



Comsip, inc.

instrument and control systems

HEADQUARTERS • 3030 Red Hat Lane, Whittier, CA 90601 (213) 692-9021 Telex: 67-4768

October 29, 1982

U.S. Nuclear Regulatory Commission
Region IV, Vendor Programs Branch
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Attention: Mr. Uldis ^{Potapovs} ~~Potapovs~~, Chief

Subject : Docket No. 99900771/82-01

Gentlemen:



Comsip Inc., was made aware of an N.R.C. Information Notice No. 82-34, which was apparently sent to all companies that Comsip has fabricated for in the past or is presently fabricating, regardless of the fact that the N.R.C. only looked at one procedure for 5875 (Arizona Project) that had absolutely nothing to do with any other project.

This information notice identifies a mixture of problems and a number of companies without specific identification of the problems addressed to each.

The N.R.C. has grouped without discrimination or concern the non-conformances of two (2) other companies in writing without regard for the obvious consequences of interpretation by the reader.

8308010452 830726
PDR GA999 EMVCOMSD
99900771 PDR

CUSTOMLINE DIVISION
1418 E. Linden Ave., P.O. Box 152
Linden, NJ 07036
(201) 486-1272 Telex: 13-8496

GULF DIVISION & DELPHI INSTRUMENTS, INC.
8601 Janieel Road, Houston, TX 77040
P.O. Box 41089, Houston TX 77241
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DELPHI SYSTEMS DIVISION
3030 Red Hat Lane
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(213) 692-9021 Telex: 67-4768

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The notice also discusses a "Potentially Significant Problem" existing at Comsip Inc. This assumption is clearly unjustified. Comsip Inc., has complied with and has received customer approval for products it has shipped or being produced by Comsip.

Needless to say, this action by the N.R.C. has created a problem for Comsip in that we are placed in a position of having to justify our position on jobs shipped and presently being fabricated.

The attached is being submitted in response to the above inspection conducted at Comsip, on March 22-26, and the comments contained in your letter of October 1, 1982. This response supercedes the Comsip response of July 15, 1982.

I trust that this meets with your approval and that this matter can be brought to an expeditious conclusion.

DESIGNATED ORIGINAL
Certified By Phelanne Clark
Certified By
DESIGNATED ORIGINAL

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REQUIREMENTS

Criterion V of Appendix B to 10 CFR Part 50 states:-

"Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished".

Nonconformances with these requirements are as follows:-

- A. QA Manual Procedure 9.0, paragraph 5.1 states in part, "Special Process Procedures shall be established and documented to assure special process activities...are accomplished...in accordance with applicable codes".

American Welding Society (AWS) Code D1.1-76, paragraph 5.5.1.5, states in part, "In preparing the procedure specification, the manufacturer or contractor shall report the specific values for the (specified) essential variables...".

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Contrary to the above, neither the procedure specification nor the qualification record of the gas metal arc welding process in Specification No. 5875-MP-1 addressed progression to be used during vertical position welding, which is an essential variable.

Further, the specific value for gas flow rate, an essential variable, is not reported in the qualification.

RESPONSE TO A

The welding procedure specification (WPS #12A) and supporting PQR #12A should have shown all welding data and test results. **However**, there is no basis at this point in time to assume that this specific Welding Procedure **was not** properly qualified, because the PQR does not show test results, in terms of gas flow rate. The missing information is considered non-essential, and as such does not invalidate the procedure qualification. The information required for the procedure qualification is recorded on the WPS.

Paragraph 1.2.1 of Welding Procedure

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Specification 5875-MP-1 Rev. 5 states in part "The Welding shall be done in accordance with AWS D1.1.76, sections 3 and 4". Section 4, para. 4.10.7 (AWS) states "Progression for all passes in vertical position welding shall be up-wards...etc." The important fact to be noted is that para. 1-2.1 of WPS does specify that welding is to be done in accordance with section 4.

CORRECTIVE ACTION

The procedure 5875-MP-1 has been re-qualified and updated to show all relevant information. *no!*

ACTION TO PREVENT RECURRENCE

None.

