thinning below the Code minimum required value has been observed. UT inspections conducted during OR-03 on A-Train PAB and CT field welds revealed that of 49 welds inspected, 2 had base metal degradation. Each of these welds had sufficient margin with respect to required Code minimum wall thickness. Visual and UT inspection of A and B Train field welds in the SWPH during OR-03 also revealed several degraded field welds. None of these welds were below Code minimum required wall thickness.

Based on past system history, once pitting commences the resulting flaws are very localized in nature and do not represent a piping structural integrity problem. Based upon the data collected to date, only a small percentage of the total population of field welds are potentially subject to this degradation mechanism.

Additional examinations required (based on root cause) - specify number of inspection locations - also specify frequency of inspections: (ten most susceptible and accessible locations for high energy systems and five for moderate energy piping systems)

This flaw was discovered during the GL 90-05 Augmented Inspection required as a result of through-wall leakage on field weld 1802-F0901. Ultrasonic Examinations have been performed at nine additional similar field welds in the SW "B" train:

Initial Augmented Inspection:

SW1802-F1001
SW1812-F1002
SW1802-F0701
SW1802-F0902

Supplemental Augmented Inspection:

SW1802-F1003
SW1802-F0602
SW1802-F0601
SW1812-F1001
SW1812-F0903

All additional locations evaluated have been found acceptable. Prior to OR-04, the balance of above ground 24" B-Train field welds in the PAB and Cooling Tower will be inspected (approximately 40 total).

Description of areas selected for augmented inspection:

These locations will be of similar fabrication, configuration, and service environment.

2.0 STRESS ANALYSIS

2.1 DESIGN DETAILS

System: Service Water "B" train. In the line for Strainer SW-S-11 and Downstream of valve SW-V67.

Component: Field weld connecting a straight section of 24" diameter pipe and a 24 " diameter 90° elbow fitting.

Component Size: 24" diameter cement lined carbon steel pipe.
24" cement lined carbon steel 90° elbow .

Nominal Wall Thickness: 0.375"

Safety Code Class: Class 3

Material: SA-106, Gr B

Design Pressure: 150 psig

Design/Operating Temperature: 200/34-90 degrees F

Code Minimum Wall Thickness: 0.120"

2.2 FLAW CHARACTERIZATION

Flaw Description/Size: (i.e., flaw size, adjacent wall thickness, single/multiple flaw, total area examined, etc.)

The flaw is localized. The flaw is elliptical in shape with a measured minimum wall thickness of 0.110". The flaw is shown in detail in the attached UT Examination Report per Attachment 3.

Flaw Location: The flawed field weld is located downstream of SW-V 67.

Method Examination: UT

Flaw Type: Field weld flaw due to joint compound degradation and subsequent pitting corrosion.

Referenced UT Measurements: Attachment 3

2.3 FLAW EVALUATION SUMMARY

Method Used:

"Through-Wall Flaw" Approach (GL 90-05). This method very conservatively utilizes a through-wall flaw of 1" length and evaluates the flaw stability by a linear elastic fracture mechanics methodology.

Results of Evaluation:

Loading conditions included dead weight, pressure, thermal, and seismic. All Code stress equations were considered and determined to be acceptable. The stability of the flaw was evaluated for all loading conditions and determined to be acceptable. Field weld SW1802-F0801, its associated piping and the service water system are therefore OPERABLE. Results of this evaluation are summarized below:

ASME III, SUBSECTION ND, STRESS EVALUATION			
DESIGN CONDITION	ACTUAL STRESS (PSI)	ALLOWABLE STRESS (PSI)	$\frac{\text{ACTUAL}}{\text{ALLOWABLE}}$
Normal	2,839	15,000	0.19
Upset	7,749	18,000	0.43
Faulted	9,772	27,000	0.36

FLAW STABILITY CHECK		
STRESS INTENSITY FACTOR (KSI(IN)$^{1/2}$)		FACTOR OF SAFETY
ACTUAL	CRITICAL	CRITICAL/ACTUAL
33.51	35.0	1.044

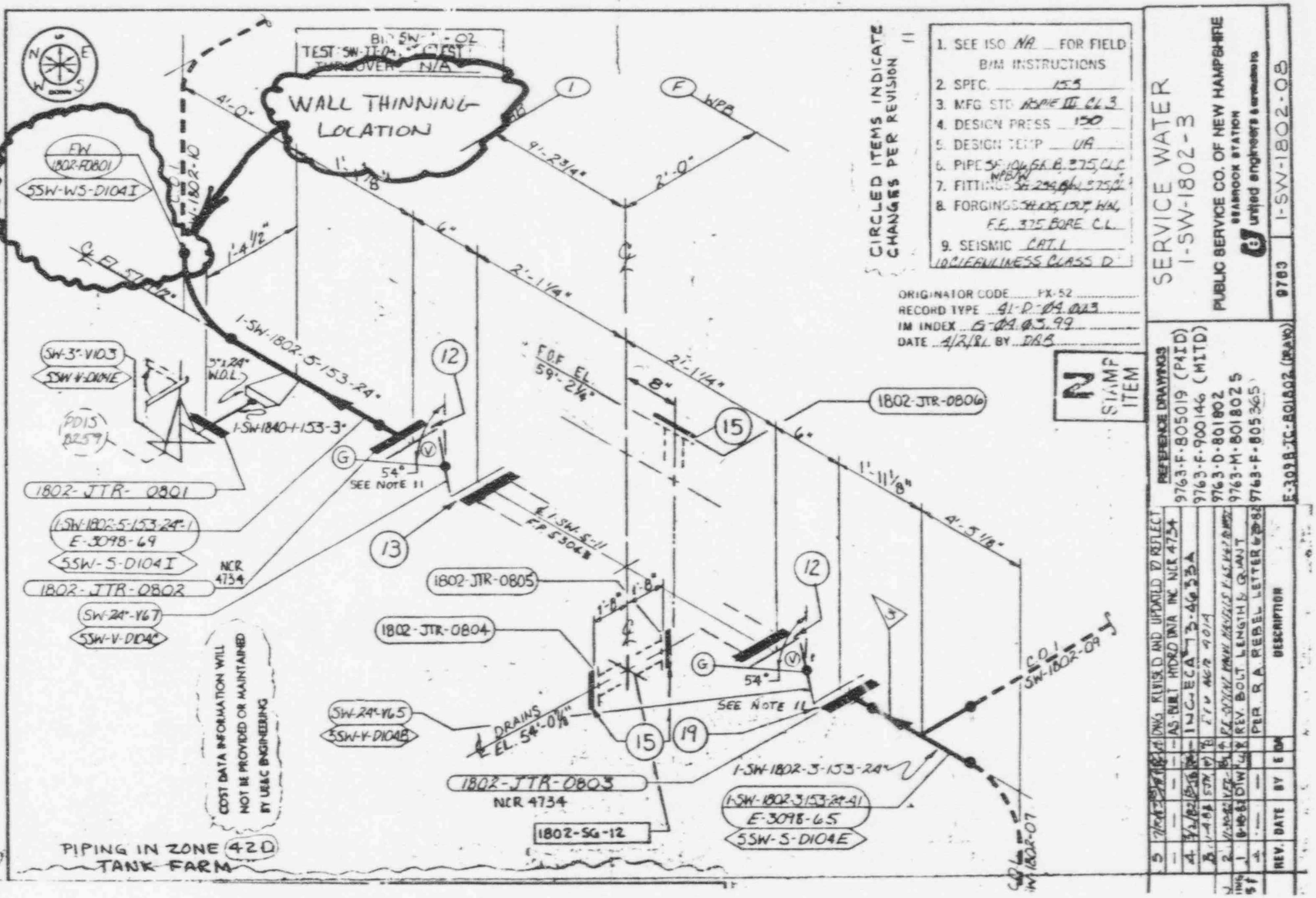
2.4 FLAW MONITORING

Walkdown Frequency: (for leak monitoring)

This weld will be repaired in accordance with ASME XI during OR-04 which commences in less than two weeks on 11/04/95.

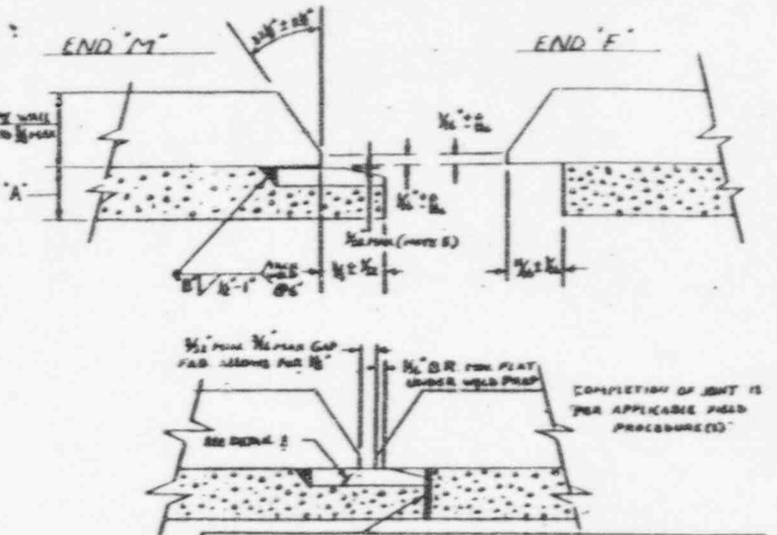
Frequency of Follow-up NDE: (for erosion rate assessment)

This weld will be repaired in accordance with ASME XI during OR-04 which commences in less than two weeks on 11/04/95.



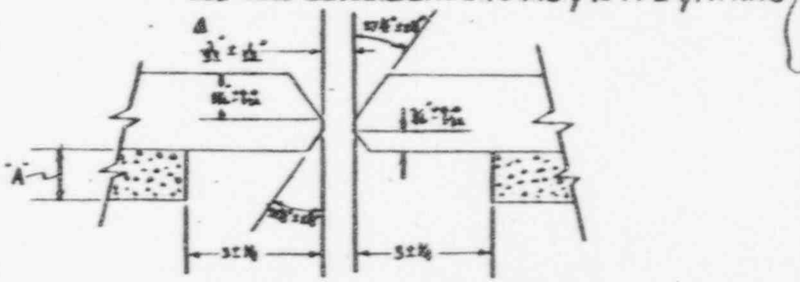
ATTACHMENT 1

FIELD WELD BEVEL DETAIL FOR 4" THROUGH 32" PIPE & FITTINGS

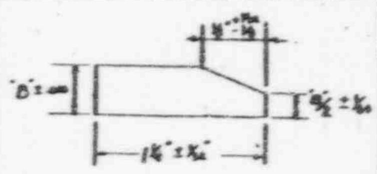


CEMENT LINING ENDS SHALL BE COATED WITH X-PANDO PIPE JOINT COMPOUND SPECIAL FORMULA #2 X-PANDO CORP. 43-15 36TH ST LONG ISLAND CITY, N.Y. 11101. APPLY TO GAPS INACCESSIBLE ON THE I.D., PRIOR TO JOINING PIPE. APPLY TO GAPS, ACCESSIBLE ON THE I.D., AFTER WELDING PIPE.

