



**LOUISIANA**  
**POWER & LIGHT**

142 DELARONDE STREET

P. O. BOX 6008 • NEW ORLEANS, LOUISIANA 70174 • (504) 366-2345

May 28, 1984

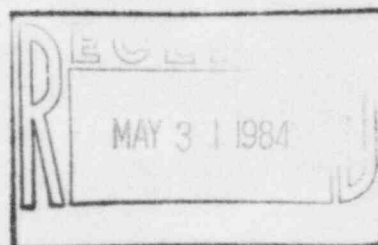
W3K84-1261

Q-3-A35.07.74

Mr. John T. Collins  
Regional Administrator, Region IV  
U. S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76012

Dear Mr. Collins:

SUBJECT: Waterford SES Unit No. 3  
Docket No. 50-382  
Significant Construction Deficiency No. 74  
"T&B Undersized Socket Welds"



The attached information is submitted as requested by Mr. R. Hall at the USNRC Inspection 84-24 exit.

Very truly yours,

*T. F. Gerrets*  
T. F. Gerrets

Corporate Quality Assurance Manager

TFG:CNH:VBR

Attachment

8406050456 840528  
PDR ADOCK 05000382  
S PDR

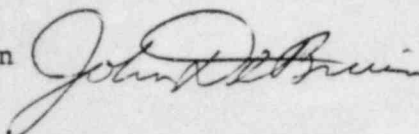
IE-27

MEMORANDUM

May 23, 1984

To: S. Horton/J. Pertuit

From: J. DeBruin



Subject: LOUISIANA POWER & LIGHT COMPANY  
WATERFORD SES - UNIT NO. 3  
NCR 7680 IMPACT ON SCD 74; SCHEDULE 80  
UNDERSIZE SOCKET WELDS

Ref: (1) QA Memo W3QA28185 dated April 27, 1984  
(2) Attachment No. 1, NCR 7680  
(3) Attachment No. 2, Memo from R. Sankar  
(4) Attachment No. 3, Summary of SCD #74

NCR 7680 was initiated as a result of LP&L QA identification of 12 undersize schedule 80 socket welds on piping isometric CC-IC-47. Six of the welds require repair in order to meet ASME Code requirements. These welds were not originally in the inspection sample conducted as part of SCD 74. One requests engineering to assess the impact of this NCR on SCD 74 evaluation.

It is my assessment that this NCR has no impact on the original SCD evaluation. The basis for this decision is as follows:

- (1) Under the scope of SCD 74, 660 Schedule 80 fitting socket welds from a cross section of piping systems were ultimately reinspected, five socket welds did not meet code requirements and; therefore, required repair. This was deemed an isolated number of repairs and not indicative of generic concerns. In addition, none of the 53 schedule 80 fitting socket welds re-examined as part of NCR 2461 were found undersized.
- (2) A review of the weld maps documented in NCR 7680 reveals that only one of the six welds was uniformly undersized. The remaining five welds has only isolated section of weld which did not meet code requirements. Four of the six welds exhibited undersize conditions for 45° or less of the weld circumference. One weld had two isolated sections of weld undersize. Of the 725 schedule 80 fitting socket welds re-examined as part of NCR 7680, (12), NCR 2461 (53) and NCR (5670) (660) (SCD 74), only the one weld discussed above was documented to be uniformly undersized.  
*5760 given 5/23/84*
- (3) The worst undersize conditions documented in NCR 7680 are bounded by the finite element analysis performed as part of SCD 74. Attachment No. 2 confirms the weld size successfully analyzed for 2" nominal diameter schedule 80 piping. The analysis verifies that even with the worst forces and moments that can be applied, the code allowable stresses are not exceeded.

S. Horton/J. Pertuit

- 2 -

May 23, 1984

Given the above, no further action is required. SCD 74 shall remain as originally dispositioned.

Attachment No. 3 provides a summary of SCD 74. This summary was prepared at the request of the NRC during a recent discussion relative to SCD 74.

JD/11

Attachment

cc: With Attachment  
J. Houghtaling  
T. Cutrona  
M. Yates  
L. A. Stinson  
T. Grant  
ESSE File P.2

REPORT NO. 103-7680

INSTRUCTIONS: (See back of form)

TREND

CODE 4200.00.53 SUS: 465

Distribution:

White - PQAE or Site QA Supervisor

Yellow - Organization recommending disposition

Pink - Initiator of NCR

PROJECT (2)

WATERFORD SES UNIT 1

SUPPLIER/CONSTRUCTION QC OR CONTRACTOR (4)

EBASCO TRIMPHINS-BECKWITH INC.

P.O. NO. (5)

N/A

DESCRIPTION OF COMPONENT, PART OR SYSTEM (6)

UNDERSIZE WELDS LINE 3002-240A

DRAWING NO./SPEC NO. (3)

ISO. E3029 LW3-CC-47ISO. ESSE IC-AC-6ISO. E3029 LW3-AC-50EMDRAC 8469-210R, G357 S03  
ASME CLASS 3

I. DESCRIPTION OF NONCONFORMANCE (7) (Items Involved, Specification, Code or Standard to Which Items Do Not Comply, Submit Sketch if Applicable)

FIELD VERIFICATION OF UNDERSIZE WELDS IDENTIFIED BY MEMO W3K-83-0343  
DID MARCH 18, 1983 (ATTACHMENT No. 1) REVEALS THE CONDITIONS AS REPORTED  
ON ATTACHMENT NO. 2.