*not final.
for vertical
work, it
must be
in par*

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REQUIREMENT

B. AWS D1.1-76, paragraph 5.10.3, states in part, "A T-test fillet weld...shall be made for each procedure and position to be used in construction...Three macroetch test specimens shall be cut from each weldment ...and one cut face from each test specimen shall be tested...".

Contrary to the above, although the gas metal arc welding (GMAW) process, Specification No. 5875-MP-1, has been used for making the fillet welds in the main control panels for Palo Verde Nuclear Generating Station, Unit 3, no T-test fillet welds and resulting macroetch test specimens were made.

RESPONSE TO B

The attached welders qualification test records clearly demonstrate that the procedure 5875-MP-1 Rev. 5 (GMAW) was properly re-qualified in 1979. (See Attachment "A"). The records for this process show that a 90° Fillet T-Test in the horizontal and vertical positions were conducted and tested, and the results acceptable. However,

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the paperwork seems to be lacking in that the information should have been recorded on another PQR, and attached to the existing procedure. We may only be guilty of a paperwork non-conformance.

In 1981 this Procedure, was used to prepare test coupons so that fabrication can commence on Unit 3 Palo Verde. Test coupons were welded in the 5G (pipe) and 2F (Plate) positions, as required by the manufacturer for welder qualification. This was accomplished on 3/11/81, the tests were successfully completed and recorded. The code states that Qualification in the 5G position shall qualify the welders for all positions of fillet welds.

The requirement by the NRC for a T-Test Fillet Weld examination is obviously unwarranted as the procedure was re-qualified in 1979 by T-Test Fillet & Groove Weld examination. It must be stated that fillet welds for procedure qualification can be accomplished by Groove Weld Tests.

CORRECTIVE ACTION

None. However, procedure 5875-MP-1 was re-qualified by Comsip on 9/10/82 to facilitate matters. (See attached, Procedure 5875-MP-1 rev. 7).

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ACTION TO PREVENT RECURRENCE

None.

REQUIREMENT

- C. QA Manual Procedure 9.0, paragraph 3.1, states in part, "...Special Processes are considered to be those activities affecting quality...(and) requiring a specially prepared procedure to be written to control that activity (e.g., Welding...)." Paragraph 5.1 states in part, "Special Process Procedures shall be established...to assure special process activities...are accomplished... in accordance with applicable codes,...specifications,... using qualified personnel..." Paragraph 4.3 states, "The Quality Assurance Manager shall be responsible for assuring compliance with the requirements of this procedure".

Contrary to the above, it has not been assured that welding, a special process affecting quality and subcontracted by Comsip for all nuclear work, has been accomplished using qualified personnel, in accordance with applicable codes and specifications, as evidence by the following observa-

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tions made by the NRC inspector during a visit to H.R. Henrich, Inc., the subcontractor performing the fabrication/welding of the main control panels for Palo Verde Nuclear Generating Station, Unit 3:-

1. The welding power sources (ammeters & voltmeters) were not calibrated nor were there any tong meters available to assure accuracy of the equipment.
2. The following AWS D1.1 essential variables were being violated while GMAW was being performed:-
 - a. Gas Flow Rate - the procedure required 12-20 CFH, but 28 CFH was being utilized, which is in excess of the 25% maximum permitted increase in flow rate.
 - b. Voltage - the procedure required 24-28, but 20-21 was being used which is in excess of the permitted change of $\pm 7\%$ from the specified mean arc voltage.

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3. An individual who was not qualified as a welder had performed plug welding using the gas tungsten arc welding (GTAW) process. Further, a GTAW procedure did not exist, and there was no filler metal identity.

RESPONSE TO C1

After discussions with the American Welding Society it was revealed that there is no requirement in the AWS D1.1 Code for the calibration of welding machines.

RESPONSES TO C2,a&b

It must be understood that Comsip received approval from Bechtel Engineering who is duly designated and acting for and in behalf of the owner on all matters relating to welding. True, the specification states that welding shall be done to the AWS Code. Comsip has complied with this requirement and submitted on 3/14/77 a welding procedure in accordance with AWS D1.1.