FIELD WELD BEVEL DETAIL FOR 38" & 42" PIPE & FITTING

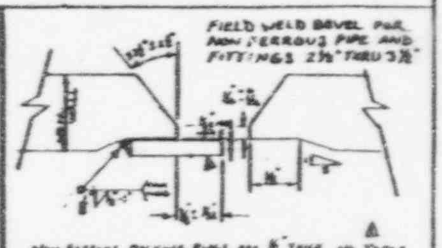


COMPLETION OF JOINT IS PER APPLICABLE FIELD PROCEDURE(S)



DETAIL 1

FIELD WELD BEVEL FOR NON FERROUS PIPE AND FITTINGS 2½" THRU 3½"



NON FERROUS BACKING RINGS ARE ⅛" THICK, NO TAPER, WIDTH TO SUIT.

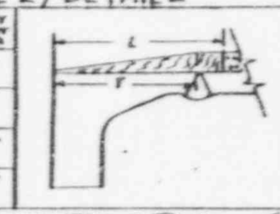
TABLE 1

O.D.	I.D.	(COUNTER) BORE	C_{min}	C_{min}	"A"	"B"
42"	41.000	—	—	.500"	½"	0.250"
38"	37.000"	—	—	.500"	½"	0.250"
32"	31.000	30.959"	—	.500"	⅜"	0.250"
24"	23.250"	23.303"	.375"	—	⅜"	0.250
20"	19.250	19.303"	.375"	—	5/16"	0.187"
16"	15.250"	15.303"	.375"	—	5/16"	0.187"
12"	12.000	12.053"	.375"	—	5/16"	0.187"
10"	10.020"	10.070"	.365"	—	¼"	0.125"
8"	7.981"	8.030"	.322"	—	¼"	0.125"
6"	6.065"	6.094"	.280"	—	¼"	0.125"
4"	4.026"	4.046"	.237"	—	¼"	0.125"

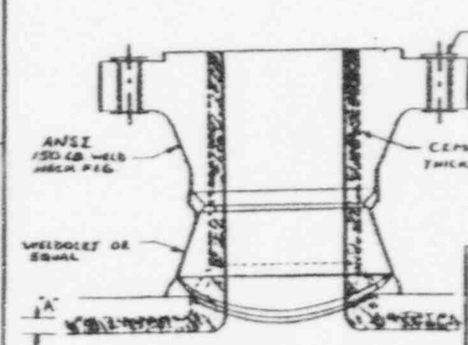
1. A COATING OF GREGG'S SEAL COAT SHALL BE APPLIED TO THE ID OF THE CEMENT LINING PRIOR TO THE CEMENT CURE.
2. ACCESSIBLE TO THE ID SHOP WELDS CAN BE OPEN JOINT WITH A TIG ROOT PROVIDED THE DEFECTIVE AREAS OF THE ROOT WELD ARE BACK CHIPPED TO SOUND METAL AND REWELDED FROM THE I.D. (COUNTERBORE AS NEEDED)
3. INACCESSIBLE TO THE ID SHOP WELDS WILL REQUIRE A "J" TYPE CONSUMABLE INSERT. (COUNTERBORE AS NEEDED).
4. THE SELLER SHALL SET CRITERA (APPROVED BY PURCHASER) FOR DETERMINING WHEN COUNTERBORING/BUILD-UP OF PIPE ENDS IS REQUIRED FOR PIPING 4" N.P.S THROUGH 32" NPS.
5. PRIOR TO CEMENT LINING APPLICABLE SPOOLS SHALL HAVE BACKING RINGS HAND FIT TO PIPE ENDS. AFTER TACK WELDING OF RING THE MAXIMUM GAP BETWEEN RING AND PIPE ID SHALL BE 1/32 INCH. SPLIT RINGS SHALL HAVE SPLIT WELDED DURING OR PRIOR TO FIT UP TO FORM A SOLID RING. THE SPLIT RING WELD SHALL MEET THE SAME QUALITY REQUIREMENTS AS THE WELD JOINT.
6. 4", 6", 8" AND 10" NPS FLANGE END SPOOLS WHICH ARE NOT RECEIVING POLYURETHANE INSERTS PER D-804991 AND ARE ABUTTING TO BUTTERFLY VALVES SHALL HAVE SIKA-DUR LO-MOD GEL EPOXY CEMENT TAPER LININGS AS SHOW ON TABLE 2/DETAIL 2 (SEE FIELD PROCEDURES AND SPECIFICATION 9763-006-248-E1 FOR FURTHER DETAILS).

TABLE 2/DETAIL 2

PIPE SIZE	TAPER LENGTH "L" IN.	EPOXY CEMENT "T" IN.
4"	3"	3½"
6"	3½"	4"
8"	4"	4½"
10"	4"	4½"



2" THROUGH 3½" INSTRUMENT CONNECTIONS TO CEMENT LINED PIPE



NOTES: THIS DWG SUPERCEDES 9763-M-804998 REV. 2
THIS DWG NOT TO SCALE.
THIS DWG IS PART OF SPEC 9763-006-248-E

3		UPDATE TO SPECIFICATION	
2		GENERAL REVISION	
1		UPDATE TO SPEC 248-E	
0		ISSUED FOR CONSTRUCTION	
		DESCRIPTION	

PIPE END JOINT DESIGN FOR CEMENT LINED AND NON FERROUS PIPING

PUBLIC SERVICE CO OF NEW HAMPSHIRE

SEABROOK STATION

united engineers

9763-D-804998

SPEC 9763-006-248-E

PAGE NO. 31

ATTACHMENT 2

ATTACHMENT 3 P. 1

ULTRASONIC THICKNESS EXAMINATION REPORT

LOCATION SW1802-FO801 SYSTEM SW WORK REQUEST 95W000546

EXAMINATION AREA/RESULTS

DESCRIPTION OF EXAMINATION AREA AND RESULTS

WELD SW1802-FO801

SKETCH (Include obstructions, components, extensions, etc.)

☑ ATTACHED

EXAMINED [signature] LEVEL III DATE 10-19-95

EXAMINED [signature] LEVEL II DATE 10-19-95

EXAMINATION RESULTS

☐ ACCEPTABLE ☐ EVALUATION REQ'D

REVIEWED ________ LEVEL ____ DATE ____

REVIEWED ________ DATE ____

Responsible Engineer

INSTRUMENT DATA

INSTRUMENT: MFG/MODEL Sonic 136 GTE/SN GTE 2646

☑ CRT ☐ CRT/DIGITAL ☐ DIGITAL ☑ HORIZONTAL LINEARITY PERFORMED (ACCEPTABLE)

COMP SURFACE TEMP >125° ☑ NO ☐ YES FLS No. N/A CAL DUE DATE N/A

CAL BLOCK MAT'L ___	THICKNESS	.100"	.300"	.500"	1.500"	TIME CHECKED
	FLS NO.	6330	6330	6330	6183	
	Cal. Due Date	9-20-98	9-20-98	9-20-98	9-21-98	
CALIBRATION CHECK	INITIAL	.100"	.300"	.500"	1.500"	0920
	INTERIM	.100"	.300"	.500"	1.500"	1045
	INTERIM	.100"	.300"	.500"	1.500"	1235
	INTERIM	.100"	.300"	.500"	1.500"	1420
	FINAL	.100"	.300"	.500"	1.500"	1510

TRANSDUCER

☐ PITCH / CATCH

☑ PULSE / ECHO

MFG. MSED-KB

SER# 06894

SIZE 3/8 x 10mm FREQ. 4 MHz

COUPLANT

MFG. ULTRAGEL II

BATCH # 092121

ENGINEERING EVALUATION ☐ N/A ☐ ATTACHED ☐ SEE BELOW

EVALUATION/COMMENTS

☐ ACCEPT ☐ REPAIR/REPLACE Responsible Engineer ________ Date ____

011 ATTACHMENT 3, P. 2 WR/RTS No. 95W000564

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1802 Weld No. F0801

QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90 U/S	.56" →			ENTIRE AREA IS CONSTANT
WELD	.38"	3/4"	0°	TOWARD DS EDGE
D/S	.36"	1/2"	90°	3/4" From ℄
90-180 U/S	.44"	1 1/2"	180°	3/4" From ℄
WELD	① .22"	2 1/2"	90°	TOWARD DS Edge
D/S	.34"	2 1/4"	90°	3/4" From ℄
180-270 U/S	.40"	1 1/4"	180°	3/4" From ℄
WELD	.40"	10"	180°	TOWARD DS Edge
D/S	.34"	11 1/4"	180°	3/4" From ℄
270-0 U/S	.42"	2 1/4"	0°	3/4" From ℄
WELD	② .10"	1 1/2"	0°	TOWARD US Edge
D/S	.30"	4 1/2"	0°	3/4" From ℄

① THIS INDICATION CAN BE BOUNDED BY .1 TRANSDUCER DIAMETER IN ANY DIRECTION.

② THIS INDICATION RUNS FROM 1 1/2" FROM 0° TO 3 3/4" FROM 0°. (2 1/4" Length) AND IS CONTAINED ENTIRELY IN THE WELD MATERIAL.