EBASCO Q.A. RESPONSES TO THE REMAINDER OF FINDINGS STATED ON MEMO  
(ATTACHMENT No. 1) ARE ON ATTACHMENT No. 3.

(ATTACHMENTS TOTAL 9 PAGES.)

ITEMS: 0030

NAME AND SIGNATURE OF PERSON REPORTING NONCONFORMANCE (8)

L.W. JAEGER

TITLE/COMPANY

PQAS EBASCO

DATE (9)

4-12-84

II. RECOMMENDED DISPOSITION (10) (Submit Sketch if Applicable)

ESSE TO EVALUATE WELDS

PER MEASUREMENTS ON ATTACHMENT  
NO. 2

REPORTABLE

10CFR50.53(b)

YES

NO

10CFR21Reviewed by: MRYDate: 4/13/84

ESSE TO CORRECT ISOMETRIC DRAWINGS AS NOTED  
IN ATTACHMENT #3

NAME AND SIGNATURE OF PERSON RECOMMENDING DISPOSITION (11)

U. QUINBY

TITLE/COMPANY

SRE/EBASCO

DATE (12)

4/13/84

III. EVALUATION OF DISPOSITION BY EBASCO, REASON FOR DISPOSITION (13)

1. CONCUR WITH ATTACH. #4 MAKING THIS NCR PART OF SCD #74 AND CON-  
FORM TO SAME.

2. CONCUR WITH ISO DUE REVISION PER ATTACH. #3 & #5

IV. CORRECTIVE ACTION (14)

☒ Required☐ Not RequiredMINIMUM WELD DIMENSIONS OF

C<sub>x</sub> = 0.144 & THROAT = 0.089 SHALL BE SATISFIED FOR SW-3, 6, 30, 31, 37,  
& 38 PER ANALYSIS OF WORST CASE BASIS (5/16/83 MEMO FROM A. SHAMAN TO)

V. (15) ☒ ENGINEERING☒ QUALITY ASSURANCE☐ CONSTRUCTIONREF: ATB EST NCR-W3-8760☐ OTHER

NAME (SIGNATURE)

Chap. 41 Chy

NAME (SIGNATURE)

C. McClaskey

NAME (SIGNATURE)

C. McClaskey

NAME (SIGNATURE)

DATE

4/18/84

DATE

4-23-84

DATE

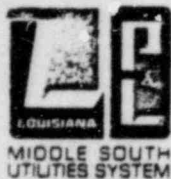
DATE

☐ ACCEPTED ☐ REJECTED☒ ACCEPTED ☐ REJECTED☐ ACCEPTED ☐ REJECTED☐ ACCEPTED ☐ REJECTED☐ ACCEPTED WITH COMMENTS☒ ACCEPTED WITH COMMENTS☐ ACCEPTED WITH COMMENTS☐ ACCEPTED WITH COMMENTS

VI. VERIFICATION OF DISPOSITION

☒ REQUIRED☐ NOT REQUIRED (16)





**LOUISIANA**  
POWER & LIGHT

142 DELARONDE STREET  
P O BOX 6008

NEW ORLEANS, LOUISIANA 70174

March 18, 1983

332 Peggy  
cc: Wills  
Higgs  
Zasolo  
Bourque  
Richardson  
Belline  
Phillips  
Huck  
Cheryl

W3K-83-0343  
Q-3-A35.02.33  
Response Req'd: Yes  
By: ASAP

TO: L. A. Stinson  
Manager, Site Quality Program  
Ebasco Services, Incorporated

FROM: L. L. Bass *(LLB)*  
Project QA Engineer

SUBJECT: Waterford SES Unit 3  
Verification Walkdown for  
Start-Up System (SUS) 46E (T-B)

LP&L Construction QA has completed its subsequent plant walkdown of the Tompkins-Beckwith portion of SUS 46E and is rejecting Tompkins-Beckwith physical hardware for discrepancies. The attached pages provide a listing of these discrepancies.

Ebasco should take corrective action in order to assure that the physical hardware is acceptable. A re-review shall be conducted following completion of Ebasco's corrective action.

Please respond to these discrepancies by identifying the corrective action taken and what was done to preclude repetition.

LLB:grf

Attachment

cc: T. F. Perrets  
Nuclear Records (2)  
Central Records  
LP&L Site QA File

**RECEIVED**

MAR 21 1983

*Ch*  
EBASCO Q.A.

This is Attachment 1  
to NCR W3-7680, page 1  
of 3 QR/5-23-84



LP&L CONSTRUCTION QA COMMENTS  
STATUS REVIEW SUS 46E  
PIPING (T&B) Walkdown Verification

Document Number or  
Identification

Comments

Iso. No. LW3-CC-47

Weld No.

FW-2	Walkdown shows 90° ell WCR states 45° ell
FW-4	Weld undersize
FW-6	Weld undersize
FW-7	Weld was made on CC-48 not CC-47
SW-1 R-1	Weld undersize
3	Weld undersize
6 RW1	Weld undersize
SW-18 thru SW-25	These welds don't exist on pipe in field. All these documented on LW3 CC-48 by mistake.
SW-26 RW-1	Weld undersize
SW-29	Weld undersize
SW-30	Weld undersize
SW-31	Weld undersize
SW-37	Weld undersize
SW-38	Weld undersize
SW-39	Weld undersize
<u>ACIC-6</u>	
SW-59	Weld is pipe to tee, not 90° ell as shown on WCR
<u>AC-LW3-50</u>	
SW-64	Iso shows valve V720, WCR shows V727 walkdown verified valve to be V729.