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The available section 1X procedure was subsequently submitted, when it was determined by Comsip and Bechtel that the quality of the welds, would be greatly improved, if welding was done to the "much cleaner welding process" (MIG) in terms of the problem of slag, and a better weld overall. The urgency determined immediately response, thus the available qualified procedure was submitted and approved for use by Bechtel Engineering. Therefore, there should be no question as to Comsip's responsibility as required by specification. Comsip submitted the procedure, and it was approved for use. Thus the procedure must be reviewed in terms of Section 1X, not AWS.

irrelevant
ASME Section 1X QW-408.3 specifies that "A decrease of 10% or more in the rate of flow of shielding gas..." is considered a non-essential variable.

irrelevant
QW-255 (GMAW) Procedure Qualification shows that the essential variables as para. 408.2 and para. 408.9, which makes no reference to shielding gas.

- b) Again, Section 1X, QW-409 does not show a change in the voltage to be an essential variable.

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CORRECTIVE ACTION

None, However, to expedite matters the Procedure
5875-MP-1 was re-qualified to AWS D1.1

ACTION TO PREVENT RECURRENCE

None.

CORRECTIVE ACTION C1

None, However, in order to facilitate matters, Comsip
has requested that all welding machines being used to
fabricate Class IE Panels be calibrated every two (2)
years, effective date June 29, 1982.

ACTION TO PREVENT RECURRENCE

None.

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RESPONSE TO C3

Because of the minimal number of bolts to be placed on the S.S. wear strip, Bechtel specification did not specifically address how this was to be accomplished. The specification states "A Brushed 1/8" thick S.S. protective strip shall be installed on Front Edge of bench section, with concealed fastners." In view of the above, and the fact that this protective strip is a non-structural low stress element of the unit it was left to Comsip's discription whether or not to make available a welding procedure. The client did not require one.

CORRECTIVE ACTION

After discussions with the client, an SDDR was issued, taking exception to welding requirement on this non-structural low stress element. (See attachment "C").

See
5.4

3

10/27/82
9947/PL
JST

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REQUIREMENT

D. QA Manual Procedure 10.1, paragraph 4.2 states, "A Quality Assurance Representative shall be responsible for performing receiving inspection (dimensional and welding (visual)) in accordance with the requirements of this procedure".

AWS D1.1, paragraph 3.6, states in part, "...undercut shall be no more than 0.01 inches deep when its direction is transverse to primary tensile stress in the part that is undercut, nor more than 1/32 inches for all other situations". Paragraph 3.10, states in part, "...welded joints shall not be painted until after the work has been completed and accepted. The surfaces to be painted shall be cleaned of spatter, rust, loose scale, oil and dirt".

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RESPONSE TO D

All panels were re-inspected for compliance. With regard to undercut in the panels, it must be stated that it is impossible for the sub-supplier to meet the stringent requirements of AWS D1.1. In addition the customer specification para. 4.5.2.5 states "The front of the panels on which front of panel devices are to be mounted, shall be all welded construction as per AWS D1.1, 1/4" thick hot rolled steel plate selected for flatness and free from surface defects."

The remainder of the panel structure was constructed to ensure adequate structural strength in accordance with the modified version of AWS D1.1 which is outlined in Revision 6 of Procedure 5875-MP-1. The acceptance criteria for under cut as outlined in the procedure states that welds should not exceed 1/16" for members 1/4" and 1/32" for member 3/16".

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CORRECTIVE ACTION

The weld wire remnants were immediately removed from the panel in question. The panels were re-inspected by the client and accepted in accordance with the criteria as outlined in Revision 6 of 5875-MP-1. (4/12/82).
(See attached SDDR #AR-178 (Bechtel #3236)).

ACTION TO PREVENT RECURRENCE

A visual weld and inspection procedure, an addendum to 5875-MP-1 Rev. 6 was initiated which outlines acceptance criteria, and will be used by the fabricator and Comsip in performing dimensional and welding inspections on the units being fabricated.