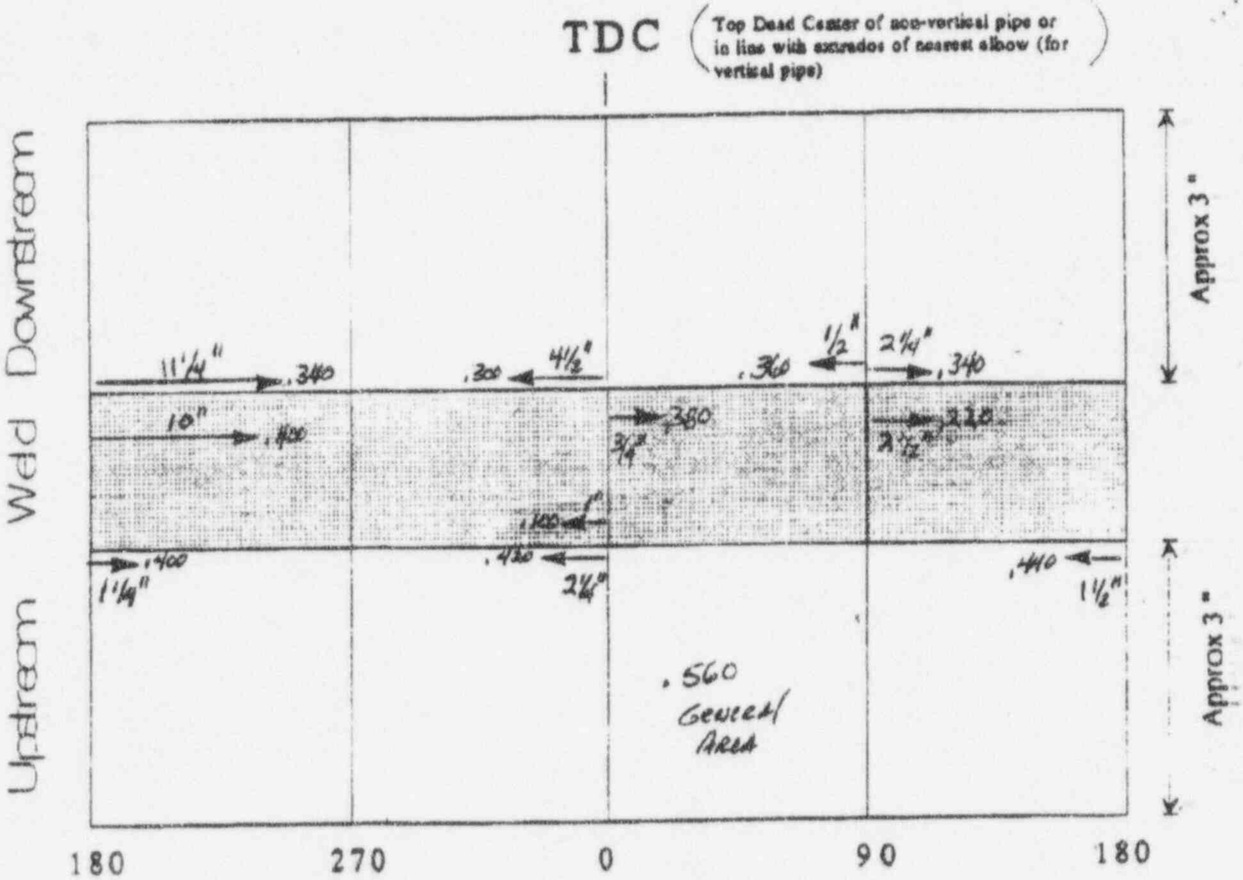
ATTACHMENT 3 P. 3

Service Water System

Corrosion Monitoring Program

Line 1802 Weld No. FO801 Date 10-19-95

Show location and thickness of thinnest point in each sector



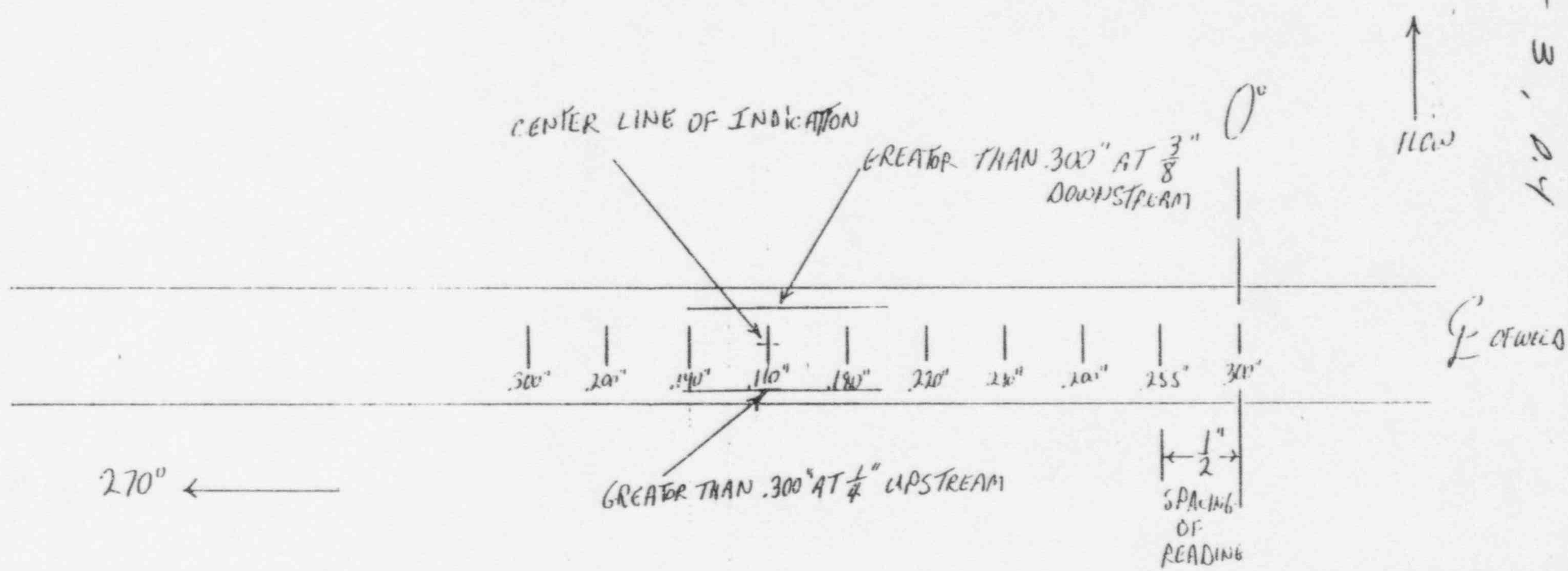
The location of the N/A

Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1")

Recorded by: DM Donovan Level II Date 10-20-95

Reviewed by: ______ Date ______

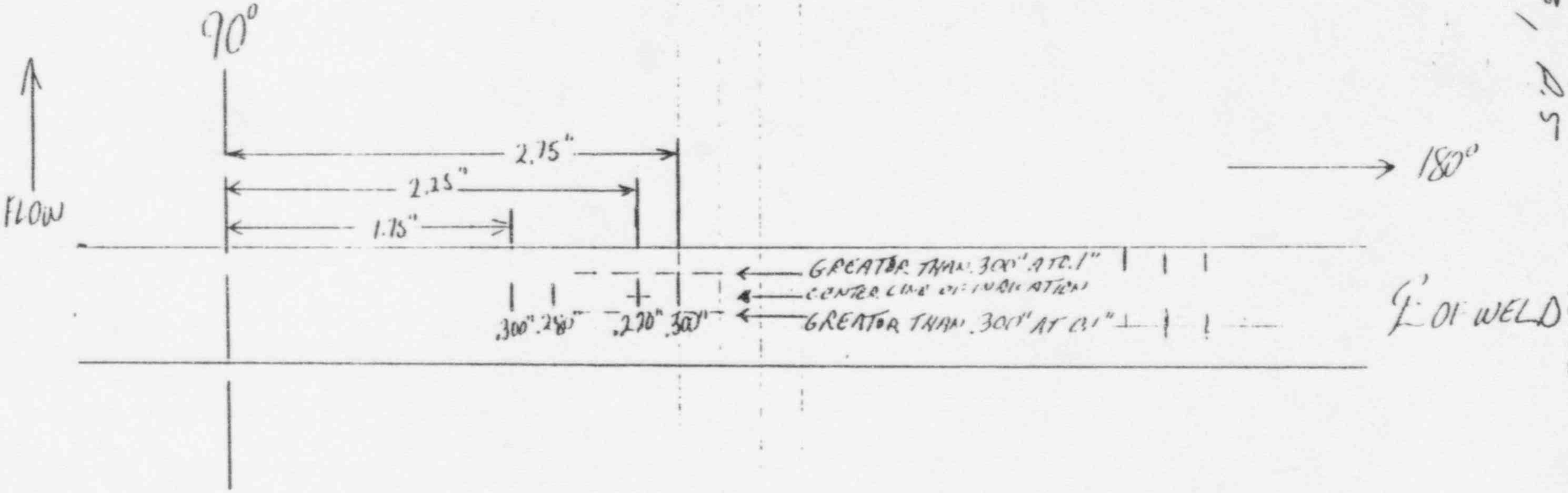
LINE 1802 W.E.S. # 10801



Edward K. Donovan UT L/II 10-23-95

ATTACHMENT 3, P.5

LINE 1802 WELD F0801



Edward R Donovan UT L/II 10-23-95

ENCLOSURE 3 TO NYN-95084

ULTRASONIC THICKNESS EXAMINATION REPORT

LOCATION SEE BELOW **SYSTEM** SW **WORK REQUEST** 95W000546

EXAMINATION AREA/RESULTS

DESCRIPTION OF EXAMINATION AREA AND RESULTS

WELDS: SW1802-F1003
SW 1802-F0602
SW 1802-F0601
SW 1812-F1001
SW 1812-F0903

SKETCH (Include obstructions, components, extensions, etc.)

☑ ATTACHED

EXAMINED [signature] LEVEL III DATE 10/23/95

EXAMINED [signature] LEVEL II DATE 10-23-95

EXAMINATION RESULTS

☐ ACCEPTABLE ☑ EVALUATION REQ'D

REVIEWED [signature] LEVEL III DATE 10/24/95

REVIEWED ______ DATE ______
Responsible Engineer

* NOTE Restriction on F1003

INSTRUMENT DATA

INSTRUMENT: MFG/MODEL Sonic 136 GTE/SN GTE 2646

☑ CRT ☐ CRT/DIGITAL ☐ DIGITAL ☑ HORIZONTAL LINEARITY PERFORMED (ACCEPTABLE)

COMP SURFACE TEMP >125° ☑ NO ☐ YES FLS No. N/A CAL DUE DATE N/A

CAL BLOCK MAT'L C/S	THICKNESS	.100"	.300"	.500"	1.500"	TIME CHECKED
	FLS NO.	6330	6330	6330	6183	
	Cal. Due Date	9-20-98	9-20-98	9-20-98	9-21-98	
CALIBRATION CHECK * SEE BELOW	INITIAL	.100"	.300"	.500"	1.500"	0900
	INTERIM	.100"	.300"	.500"	1.500"	1055
	INTERIM	.100"	.300"	.500"	1.500"	1148
	INTERIM	.100"	.300"	.500"	1.500"	1340
	~~FINAL~~	.100"	.300"	.500"	1.500"	1535

INTERIM WND 10/23/95

TRANSDUCER

☐ PITCH / CATCH
☑ PULSE / ECHO

MFG. MSEB-KB
SER# 06894
SIZE 3.5x10MM FREQ. 4 MHz

COUPLANT

MFG. ULTRAGEL II
BATCH # 092121

ENGINEERING EVALUATION ☐ N/A ☐ ATTACHED ☐ SEE BELOW

EVALUATION/COMMENTS

☐ ACCEPT ☐ REPAIR/REPLACE Responsible Engineer ______ Date ______

INTERIM .100" .300" .500" 1.500" 1730
FINAL .100 .300" .500" 1.500" 1745

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1802 Weld No. F1003

QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90				
U/S	.36"	9 1/4"	90°	3/4" FROM ℄
WELD	.38"	6 1/4"	90°	@ ℄
D/S	.38"	1 1/2"	0°	3/4" FROM ℄
90-180				
U/S	.36"	ALONG ENTIRE WELD TOE	90°-180°	3/4" FROM ℄
WELD	.40"	4 3/4"	90°	@ ℄
D/S	.37"	8 3/4"	180°	7/8" FROM ℄
180-270				
U/S	.38"	11 1/2"	180°	3/4" FROM ℄
WELD	.40"	6 1/4"	180°	@ ℄
D/S	.38"	ALONG ENTIRE WELD TOE	180°-270°	3/4" FROM ℄
270-0				
U/S	.38"	2"	0°	3/4" FROM ℄
WELD	.39"	2"	270°	@ ℄
D/S	.36"	1"	270°	3/4" FROM ℄