This is Attachment 1  
to NCR W3- 7080 page 2  
of 3 JK/5-23-84

LP&L CONSTRUCTION QA COMMENTS  
STATUS REVIEW SUS 46E  
PIPING (T&B) Walkdown Verification

Document Number or  
Identification

Comments

AC-IC-1222

FW3 & 18

The insulation was removed between FW18 and north side of J wall. This spool was cut and no spool number or heat number could be found to verify the traceability of the pipe material.

FW 6 & 17

The insulation was removed between FW6 & 17. This spool was cut and no spool number or heat number could be found to verify the traceability of the pipe material.

FW7 & 27

The insulation was removed between FW 7 & 27. This spool was cut and new material was added. The heat number on the pipe was N97405 but the weld record had N94705

FW-14 & 34  
19 & 20

Did not have adequate time to remove the insulation and reinstalling it today by 3:30. These two pipe spools were not inspected but the question still exists about the material traceability.

AC-IC-1222

Detail A for Vent Line is oriented 180° to the isomatic drawing.

This is Attachment 1

in 401 403-7680 page 3

of 3 GR 5-23-84

# TOMPKINS-BECK WITH AS-BUILT SKETCH

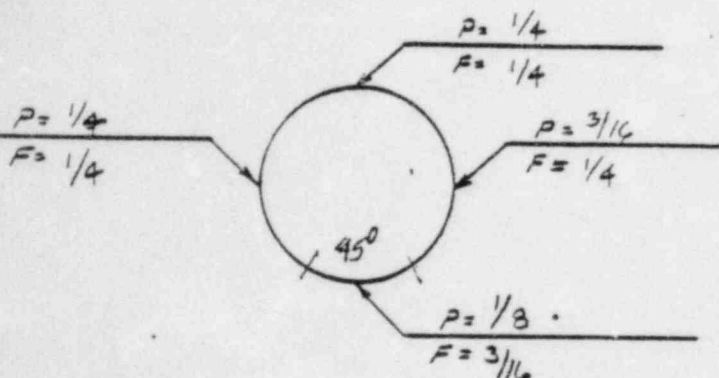
EBTSCC GH

4-12-84

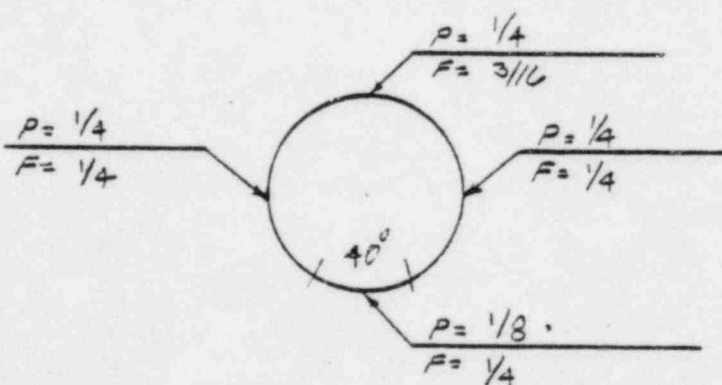
SHT. 1 of 4

FIELD ENG. CL. Smith DATE 4/12/84 AREA \_\_\_\_\_ SYS. \_\_\_\_\_  
 DRAVO ISO NO. LW3-CC-47 PLAN DWG NO. \_\_\_\_\_ SPOOL SK. NO. \_\_\_\_\_  
 REV'D PER \_\_\_\_\_ REVIEWED BY \_\_\_\_\_ PROJ. ENG. \_\_\_\_\_

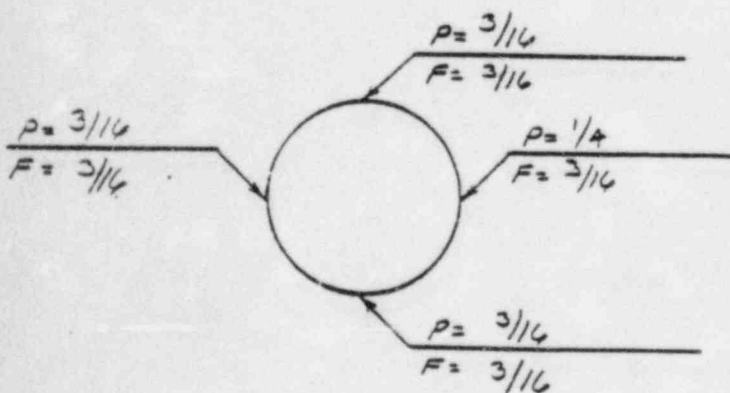
ALL WELDS ARE PAINTED



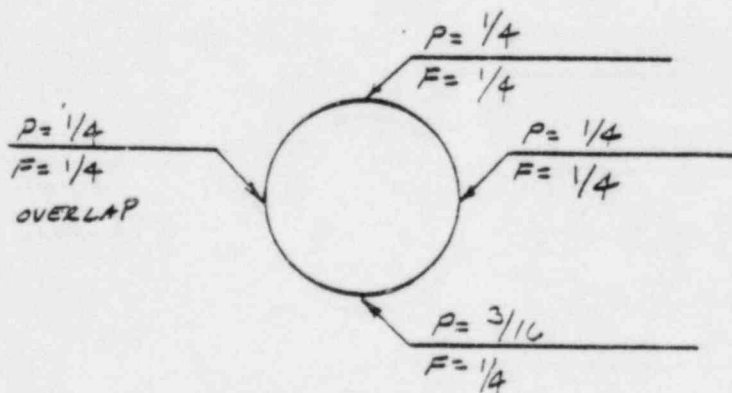
WELD NO. SW-31  
 EL. LOOKING WEST



WELD NO. SW 30  
 EL. LOOKING N.E.