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REQUIREMENT

E. AWS D1.1, table 4.1.1, requires the use of electrode specification AWS A5.1 or A5.5 when welding ASTM A-36 material using the shielded metal arc welding (SMAW) process.

Purchase Order No. SC-S-6070-1, awarded to Metalfab, Inc. for the fabrication of panels supplied to Callaway Plant, Unit 1, imposed a SMAW Welding Procedure Specification (WPS) No. 5775-MP-1. This WPS requires that filler metal be E-6011, E-6013, or E-7014.

Contrary to the above, Comsip Inc., reviewed and accepted a welding material certification provided by Metalfab, Inc., in which the reported chemical analysis did not correspond to the chemical composition stated in the AWS specification.

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RESPONSE TO E

An effort is being made to acquire a corrected copy of this certification from the supplier Bergen Steel.

CORRECTIVE ACTION

Obtain corrected certification.

ACTION TO PREVENT RECURRENCE

Training sessions report for all Project Engineering Managers in accordance with Q.A. Manual Procedure 2.2. (See attached).

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REQUIREMENT

F. Q.A. Manual Procedure 6.4, paragraph states in part,
"Drawings used by Shop Supervisors in the manufacturing process are considered acceptable for manufacture so long as they are identical to the same drawing listed on the Project Drawing Control Board. Drawings being used in the manufacturing process that are not identical to the same drawing contained on the "Project Drawing Control Board", shall cause the assembly in the manufacturing process to be identified as Non-conforming Item..."

Contrary to the above, the following examples were observed of different drawing revision numbers being used in the manufacturing process to those listed on the Project Drawing Control Board and the affected assemblies were not identified as being non-conforming:-

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<u>Drawing Listed On Project Drawing Control Board</u>	<u>Drawings Being Used In Manufacturing</u>
5875-17 Sheet 06, Rev. 5	5875-17 Sheet 06, Rev. 4
5875-17 Sheet 07, Rev. 6	5875-17 Sheet 07, Rev. 5
5875-17 Sheet 17, Rev. 6	5875-17 Sheet 17, Rev. 5
5875-17 Sheet 19, Rev. 11	5875-17 Sheet 19, Rev. 10
5875-17 Sheet 20, Rev. 9	5875-17 Sheet 20, Rev. 8
5875-17 Sheet 21, Rev. 8	5875-17 Sheet 21, Rev. 7

It should be noted that the above drawings had been issued to the shop supervisor by the drawing distribution control clerk, however, the shop supervisor had not issued the latest revisions to the shop personnel.

RESPONSE TO F

This mode of operation is highly unusual, and apparently was instituted by Production for the express purpose of controlling the changes being made by the client and also hinges on an internal problem of controlling time spent to accomplish these changes. Positive steps have been taken by management to correct this isolated occurrence.

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CORRECTIVE ACTION

The drawings in question were immediately issued to the shop floor on March 26, 1982 in accordance with the requirements of Q.A. Manual Procedure 6.4.

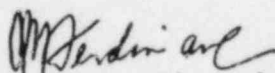
ACTION TO PREVENT RECURRANCE

A training session was provided for responsible production personnel. Drawings will not be held, but will be issued to the shop floor in accordance with Q.A. Manual Procedure 6.4.

Further, periodic audits will be conducted on the production department in accordance with Procedure 18.0 (Audits) para. 5.1.4 to verify compliance and document.
(See attached Training Session Report).