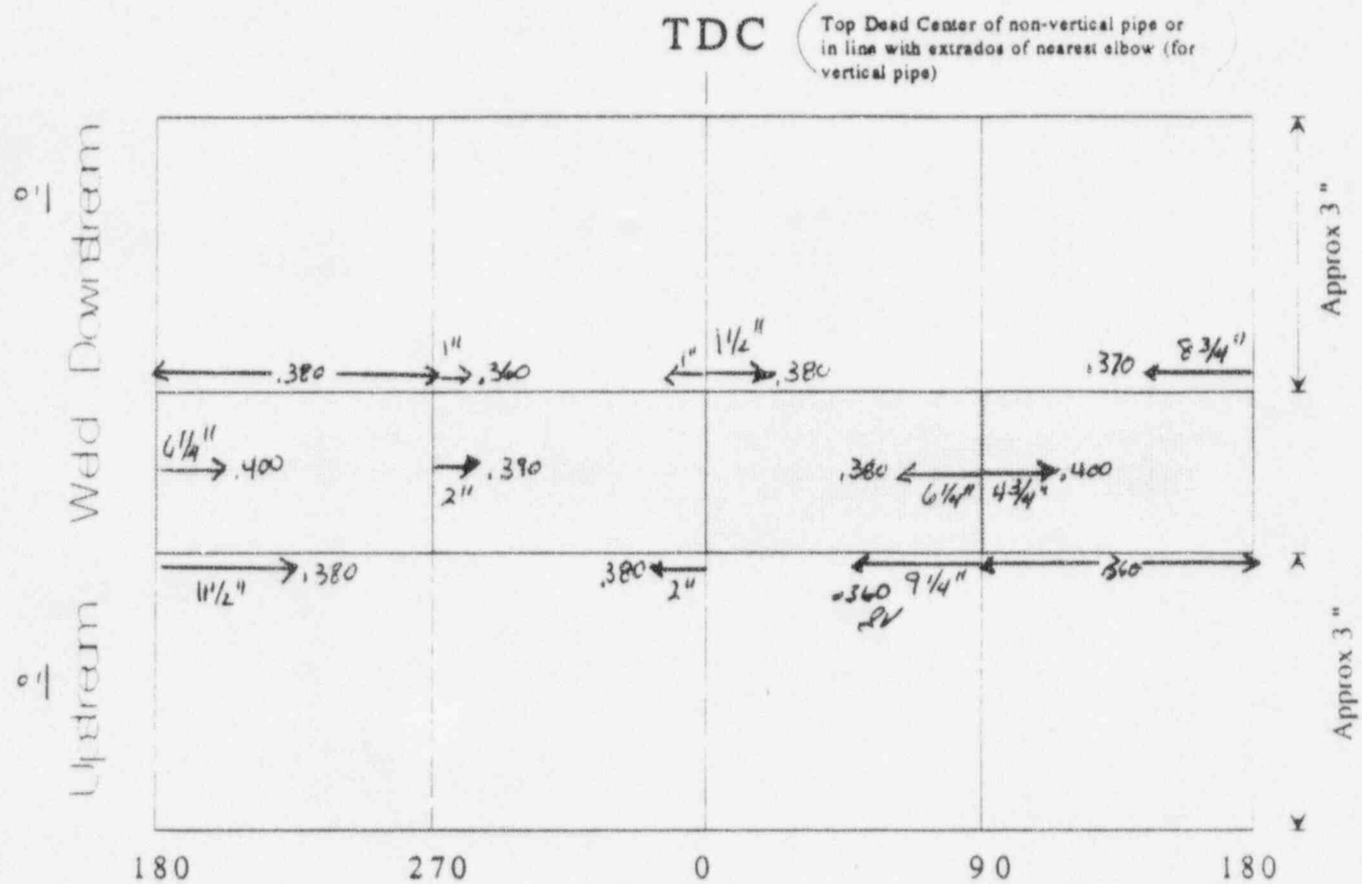
NOTE: UPSTREAM SIDE RESTRICTED TO 7/8" OF ACCESS DUE TO PENETRATION COLLAR. (7/8" FROM WELD TOE TO COLLAR).

Service Water System

Corrosion Monitoring Program

Line 1802 Weld No. F1003 Date 10-23-95

Show location and thickness of thinnest point in each sector



The location of the N/A

Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1")

Recorded by: D. M. Doran Level II Date 10-23-95

Reviewed by: [signature] Date 10/24/95

WR/RTS No. 95W000564

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1802 Weld No. F0602

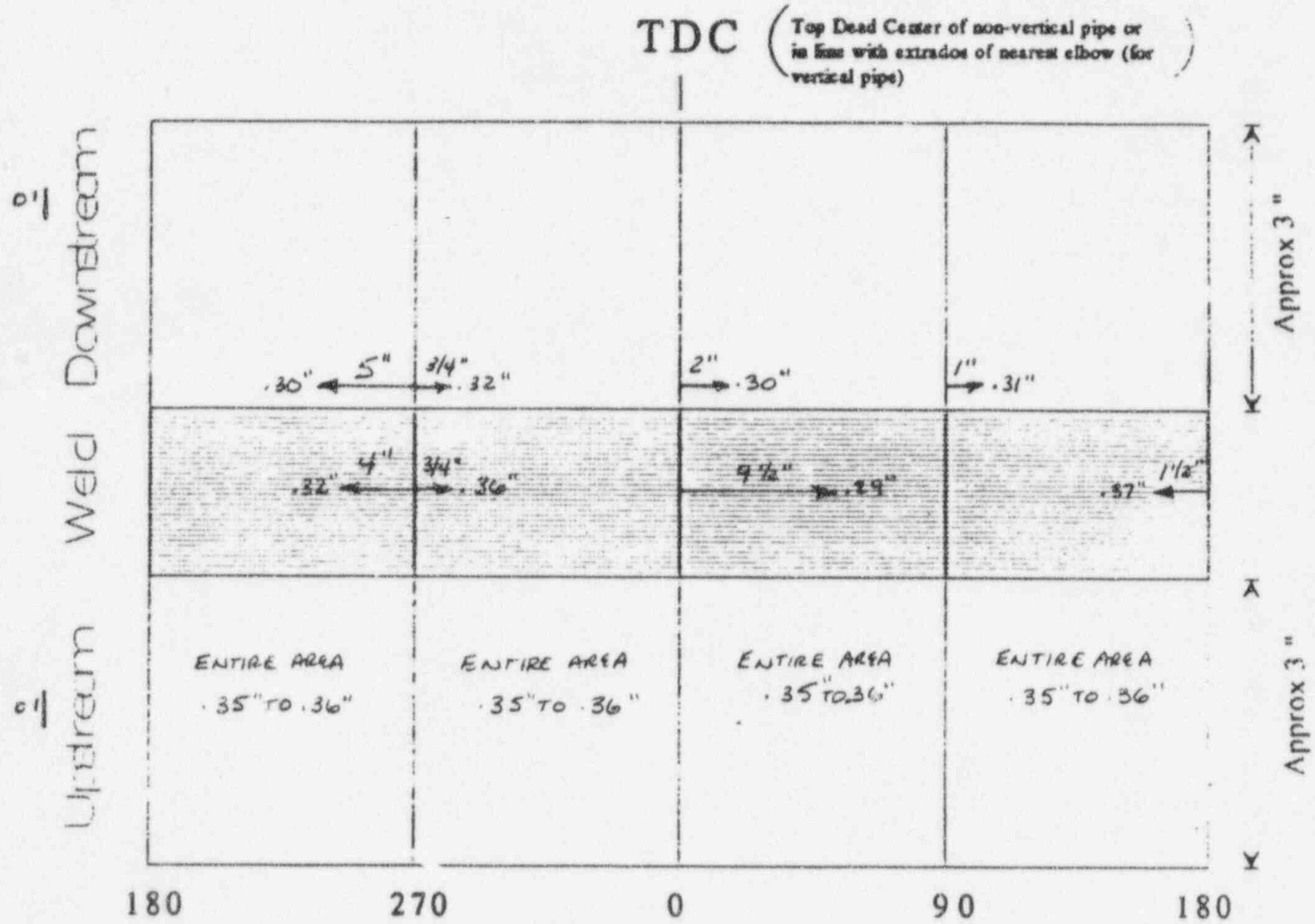
QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90				
U/S	.35" TO .36"	→	→	ENTIRE SCAN AREA.
WELD	.29"	9 1/2"	0°	@ ℄
D/S	.30"	2"	0°	3/4" From ℄
90-180				
U/S	.35" TO .36"	→	→	ENTIRE SCAN AREA
WELD	.37"	1 1/2"	180°	@ ℄
D/S	.31"	1"	90°	3/4" FROM ℄
180-270				
U/S	.35" TO .36"	→	→	ENTIRE SCAN AREA
WELD	.32"	4"	270°	@ ℄
D/S	.30"	5"	270°	3/4" FROM ℄
270-0				
U/S	.35" TO .36"	→	→	ENTIRE SCAN AREA
WELD	.36"	3/4"	270°	@ ℄
D/S	.32"	3/4"	270°	3/4" FROM ℄