WELD NO. SW 29  
 EL. LOOKING N.E.



WELD NO. SW 26

This is Attachment #2  
 to NCR W3-7680 Page 1  
 EL. LOOKING NORTH

of 4 1-12-84



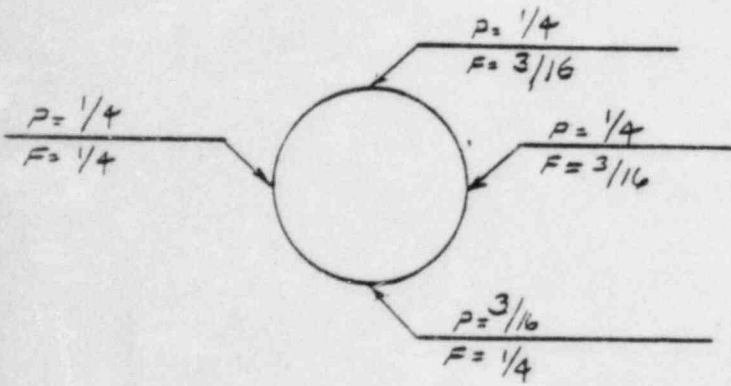
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DRASCO QA.

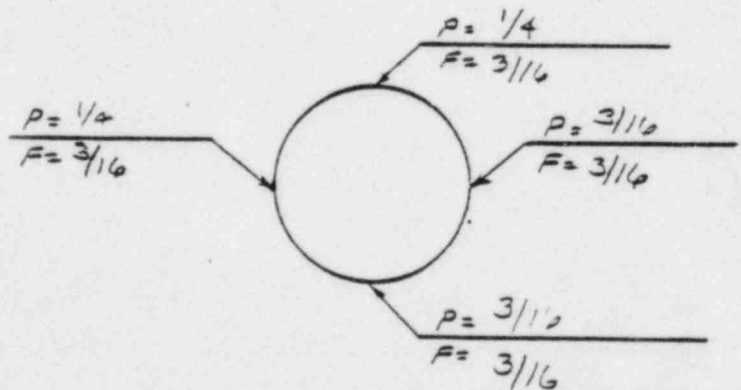
SHT. 2 OF 4

FIELD ENG. Goodland DATE 4-12-84 AREA \_\_\_\_\_ SYS. \_\_\_\_\_  
 DRAVO ISO NO. LW3-CC-47 PLAN DWG NO. \_\_\_\_\_ SPOOL SK. NO. \_\_\_\_\_  
 REV'D PER \_\_\_\_\_ REVIEWED BY \_\_\_\_\_ PROJ. ENG. \_\_\_\_\_

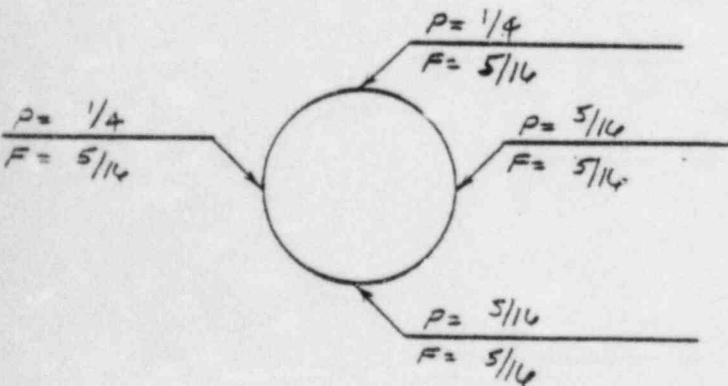
ALL WELDS ARE PAINTED



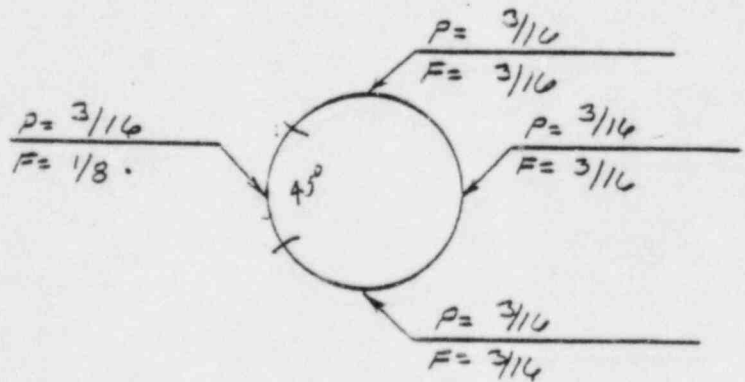
WELD NO. FW-L  
 EL. LOOKING NORTH



WELD NO. FW-4  
 EL. LOOKING SOUTH



↑N WELD NO. SW-1



WELD NO. SW-3

PLAN

This is Attachment #2

to NCR W3-7680 page 2

PLAN

# TOMPKINS-BECKWITH AS-BUILT SKETCH

EBASCO G.A.