Very truly yours,

COMSIP INC.,
CUSTOMLINE DIVISION


Cole M. Ferdinand,
Quality Assurance Manager

CMF/ss

CC: C. Varinois

T. R. Bass

FAIRFIELD TESTING LABORATORIES

Materials Testing

Chemists: Metallurgists Spectrographers

1275 BLOOMFIELD AVENUE

BLDG. 5. SECTION 21

FAIRFIELD, NEW JERSEY 07006

575-8665

LAB NO. 7620 LHM-PH

DATE 11/9/79

Metalfab, Inc.
Woodland Ave. Cor. Route 17
Rochelle Park, N. J. 97662

P. O. #BF-1106-02

WELDERS' QUALIFICATION TEST

Welding Spec: #5875-WP-1 Rev. 5

Material: 1/4" Carbon Steel A569

Welders Stamp: M

Filler Metal: E70S Wire

Welders Name: Manuel Marques

Test Spec: AWS D1.1-76 Section 5
. Part C Modified

Weld Type: 90° Fillet T

Position: Horizontal

MACRO ETCH TEST

Specimen 1

Passes

Specimen 2

Passes

FILLET WELD BREAK

Passes

*3.5" x 1/4" for Proc. Spec
See non-conf B
neg. T.*

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OUR REPORTS PERTAIN TO THE SAMPLE TESTED ONLY. INFORMATION CONTAINED HEREIN IS NOT TO BE REPRODUCED, EXCEPT WITH OUR PERMISSION.

FAIRFIELD TESTING LABORATORIES, INC.

M. J. J.

FAIRFIELD TESTING LABORATORIES

Materials Testing

Chemists Metallurgists Spectrographers

127B BLOOMFIELD AVENUE

BLDG. B. SECTION 21

FAIRFIELD, NEW JERSEY 07006

878-8688

LAB. NO. 7620-JM-B

DATE 11/9/79

Metalfab, Inc.
Woodland Ave. Cor. Route 17
Rochelle Park, N. J. 97662

P. O. #BP-1106-02

WELDERS' QUALIFICATION TEST

Welding Spec: #5875-MP-1 Rev. 5

Material: 1/2" Carbon Steel A569

Welders Stamp: JM

Filler Metal: E70S Wire

Welders Name: Joseph Mogavero

Test Spec: AWS D1.1-76 Section 5
Part C Modified

Weld Type: Butt Groove

Position: 1G

BEND TEST

Direction

Results

Face

Passes

Root

Passes

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FAIRFIELD TESTING LABORATORIES, INC.

M. R. [Signature]

FAIRFIELD TESTING LABORATORIES

Materials Testing

Chemists Metallurgists Spectrographers

1275 BLOOMFIELD AVENUE

BLDG. 5, SECTION 21

FAIRFIELD, NEW JERSEY 07006

878-8668

LAB. NO. 7621JC-FH-1

DATE 11/15/79

Metalfab, Inc.
Woodland Ave. Cor. Route 17
Rochelle Park, N. J. 07562

P. O. #BF-1106-02

WELDERS' QUALIFICATION TEST

Welding Spec: #5875-MF-1 Rev. 5

Material: $\frac{1}{4}$ " Carbon Steel A569

Welders Stamp: JC

Filler Metal: E70S Wire

Welders Name: Joseph Chvasta

Test Spec: AWS D1.1-76 Section 5
Part C Modified

Weld Type: 90° Fillet T

Position: Horizontal

MACRO ETCH TEST

Specimen 1

Passes

Specimen 2

Passes

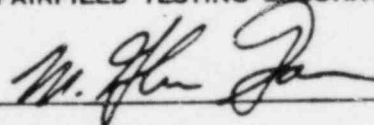
FILLET WELD BREAK

Passes

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FAIRFIELD TESTING LABORATORIES

Materials Testing

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1275 BLOOMFIELD AVENUE

BLDG. 5, SECTION 21

FAIRFIELD, NEW JERSEY 07006

875-8488

LAB. NO. 7620-AP-FH

DATE 11/9/79

Metalfab, Inc.
Woodland Ave. Cor. Route 17
Rochelle Park, N. J. 97662

P. O. #BF-1106-02

WELDERS' QUALIFICATION TEST

Welding Spec: #5875-MP-1 Rev. 5

Material: $\frac{1}{4}$ " Carbon Steel A569

Welders Stamp: AP

Filler Metal: E70S Wire

Welders Name: Anthony Payne

Test Spec: AWS D1.1-76 Section 5
Part C Modified

Weld Type: 90° Fillet T

Position: Horizontal

MACRO ETCH TEST

Specimen 1

Passes

Specimen 2

Passes

FILLET WELD BREAK

Passes

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FAIRFIELD TESTING LABORATORIES, INC.