Service Water System

Corrosion Monitoring Program

Line 1802 Weld No. F0602 Date 10/23/95

Show location and thickness of thinnest point in each sector



The location of the
Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1") N/A

Recorded by: [signature] Level III Date 10/23/95

Reviewed by: [signature] Date 10/24/95

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WR/RTS No. 95W000564

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1802

Weld No. F0601

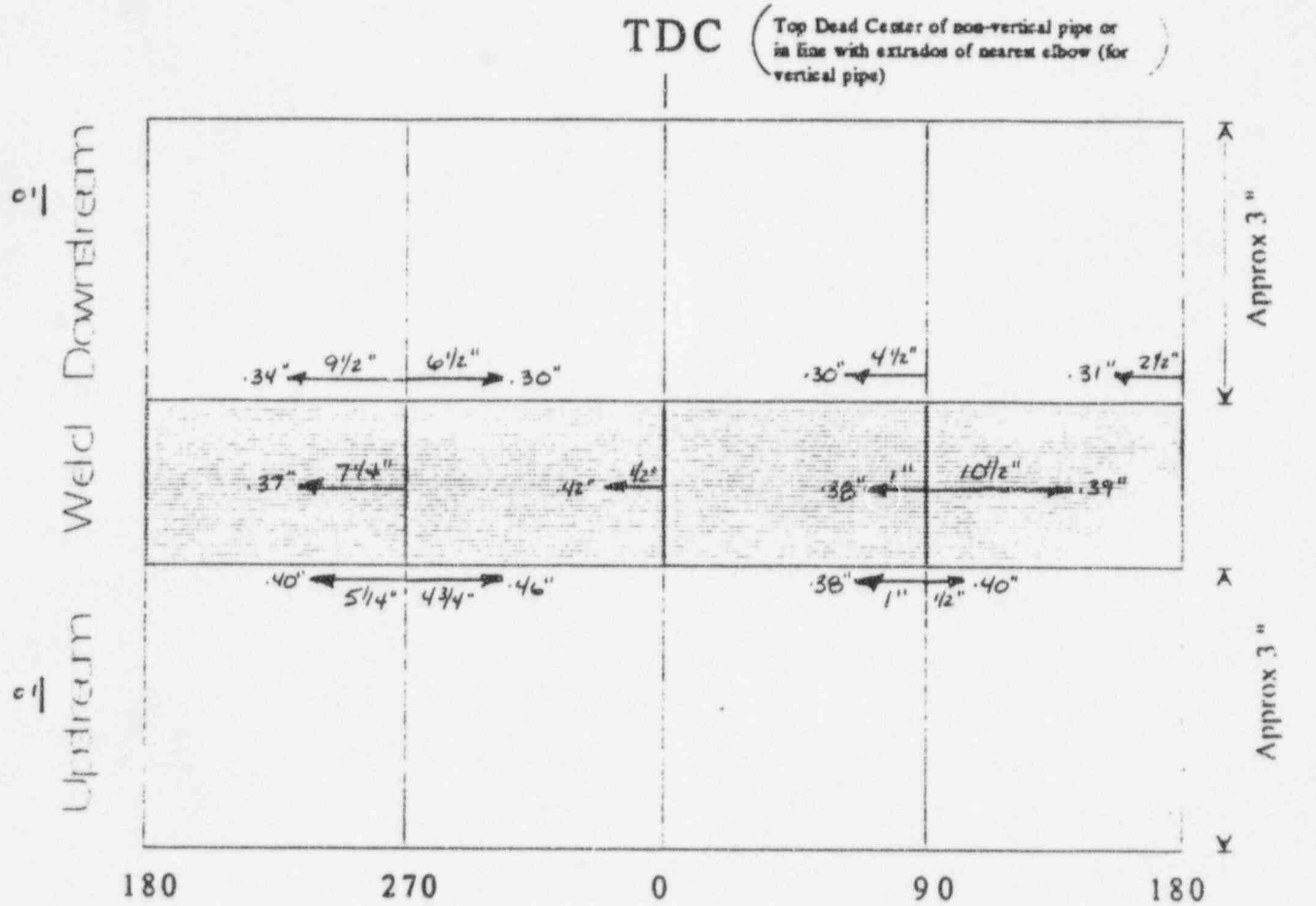
QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90				
U/S	.38"	1"	90°	3/4" from ℄
WELD	.38"	1"	90°	@ ℄
D/S	.30"	4½"	90°	3/4" from ℄
90-180				
U/S	.40"	½"	90°	3/4" from ℄
WELD	.39"	10½"	90°	@ ℄
D/S	.31"	2½"	180°	7/8" from ℄
180-270				
U/S	.40"	5¼"	270°	3/4" from ℄
WELD	.37"	7¼"	270°	@ ℄
D/S	.34"	9½"	270°	3/4" from ℄
270-0				
U/S	.46"	4¾"	270°	3/4" from ℄
WELD	.42"	½"	0°	@ ℄
D/S	.30"	6½"	270°	3/4" from ℄

Service Water System

Corrosion Monitoring Program

Line 1802 Weld No. F0601 Date 10/23/95

Show location and thickness of thinnest point in each sector



The location of the Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1") N/A

Recorded by: [signature] Level III Date 10/23/95

Reviewed by: [signature] Date 10/24/95

011

WR/RTS No. 95W000564

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1812 Weld No. F1001

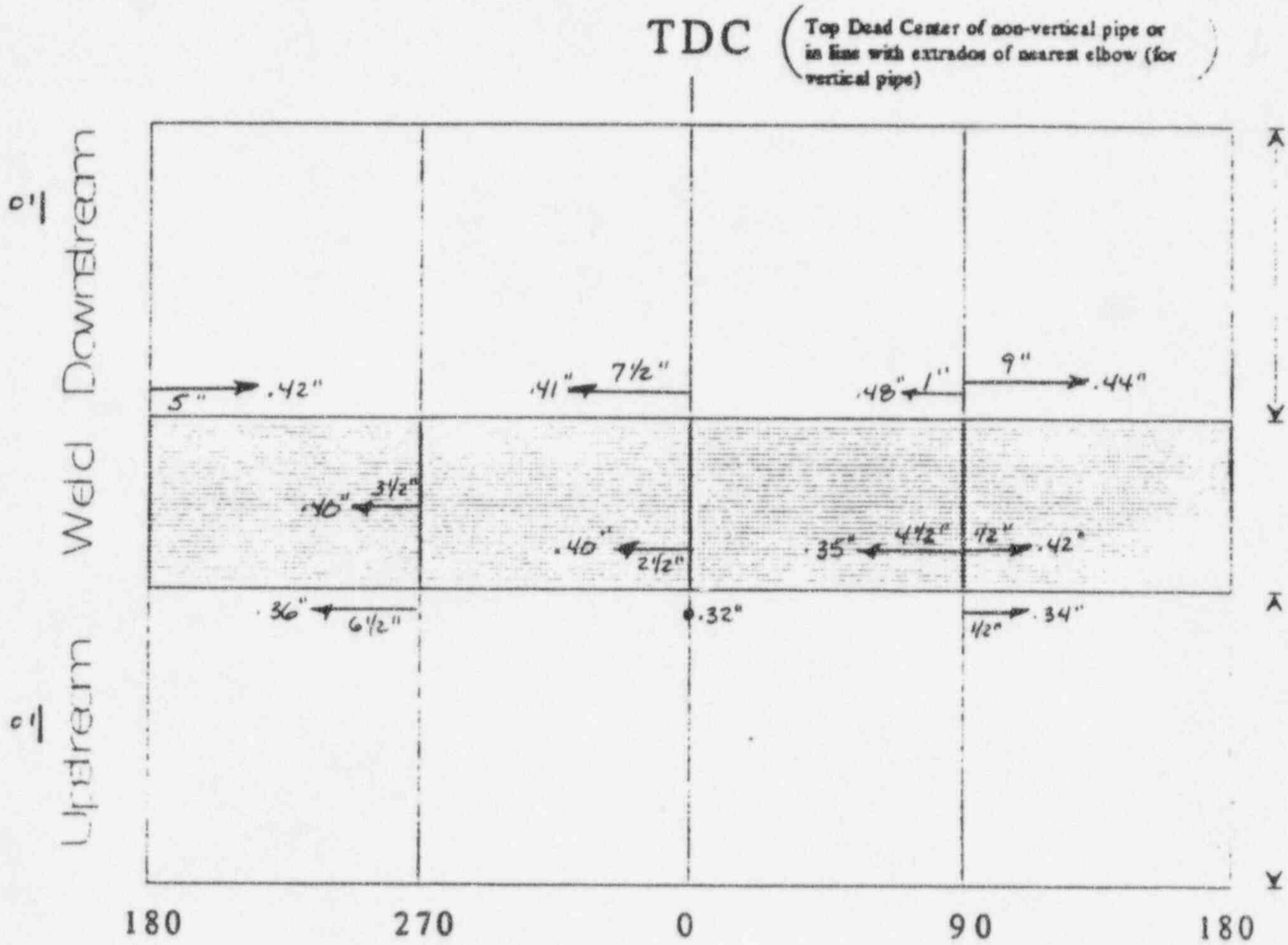
QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90				
U/S	.32"	0"	0°	1" FROM ℄
WELD	.35"	4 1/2"	90°	TOWARD US EDGE
D/S	.48"	1"	90°	3/4" FROM ℄
90-180				
U/S	.34"	1/2"	90°	3/4" FROM ℄
WELD	.42"	1/2"	90°	TOWARD US EDGE
D/S	.44"	9"	90°	7/8" FROM ℄
180-270				
U/S	.36"	6 1/2"	270°	3/4" FROM ℄
WELD	.40"	3 1/2"	270°	@ ℄
D/S	.42"	5"	180°	3/4" FROM ℄
270-0				
U/S	.32"	0"	0°	1" FROM ℄
WELD	.40"	2 1/2"	0°	TOWARD US EDGE
D/S	.41"	7 1/2"	0°	3/4" FROM ℄