4-12-84

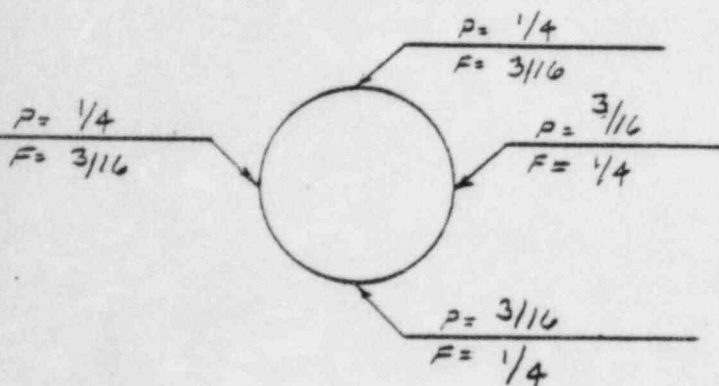
SHT. 3 OF 4

FIELD ENG. C. Goodland DATE 9/12/84 AREA \_\_\_\_\_ SYS. \_\_\_\_\_

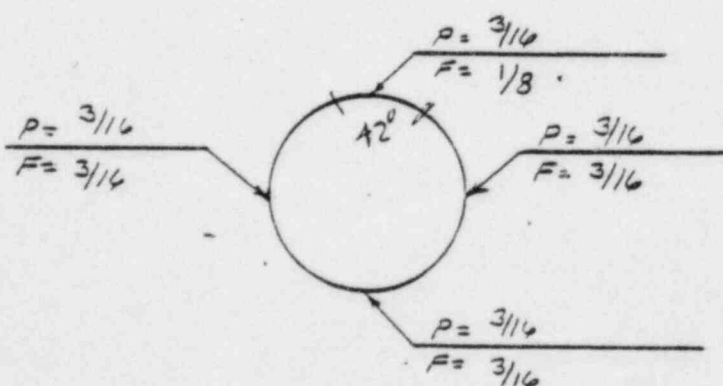
DRAVO ISO NO. LW3-CC-47 PLAN DWG NO. \_\_\_\_\_ SPOOL SK. NO. \_\_\_\_\_

REV'D PER \_\_\_\_\_ REVIEWED BY \_\_\_\_\_ PROJ. ENG. \_\_\_\_\_

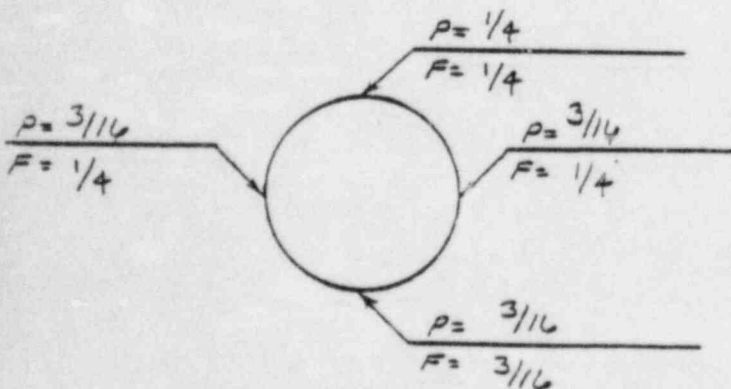
ALL WELDS ARE PAINTED



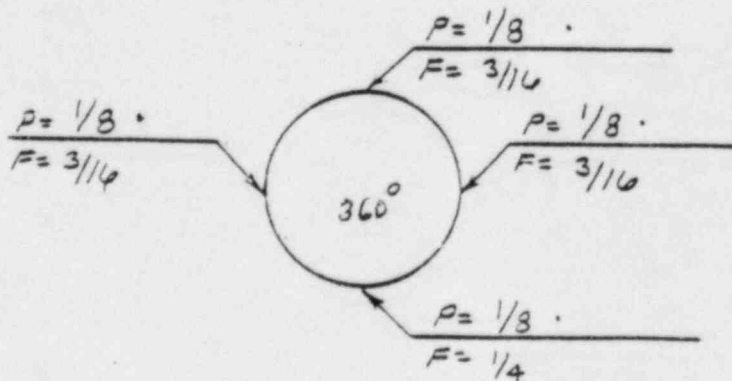
WELD NO. FW-2  
EL. LOOKING S.W.