M. R. G.

CARBON STEEL METAL ARC WELDING PROCEDURE

FOR USE ON PANELS FOR ARIZONA NUCLEAR POWER
PROJECT, PALO VERDE GENERATING STATION,
UNITS 1, 2, & 3.

COMSIP INCORPORATED
CUSTOMLINE DIVISION
Linden, New Jersey

Ref : Bechtel/Arizona
P.O. #10407-JM-200

REV.	DATE	DESCRIPTION	COMSIP APPROVALS			
			BY	Q.A.	PROD	PROJ
6	4/12/82	REVISED TO INCLUDE MODIFIED ACCEPTANCE CRITERIA TO AWS D1.1	<i>CMJ</i>	<i>CMJ</i>	<i>AB</i>	<i>QK</i>
7	10/27/82	Requalified	<i>CMJ</i>	<i>CMJ</i>	<i>ED</i>	<i>QK</i>

PREQUALIFIED JOINT WELDING PROCEDURE
PROCEDURE SPECIFICATION 5717 MP-6 Rev.0

Material specification A569 to A36
 Welding process GMAW
 Manual or machine Semi Automatic
 Position of welding SG Fixed Horizontal, 2F
 Filler metal specification AWS A5.18
 Filler metal classification E70S-3
 Flux N/A
 Weld metal grade* N/A
 Shielding gas 75%Ar 25% CO₂ Flow rate 25-30CFM
 Single or multiple pass Single
 Single or multiple arc Single
 Welding current DC
 Polarity Reverse
 Welding progression Upward
 Root treatment Grind to achieve shape
 Preheat and interpass temperature None
 Postheat treatment None

*Applicable only when filler metal has no AWS classification.

WELDING PROCEDURE

Pass no.	Electrode size	Welding current		Travel speed	Joint detail
		Amperes	Volts		
For T .090-.125 1	.035"	110 ⁺ -10	18-22	9-10 1 pm	
For T .125-.187 1	.035	150 ⁺ -10	18-22	"	
For T .187-.250 1	.035	160 ⁺ -10	24-28	"	

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in 4B, C, or D of AWS D1.1, Structural Welding Code.

Procedure no. 5875 MP-1 Manufacturer or contractor Cole M. Bendman
Cowisp, Inc.

Revision no. 7 Authorized by _____

Date October 27, 1982

PREQUALIFIED JOINT WELDING PROCEDURE
PROCEDURE SPECIFICATION 5717 MP-6 Rev. 0

Material specification A569 to A569
 Welding process GMAW
 Manual or machine Semi Automatic
 Position of welding SG Fixed Horizontal *SG = Groove Pipe*
 Filler metal specification AWS A5.18
 Filler metal classification E70S-3
 Flux N/A
 Weld metal grade* N/A
 Shielding gas 75%Ar 25% CO2 Flow rate 25-30CFM
 Single or multiple pass Single
 Single or multiple arc Single
 Welding current DC
 Polarity Reverse
 Welding progression Upward
 Root treatment Grind to achieve shape
 Preheat and interpass temperature None
 Postheat treatment None

*Applicable only when filler metal has no AWS classification.

WELDING PROCEDURE

Pass no.	Electrode size	Welding current		Travel speed	Joint detail
		Amperes	Volts		
For T .090-.125 1	.035"	110 ^{±10}	18-22	9-10	
For T .125-.187 1	.035	150 ^{±10}	18-22		
For T .187-.250 1	.035	160 ^{±10}	24-28		

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in 4B, C, or D of AWS D1.1, Structural Welding Code.

Procedure no. 5875 MP-1
 Revision no. 7

Manufacturer or contractor Cole M. Jerdian
Comsip, Inc.