Service Water System

Corrosion Monitoring Program

Line 1812 Weld No. F1001 Date 10/23/95

Show location and thickness of thinnest point in each sector



The location of the Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1") N/A

Recorded by: [signature] Level III Date 10/23/95

Reviewed by: [signature] Date 10/24/95

WR/RTS No. 95W000564

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1812 Weld No. F0903

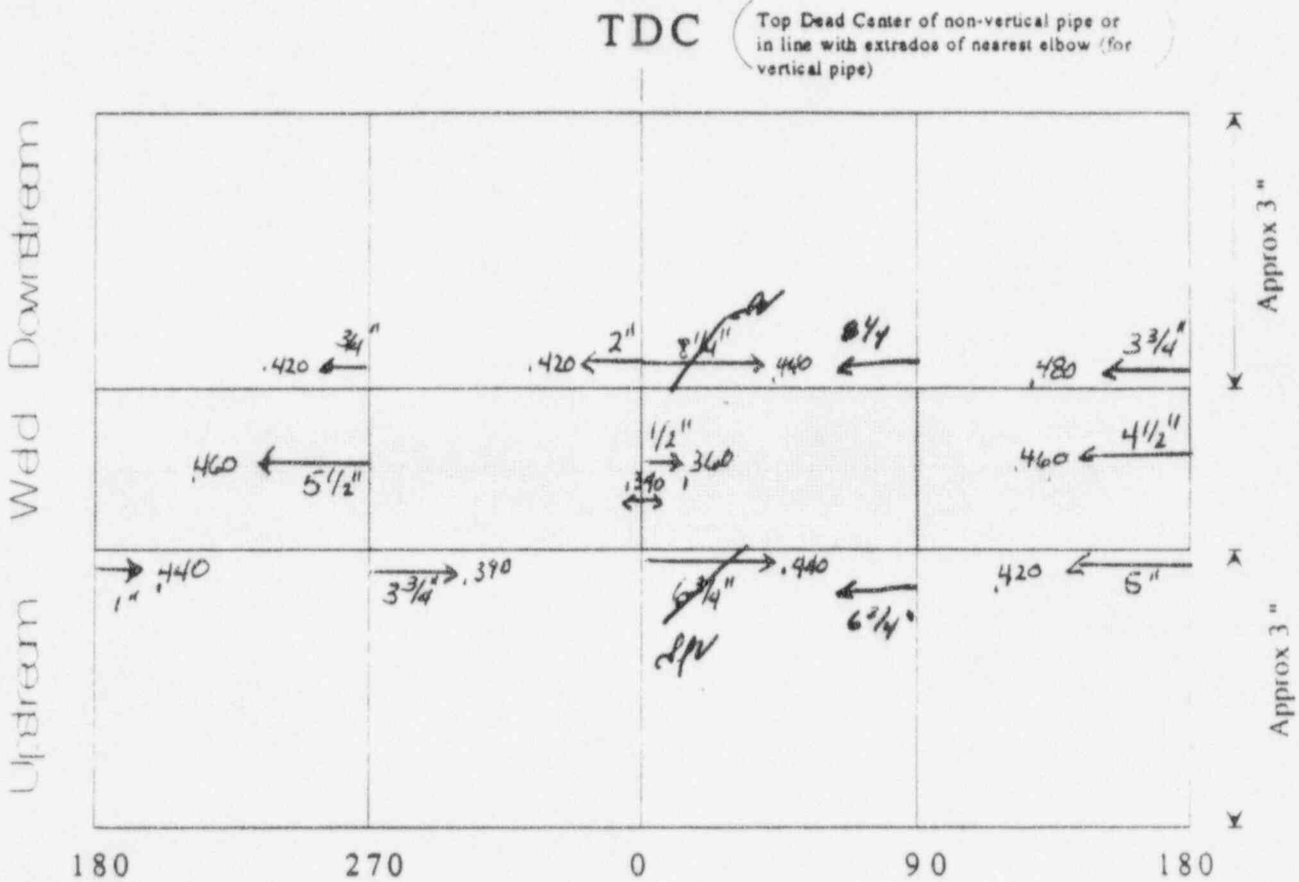
QUADRANT		LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90	U/S	.44"	6 3/4"	90°	3/4" FROM ℄
	WELD	.36"	1/2"	0°	TOWARD US EDGE
	D/S	.44"	8 1/4"	90°	3/4" FROM ℄
90-180	U/S	.42"	5"	180°	3/4" FROM ℄
	WELD	.46"	4 1/2"	180°	@ ℄
	D/S	.48"	3 3/4"	90°	3/4" FROM ℄
180-270	U/S	.44"	1"	180°	3/4" FROM ℄
	WELD	.46"	5 1/2"	270°	@ ℄
	D/S	.42"	3/4"	270°	3/4" FROM ℄
270-0	U/S	.39"	3 3/4"	270°	3/4" FROM ℄
	WELD	.34"	0"	0°	@ ℄
	D/S	.42"	2"	0°	3/4" FROM ℄

Service Water System

Corrosion Monitoring Program

Line 181 Z Weld No. F0903 Date 10-23-95

Show location and thickness of thinnest point in each sector



The location of the N/A
Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1")

Recorded by: D.M. Donovan Level II Date 10-23-95

Reviewed by: [signature] Date 10/24/95

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ULTRASONIC THICKNESS EXAMINATION REPORT

LOCATION SW1802-F1001 **SYSTEM** SW **WORK REQUEST** 95W000546

EXAMINATION AREA/RESULTS

DESCRIPTION OF EXAMINATION AREA AND RESULTS

WELD SW1802-F1001

SKETCH (Include obstructions, components, extensions, etc.)

☑ ATTACHED

EXAMINED [signature] LEVEL III DATE 10-20-95

EXAMINED DM Dunn LEVEL II DATE 10-20-95

EXAMINATION RESULTS

☐ ACCEPTABLE ☑ EVALUATION REQ'D

*REVIEWED [signature] LEVEL III DATE 10/21/95

REVIEWED ____________ DATE ______
Responsible Engineer

*Indications 1 and 2 were evaluated and determined to be base metal inclusions. [initials]

INSTRUMENT DATA

INSTRUMENT: MFG/MODEL Sonic 136 GTE/SN GTE 2646

☑ CRT ☐ CRT/DIGITAL ☐ DIGITAL ☑ HORIZONTAL LINEARITY PERFORMED (ACCEPTABLE)

COMP SURFACE TEMP >125° ☑ NO ☐ YES FLS No. N/A CAL DUE DATE N/A

CAL BLOCK MAT'L ___	THICKNESS	.100"	.300"	.500"	1.500"	TIME CHECKED
	FLS NO.	6330	6330	6330	6183	
	Cal. Due Date	9-20-98	9-20-98	9-20-98	9-21-98	
CALIBRATION CHECK	INITIAL	.100"	.300"	.500"	1.500"	0730
	INTERIM	.100"	.300"	.500"	1.500"	0925
	INTERIM					
	INTERIM					
	FINAL	.100"	.300"	.500"	1.500"	1110

TRANSDUCER

☐ PITCH / CATCH

☑ PULSE / ECHO

MFG. MSEB-KB

SER# 06894

SIZE 3.5x10mm FREQ. 4 MHz

COUPLANT

MFG. ULTRAGEL II

BATCH # 092121

ENGINEERING EVALUATION ☐ N/A ☐ ATTACHED ☐ SEE BELOW

EVALUATION/COMMENTS

☐ ACCEPT ☐ REPAIR/REPLACE Responsible Engineer ____________ Date ______

011

WR/RTS No. 95W000564

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1802 Weld No. F1001

QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90 U/S	.49"	1 1/2"	0°	3/4" From ℄
WELD	.40"	1/2"	0°	@ ℄
D/S	.38"	1"	0°	1 1/4" From ℄
90-180 U/S	.48"	1 1/2"	90°	3/4" From ℄
WELD	.38"	1/2"	90°	TOWARD DS EDGE
D/S	.36"	1 3/4"	188	3/4" From ℄
180-270 U/S	.51"	2"	270°	@ 3/4" ALONG WELD TOE 180°-270° CONSTANT
WELD	.45"	3 1/2"	270°	TOWARD DS Edge
D/S SURROUNDING AREA ≈ .50"	① * .10"	3"	180°	2 3/4"
270-0 U/S	.45"	1/2"	0°	3/4" From ℄
WELD	.40"	3/4"	270°	TOWARD DS Edge
D/S SURROUNDING AREA ≈ .45"	② * .07"	1/2"	270°	3 1/2" From ℄

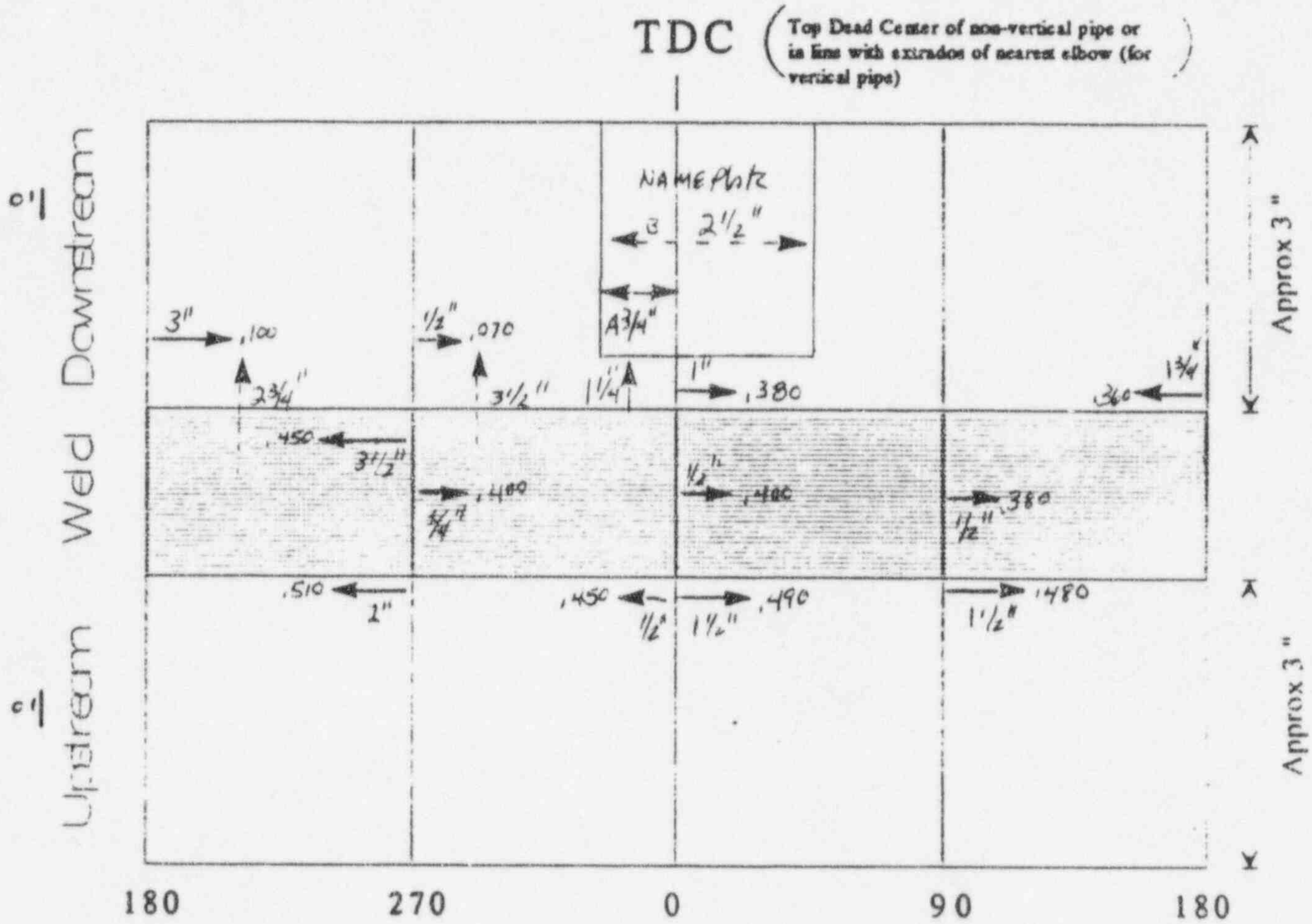
* NOTE: THESE LOW AREAS ARE SPOT INDICATIONS THAT CAN BE BOUNDED BY 1 TRANSDUCER WIDTH (.50") IN ANY DIRECTION. AT THAT POINT THE "T" BECOMES THE SAME AS THE GENERAL AREA SURROUNDING THE INDICATION.

Service Water System

Corrosion Monitoring Program

Line 1802 Weld No. F1001 Date 10-20-95

Show location and thickness of thinnest point in each sector



N/A

The location of the Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1")

Recorded by: DW Duran Level II Date 10-20-95

Reviewed by: [signature] Date 10/24/95

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ULTRASONIC THICKNESS EXAMINATION REPORT

LOCATION SW 1802-F0902 **SYSTEM** SW **WORK REQUEST** 95W000546

EXAMINATION AREA/RESULTS

DESCRIPTION OF EXAMINATION AREA AND RESULTS

WELD SW1802-F0902

SKETCH (Include obstructions, components, extensions, etc.)