WELD NO. SW-6  
EL. LOOKING NORTH



WELD NO. SW-39



WELD NO. SW-38

↑ N PLAN

This is Attachment #2

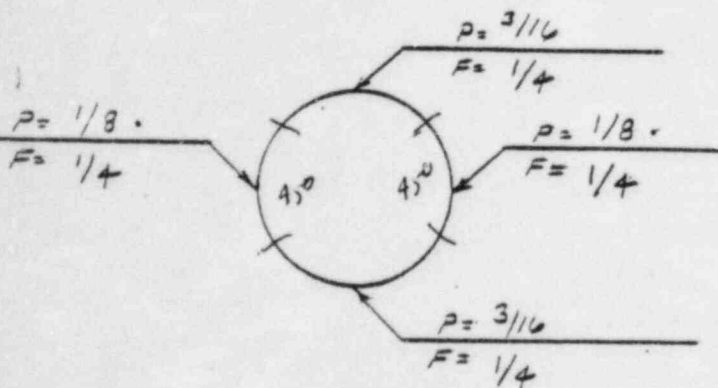
PLAN

# TOMPKINS-BECK WITH AS-BUILT SKETCH

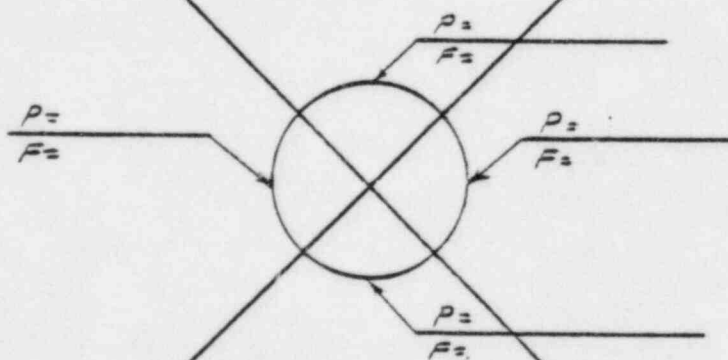
EBASCO Q.A.

FIELD ENG. Chadwick DATE 4-12-84 AREA \_\_\_\_\_ SYS. SHT. 90=4  
 DRAVO ISO NO. LW3-CC-47 PLAN DWG NO. \_\_\_\_\_ SPOOL SK. NO. \_\_\_\_\_  
 REV'D PER \_\_\_\_\_ REVIEWED BY \_\_\_\_\_ PROJ. ENG. \_\_\_\_\_

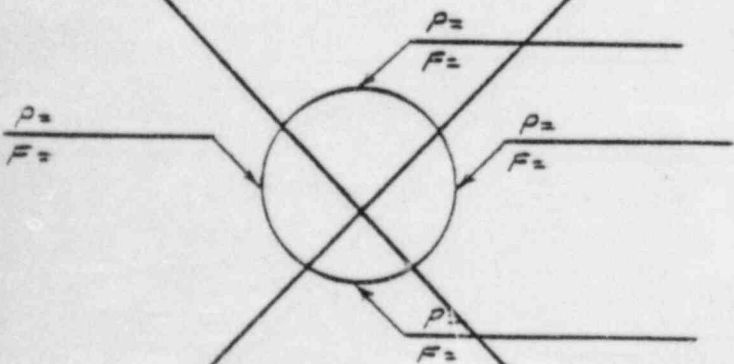
ALL WELDS ARE PAINTED



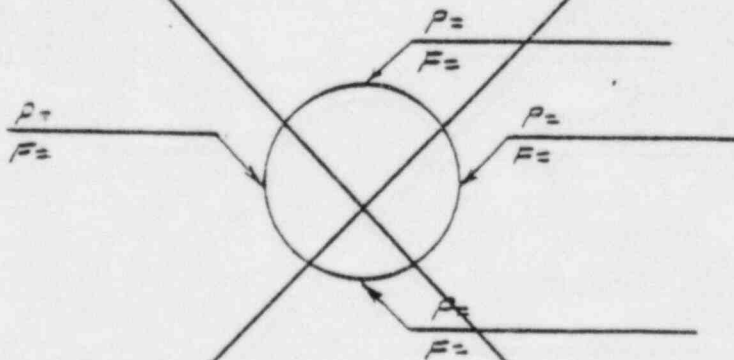
WELD NO. SW-37  
 PLAN



WELD NO. \_\_\_\_\_



WELD NO. \_\_\_\_\_



WELD NO. \_\_\_\_\_

This is Attachment #2

to NCR W3 7680 page 4

of 4 Rev 4-12-84

ISO. NO. LW3-CC-47

FW-2 - Comments:

Walkdown shows 90° ELL, WCR states 45° ELL.

Ebasco Q.A. Finding:

A review of Weld Control Record (WCR) shows HT#S201, review of CMTR shows HT#S201 to be 90° ELL. Based on this review and field verification we find no basis for the concern.

FW-7 - Comments:

Weld was made on CC-48 not CC-47.

Ebasco Q.A. Finding:

Field verification shows that FW-7 exists in the Field on both lines ISO. LW3-CC-47 and LW3-CC-48.

SW-18 Thru SW-25 Comments:

These welds don't exist on pipe in field. All these documented on LW3-CC-48 by mistake.

Ebasco Q.A. Finding:

These welds exist in field on Line #3CC2-240A, ISO. No. LW3-CC-47, ISO Package Weld Control Records are located in ISO. Package LW3-CC-47 in the vault.

ISO. NO. ACIC-6

SW-59 Comments:

Weld is pipe to tee, not 90° ELL as shown on WCR.

Ebasco Q.A. Finding:

Verification of records show that Weld Control Record (WCR) has recorded HT#C344 for weld SW-59 fitting, CMTR shows HT#C344 to be 1" Tee 3000 SW, thus we find no basis for this concern. Field walkdown verifies as build to be weld for pipe to tee.

ISO. NO. AC-LW3-50

SW-C4 Comments:

ISO shows valve V720, WCR shows V727, walkdown verified valve to be V729.

Ebasco Q.A. Finding:

Field verification shows valve V727-12 to be installed per drawing requirement, Weld Control Record shows V727-12 installed at Weld SW-64, material list shows V727-12 taken from warehouse for installation. We find no justification for concern.