☑ ATTACHED

EXAMINED [signature] LEVEL III DATE 10-20-95

EXAMINED [signature] LEVEL II DATE 10-20-95

EXAMINATION RESULTS

☐ ACCEPTABLE ☑ EVALUATION REQ'D

REVIEWED [signature] LEVEL III DATE 10/24/95

REVIEWED ______ DATE ______

Responsible Engineer

INSTRUMENT DATA

INSTRUMENT: MFG/MODEL Sonic 136 GTE/SN GTE 2646

☑ CRT ☐ CRT/DIGITAL ☐ DIGITAL ☑ HORIZONTAL LINEARITY PERFORMED (ACCEPTABLE)

COMP SURFACE TEMP >125° ☑ NO ☐ YES FLS No. N/A CAL DUE DATE N/A

CAL BLOCK MAT'L C/S	THICKNESS	.100"	.300"	.500"	1.500"	TIME CHECKED
	FLS NO.	6330	6330	6330	6183	
	Cal. Due Date	9-20-98	9-20-98	9-20-98	9-21-98	
CALIBRATION CHECK	INITIAL	.100"	.300"	.500"	1.500"	1250
	INTERIM	.100"	.300"	.500"	1.500"	1440
	INTERIM	.100"	.300"	.500"	1.500"	1630
	INTERIM					
	FINAL	.100"	.300"	.500"	1.500"	1710

TRANSDUCER

☐ PITCH / CATCH

☑ PULSE / ECHO

MFG. MSEB-KB

SER# 06894

SIZE 3.5x10mm FREQ. 4 MHz

COUPLANT

MFG. ULTRAGEL II

BATCH # 092121

ENGINEERING EVALUATION ☐ N/A ☐ ATTACHED ☐ SEE BELOW

EVALUATION/COMMENTS

☐ ACCEPT ☐ REPAIR/REPLACE Responsible Engineer ______ Date ______

WR/RTS No. 95W000564

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1802

Weld No. F0902

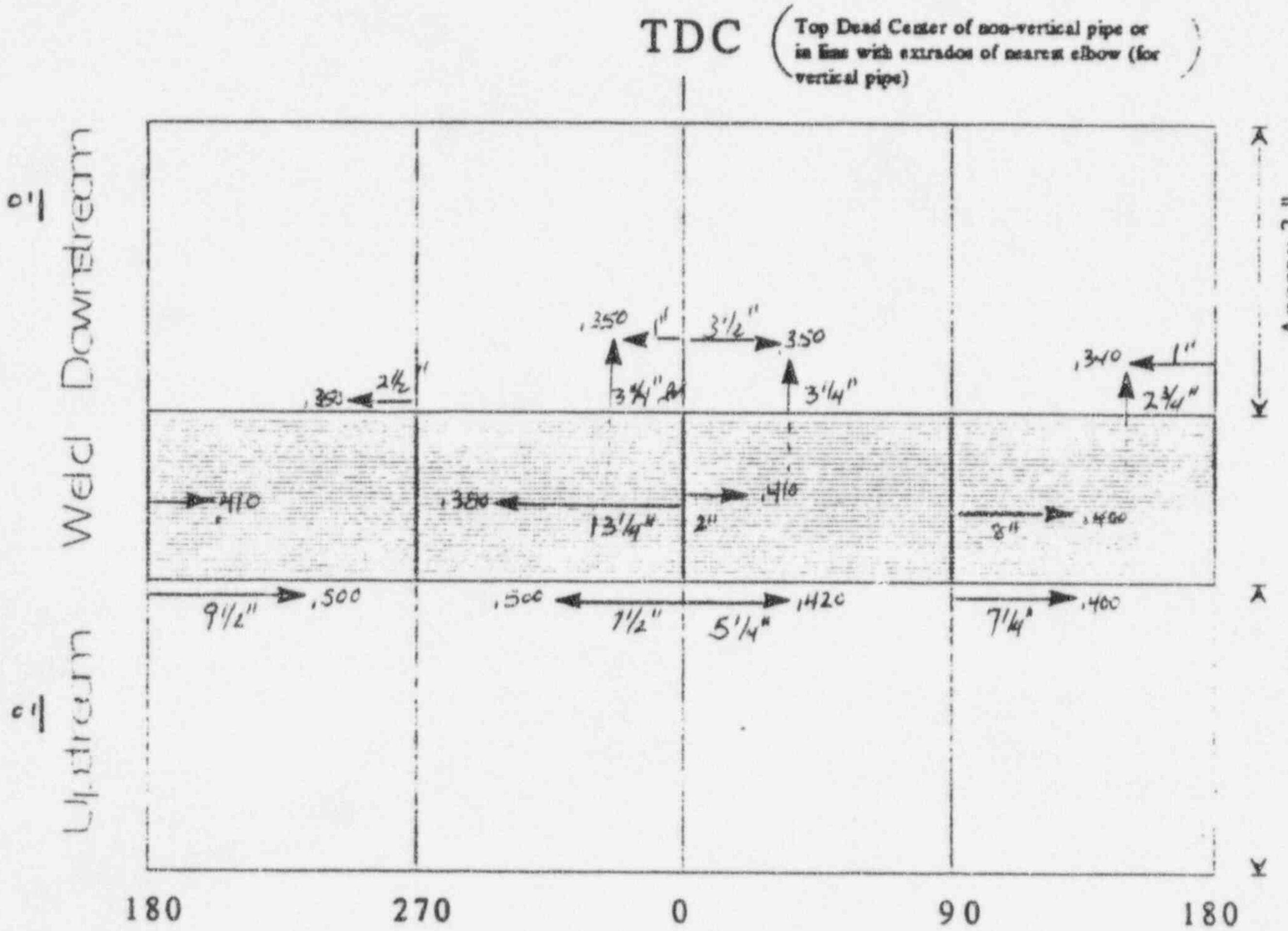
QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90				
U/S	.42"	5 1/4"	0°	3/4" FROM ℄
WELD	.41"	2"	0°	@ ℄
D/S	.35"	3 1/2"	0°	3 1/4" FROM ℄
90-180				
U/S	.40"	7 1/4"	90°	3/4" FROM ℄
WELD	.40"	8"	90°	@ ℄
D/S	.34"	1"	180°	2 3/4" FROM ℄
180-270				
U/S	.50"	9 1/2"	180°	1" FROM ℄
WELD	.41"	1"	180°	@ ℄
D/S	.35"	2 1/2"	270°	3/4" FROM ℄
270-0				
U/S	.50"	7 1/2"	0°	3/4" FROM ℄
WELD	.38"	13 1/4"	0°	@ ℄
D/S	.35"	1"	0°	3 1/4" FROM ℄

Service Water System

Corrosion Monitoring Program

Line 1802 Weld No. F0902 Date 10-20-95

Show location and thickness of thinnest point in each sector



The location of the N/A

Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1")

Recorded by: [signature] Level II Date 10-20-95

Reviewed by: [signature] Date 10/24/95

ES1807.013A
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ULTRASONIC THICKNESS EXAMINATION REPORT

LOCATION SW 1812 - F1002 **SYSTEM** SW **WORK REQUEST** 95W000546

EXAMINATION AREA/RESULTS

DESCRIPTION OF EXAMINATION AREA AND RESULTS

WELD SW1812 - F1002

SKETCH (Include obstructions, components, extensions, etc.)

☑ ATTACHED

EXAMINED [signature] LEVEL II DATE 10/18/95

EXAMINED [signature] LEVEL III DATE 10/18/95

EXAMINATION RESULTS

☐ ACCEPTABLE ☑ EVALUATION REQ'D

REVIEWED [signature] LEVEL III DATE 10/24/95

REVIEWED ______ DATE ______

Responsible Engineer

* SEE Page 3 for limitations DV

INSTRUMENT DATA

INSTRUMENT: MFG/MODEL SONIC 136 GTE/SN 2646

☑ CRT ☐ CRT/DIGITAL ☐ DIGITAL ☑ HORIZONTAL LINEARITY PERFORMED (ACCEPTABLE)

COMP SURFACE TEMP >125° ☑ NO ☐ YES FLS No. N/A CAL DUE DATE N/A

CAL BLOCK MAT'L C/S	THICKNESS	.100	.300	.500	1.500	TIME CHECKED
	FLS NO.	6330	6330	6330	6183	
	Cal. Due Date	9/20/96	9/20/96	9/20/96	9/21/96	
CALIBRATION CHECK	INITIAL	.100	.300	.500	1.500	1300
	INTERIM					
	INTERIM					
	INTERIM					
	FINAL	.100	.300	.500	1.500	1423

TRANSDUCER

☐ PITCH / CATCH

☑ PULSE / ECHO

MFG. MSEB - KB

SER# 06894

SIZE .5 FREQ. 4 MHz

COUPLANT

MFG. ULTRAGEL II

BATCH # 092121

ENGINEERING EVALUATION ☐ N/A ☐ ATTACHED ☐ SEE BELOW

EVALUATION/COMMENTS

☐ ACCEPT ☐ REPAIR/REPLACE Responsible Engineer ______ Date ______

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Rev. 1

Pg 1 of 3

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1812 Weld No. F1002

QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90				
U/S	.700"	.5"	90°	1"
WELD	.500"	.75"	90°	CTR LINE
D/S	.280"	3.75"	0°	5/8"
90-180				
U/S	.620"	10.5"	180°	1"
WELD	.380"	5.25"	90°	DS SIDE
D/S	.320	11.5"	180°	2"
180-270				
U/S	.590"	1 1/4"	270°	.5"
WELD	.480	1 1/4"	270°	DS SIDE
D/S	.260"	4 1/2"	270°	1/2" FRM ℄
270-0				
U/S	.500"	10"	0°	1/2"
WELD	.360"	2"	0°	℄
D/S	.260"	2"	270°	1/2"