ISO. NO. AC-IC-1222 Comments:

Detail "A" for vent line is oriented 180° to the isometric drawing.



(AC-IC-1222 cont'd.) 9-12-84

Ebasco Q.A. Finding.

Field verification verifies this to be true, recommend drawing to be redlined to show this.

ISO NO. AC-IC-1222 (cont'd.) 9-12-84

FW 3 & 18 Comments:

The insulation was removed between FW 18 and North side of "J" wall. This ~~spool~~<sup>9-12-84</sup> was cut and no spool number or heat number could be found to verify the traceability of of the pipe material.

Ebasco Q.A. Comments:

A review of the installation records show that the material used is traceable to an acceptable CMTR. As long as material is traceable up to and including installation Ebasco Q.A. finds this acceptable and no justification for concern.

FW 6 & 17 Comments:

The insulation was removed between FW 6 & 17. This spool was cut and no spool number or heat number could be found to verify the traceability of the pipe material.

Ebasco Q.A. Comments:

Same as the comments for FW 3 & 18.

FW 7 & 27 Comments:

The insulation was removed between FW 7 & 27. This spool was cut and new material was added. The heat number on the pipe was N97405 but the weld record had N94705.

Ebasco Q.A. Comments:

The Weld Control Record has been changed to reflect as built condition.

FW 14 & 34

19 & 20 Comments:

Did not have adequate time to remove the insulation and reinstalling it today by 3:30. These two pipe spools were not inspected but the question still exists about the material traceability.

Ebasco Q.A. Comments:

Same as the comments for FW 3 & 18 concerning material traceability. Lack of time has no affect on the quality of material or installation. We can find no justification for this concern.

ATTACHMENT # 4Page 1 of 1NONCONFORMANCE REPORT W3-7680

Reportability  
EVALUATION OF ~~DISPOSITION~~ - EBASCO QUALITY ASSURANCE

THE DEFICIENCY IN SCH 80 SOCKET WELOS WAS PREVIOUSLY IDENTIFIED AS SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 74 VIA NCR-W3-5760. THE CORRECTIVE ACTION FOR SCD #74 CALLED FOR A SAMPLE REINSPECTION OF SCH 80 SOCKET WELOS. AN ENGINEERING ANALYSIS WAS PERFORMED OF WORST CASE SITUATION WHICH WAS THE BASIS FOR ACCEPTING THE SCH. 80 SOCKET WELOS ALONG WITH THE SAMPLE INSPECTION. THE DISPOSITION OF THIS NONCONFORMANCE SHALL BE COMPATIBLE WITH THAT OF NCR-W3-5760 AND COMMITMENTS MADE IN SCD #74. BASED ON THE ABOVE, THIS NCR SHALL BE ADDED TO SCD #74 FILE AS ADDITIONAL INFORMATION BUT DOES NOT REQUIRE THE SCD BE REOPENED.

Copies of the following documents shall be returned with this Nonconformance Report to Ebasco Quality Assurance to verify corrective action taken. This shall also include any additional documents generated as required by the Quality Assurance Program and attendant procedures. The following documents have been requested by Ebasco Quality Assurance:

PT/RT/UT Report Nos. _____	Procedure Nos. _____
PCS/Traveler Nos. _____	Drawing Nos. _____
DCN/FCR Nos. _____	Sketch Nos. _____
Inspection Report Nos. _____	_____
Test Report Nos. _____	_____
Calibration Report Nos. _____	_____

MICHAEL R. HARRIS *Michael R. Harris*  
Name and Signature

Q. A. ENGINEER  
Title

4/13/84  
Date

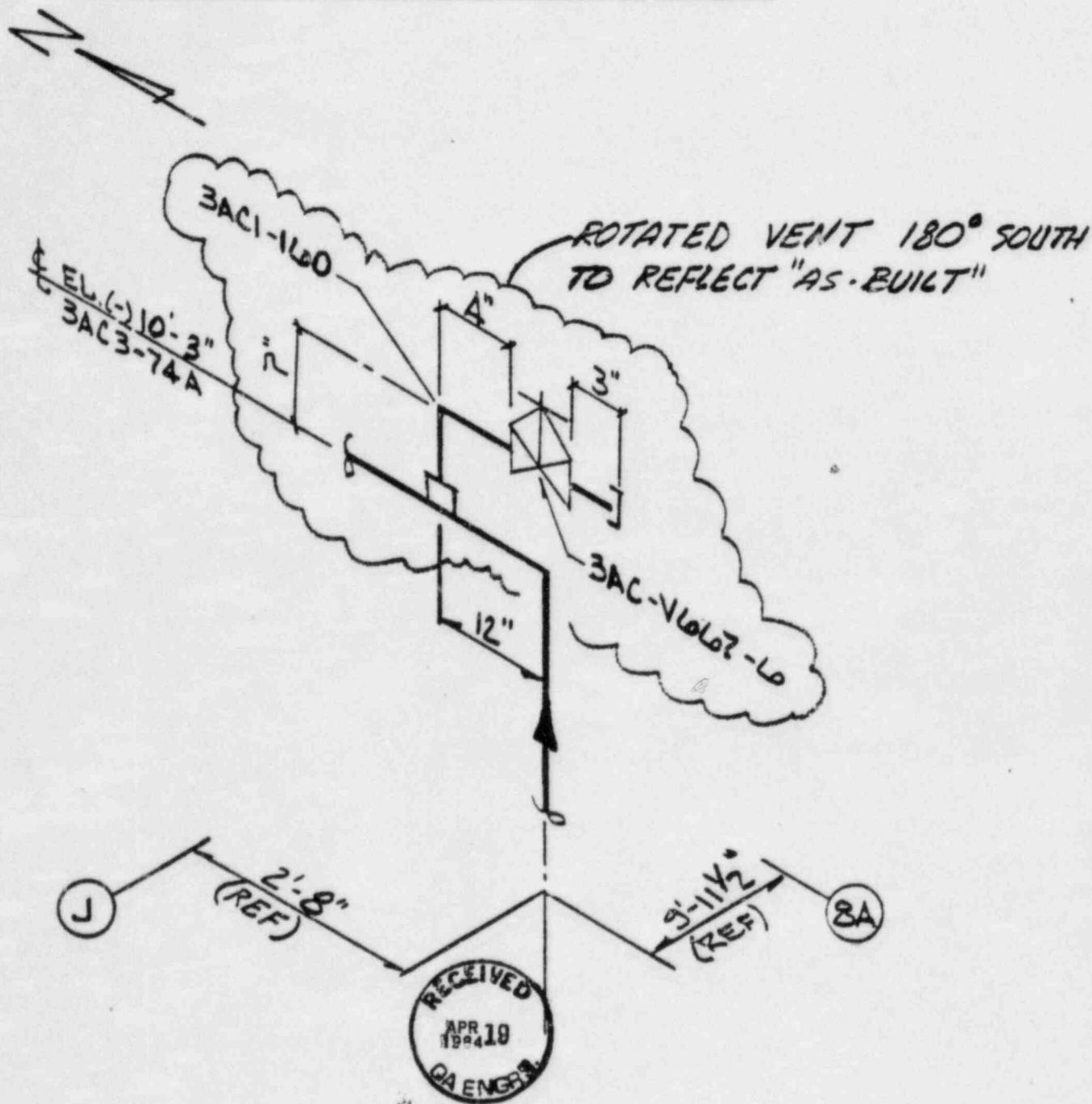
This is Attachment #4  
to NCR W3-7680 Page 1  
of 1 *QJ* 4-13-84

## EBASCO SERVICES INCORPORATED

BY G.E. PAYNE DATE 4-18-84FIELD  
WATERFORD 3SHEET 1 OF 1

CHKD. BY \_\_\_\_\_ DATE \_\_\_\_\_

OFS NO. \_\_\_\_\_ DEPT. NO. \_\_\_\_\_

CLIENT L. P. & L.PROJECT WATERFORD SES UNIT IIISUBJECT NCR-W3-7680, E2804-AC-1C-1222, G-857, 503NCR-W3-7680 ATTACHMENT 5

**EBASCO**

Interoffice Correspondence

DATE May 18, 1984 FILE REF.

TO John DeBruin

OFFICE LOCATION Waterford Site

FROM A. Senkar *J. DeBruin*

OFFICE LOCATION 89th. Floor East 2-WTC

SUBJECT UNDERSIZED WELDS THROAT SIZES  
USED FOR ANALYSIS

This is to confirm that the size of the weld used for 2" O.D. pipe undersized weld in the finite element analysis is as given below:

Throat 0.080"

Leg 0.113"

All the cases given on Pages 73 to 81 of AP report use these dimensions. Updated weld sizes were used only for cases other than the 2" O.D. pipe.

RS/nr

cc: R G Iotti

M Badrian

T J Grant *T.J.G.*



SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 74  
UNDERSIZE SCHEDULE 80  
SOCKET WELDS  
SUMMARY OF ENGINEERING EVALUATION

The following is a brief summation of the Ebasco Engineering disposition of NCR 5760 (SCD 74) involving undersize fillet welds on schedule 80 2" and under piping, ASME Section III Class 2 and 3.

- (1) 544 fillet welds were initially reinspected by Tompkins-Beckwith QA.
- (2) Nine of the 544 welds involved flanged connections. Five of the nine flange welds did not meet the ASME Section III fillet weld size requirements. Ultimately, after some additional sampling, all schedule 80 ASME Section III 2" and under flange welds were reinspected. Welds not meeting ASME Code requirements were repaired.
- (3) Of the remaining 535 fillet welds made on socket weld fittings (i.e. tees, coupling, elbows and valves, etc), 54 did not meet the ASME Section III size requirement ( $C_x = 1.09T_1$ )\*.
- (4) The 54 undersize welds were evaluated using the allowable size requirements established by ASME Code Case N316 ( $C_x = .75T_2$ )\*. Only two of the 54 undersize welds did not meet the code case requirement.

Based on the low reject rate upon application of the code case requirements, it was deemed unnecessary to reinspect the balance of the Schedule 80 fitting socket welds except as noted below.

- (5) In order to apply the code case, it is necessary to use a more conservative stress intensification factor in the pipe stress analysis (2.1 vs 1.3). Therefore, it was necessary to establish which pipe regions exceeded the ASME Section III allowable stresses resulting from application of the higher stress intensification factor. An additional 125 schedule 80 fitting socket welds required reinspection as a result. Fillet welds in these pipe regions must meet the 1.09T requirement. Three of the 125 reinspected welds did not meet the code requirement and were subsequently reworked.

\*  $T_1$  = pipe nominal wall thickness;  $T_2$  = fitting nominal wall thickness based on ANSI B16.11 dimensions.