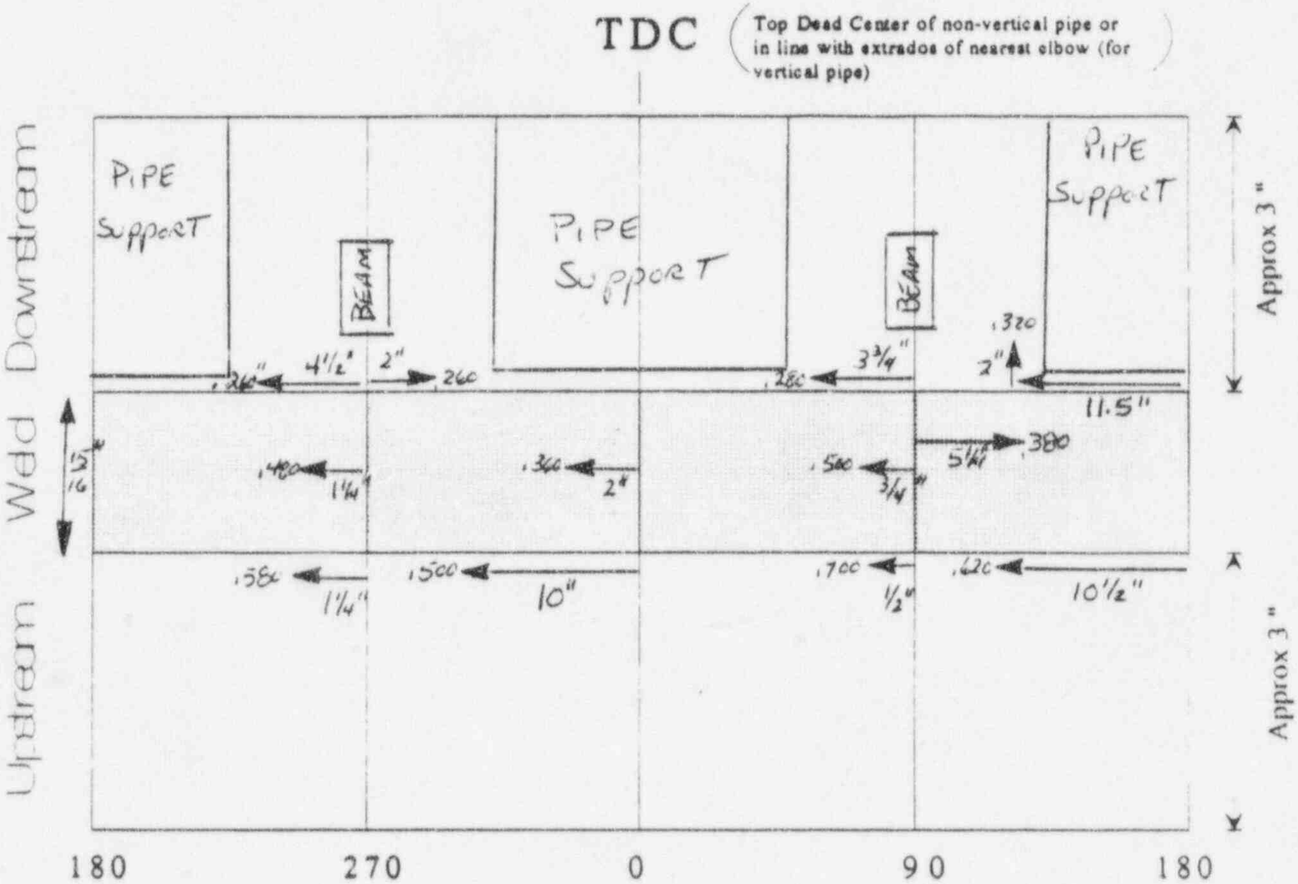
NOTE: WELD WIDTH 15/16"

Service Water System

Corrosion Monitoring Program

Line 1812 Weld No. F1002 Date 10-18-95

Show location and thickness of thinnest point in each sector



The location of the N/A

Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1")

Recorded by: Dun Duncan Level II Date 10-18-95

Reviewed by: [signature] Date 10/24/95

ULTRASONIC THICKNESS EXAMINATION REPORT

LOCATION SW1802-F0701 **SYSTEM** SW **WORK REQUEST** 95W000546

EXAMINATION AREA/RESULTS

DESCRIPTION OF EXAMINATION AREA AND RESULTS

WELD SW1802-F0701

SKETCH (Include obstructions, components, extensions, etc.)

☑ ATTACHED

EXAMINED [signature] LEVEL III DATE 10/20/95

EXAMINED [signature] LEVEL II DATE 10/20/95

EXAMINATION RESULTS

☐ ACCEPTABLE ☑ EVALUATION REQ'D

*REVIEWED [signature] LEVEL III DATE 10/24/95

REVIEWED ______ DATE ____

Responsible Engineer

* SEE NOTE ON Pg 2 for limitation

INSTRUMENT DATA

INSTRUMENT: MFG/MODEL Sonic 136 GTE/SN GTE 2646

☑ CRT ☐ CRT/DIGITAL ☐ DIGITAL ☑ HORIZONTAL LINEARITY PERFORMED (ACCEPTABLE)

COMP SURFACE TEMP >125° ☑ NO ☐ YES FLS No. N/A CAL DUE DATE N/A

CAL BLOCK MAT'L ___	THICKNESS	.100"	.300"	.500"	1.500"	TIME CHECKED
	FLS NO	6330	6330	6330	6183	
	Cal Due Date	9.20.98	9.20.98	9.20.98	9.21.98	
CALIBRATION CHECK	INITIAL	.100"	.300"	.500"	1.500"	1250
	INTERIM	.100"	.300"	.500"	1.500"	1440
	INTERIM	.100"	.300"	.500"	1.500"	1630
	INTERIM			~~1.500~~		
	FINAL	.100"	.300"	.500"	1.500"	1710

TRANSDUCER

☐ PITCH / CATCH

☑ PULSE / ECHO

MFG. MSEB-KB

SER# 06894

SIZE 3.5x10mm FREQ. 4 MHz

COUPLANT

MFG. ULTRAGEL II

BATCH # 092121

ENGINEERING EVALUATION ☐ N/A ☐ ATTACHED ☐ SEE BELOW

EVALUATION/COMMENTS

☐ ACCEPT ☐ REPAIR/REPLACE Responsible Engineer ______ Date ____

WR/ETS No. 95W000564

SERVICE WATER SYSTEM

CORROSION MONITORING PROGRAM

Line No. 1802 Weld No. F0701

QUADRANT	LOWEST READING	CIRC. MEASUREMENT	FROM REF. PT.	AXIAL MEASUREMENT FROM WELD CENTER LINE
0 - 90 U/S	.38"	17 1/2"	0°	1" From ℄
WELD	.43"	11 1/2"	0°	@ ℄
D/S	.52'	12"	0°	3/4" From ℄
90-180 U/S	.41"	9"	180°	3/4" From ℄
WELD	.41"	7 3/4"	180°	TOWARD US Edge
D/S	.50"	1"	90°	3/4" From ℄
180-270 U/S	.44"	1/2"	270°	3/4" From ℄
WELD	.43"	2 3/4"	180°	@ ℄
D/S	.58"	12 1/2"	270°	1 1/4" From ℄
270-0 U/S	.42"	9 1/4"	0°	3/4" From ℄
WELD	.48"	7 1/4"	0°	@ ℄
D/S	.66"	5 3/4"	0°	1 1/4" From ℄

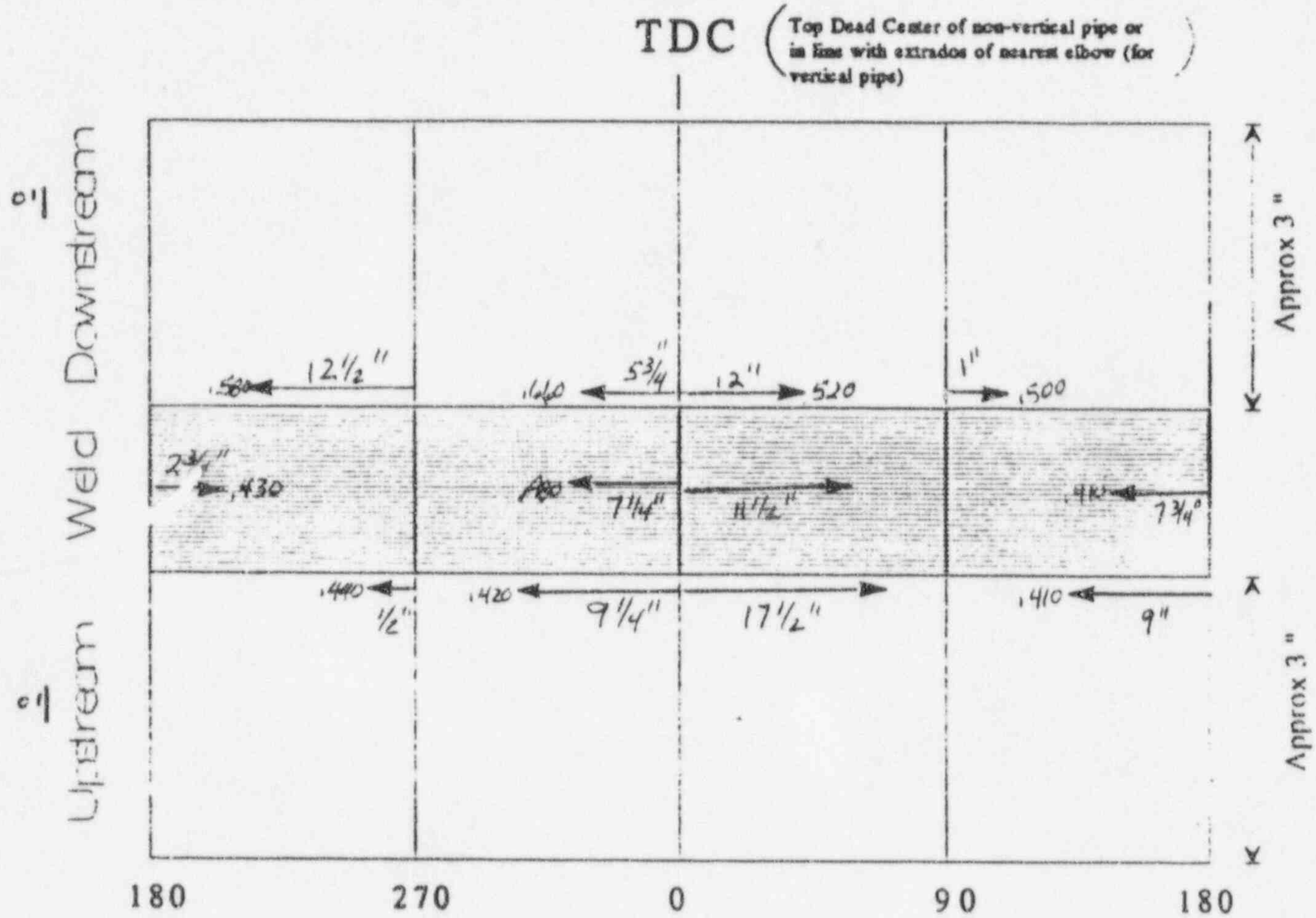
NOTE: THERE IS A GROOVE @ THE DOWNSTREAM WELD TOE (WEDDING BAND) THAT PREVENTS ACCURATE THICKNESSES FROM BEING TAKEN DIRECTLY ADJACENT TO THE WELD.

Service Water System

Corrosion Monitoring Program

Line 1802 Weld No. F0701 Date 10-20-95

Show location and thickness of thinnest point in each sector



The location of the Lowest (thinnest) reading does ☐ does not ☐ coincide with previous lowest reading (within 1") N/A

Recorded by: Don Donovan Level II Date 10-20-95

Reviewed by: [signature] Date 10/24/95

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