Authorized by _____

Date October 27, 1982



WELDING PROCEDURE QUALIFICATION TEST RECORD

PROCEDURE SPECIFICATION

Material specification A569 to A36
 Welding process GMAW (MIG)
 Manual or machine Semi Automatic
 Position of welding 2F Horizontal
 Filler metal specificir AWS A5.18
 Filler metal classifi on E70S-3
 Weld metal grade N/A
 Shielding gas * Flow 25-30 CFM
 Single or multiple pass Single
 Single or multiple arc Single
 Welding current DC
 Welding progression Uphill
 Preheat temperature Ambient
 Postheat treatment N/A
 Welder's name Ed Urban

*75% Argon 25% CO₂

GROOVE WELD TEST RESULTS

Reduced-section tension test
 Tensile strength, psi:
 1 N/A
 2 N/A

Guided-bend test
 Root Face
 1 N/A 1 N/A
 2 N/A 2 N/A

Radiographic-Ultrasonic Examination Not Required

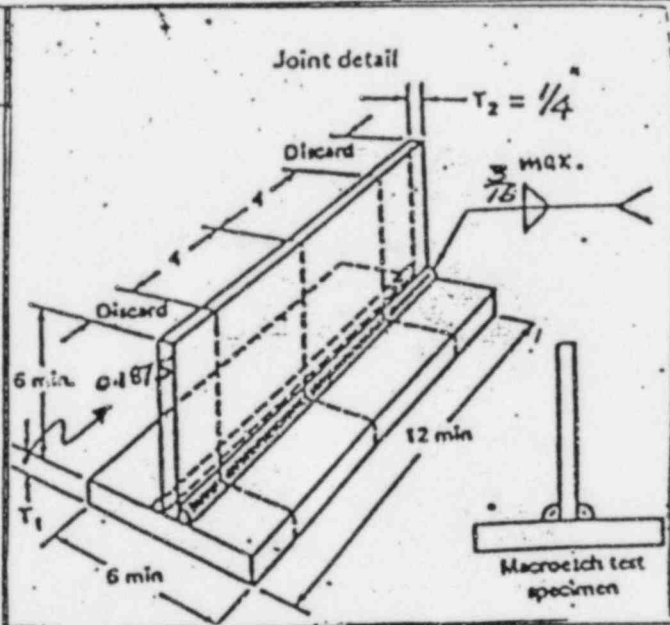
Fillet test results
 Min Size Multiple Pass Max Size Single Pass
 Macroetch Macroetch
 1 N/A 3 N/A 1 Pass 3 Pass
 2 N/A 2 Pass

Laboratory Test No. 83603-6
 United States Testing Company, Inc.

WELDING PROCEDURE

Frank Pepe, Assistant Vice President
 Engineering Division

Pass no.	Elect. size	Welding Current		Speed of travel
		Amperes	Volts	
1	0.035	160 ± 10	24-28	9-10 ipm



We the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of 5B of AWS D1.1, Structural Welding Code.

Procedure Number 5875 MP-1
 Revision Number 6

Manufacturer or Contractor Harold R. Henrich Inc.

Authorized by _____

Date October 27, 1982



WELDING PROCEDURE QUALIFICATION TEST RECORD

PROCEDURE SPECIFICATION

Material specification A569 to A36
 Welding process GMAW (MIG)
 Manual or machine Semi Automatic
 Position of welding 2F Horizontal
 Filler metal specification AWS A5.18
 Filler metal classification E70S-3
 Weld metal grade N/A
 Shielding gas * Flow 25-30 CFM
 Single or multiple pass Single
 Single or multiple arc Single
 Welding current DC
 Welding progression Uphill
 Preheat temperature Ambient
 Postheat treatment N/A
 Welder's name Jim Carley

*75% Argon 25% CO₂

GROOVE WELD TEST RESULTS

Reduced-section tension test

Tensile strength, psi:

1 N/A
 2 N/A

Guided-bend test

	Root	Face
1	<u>N/A</u>	<u>N/A</u>
2	<u>N/A</u>	<u>N/A</u>

Radiographic-Ultrasonic Examination _____

Fillet test results

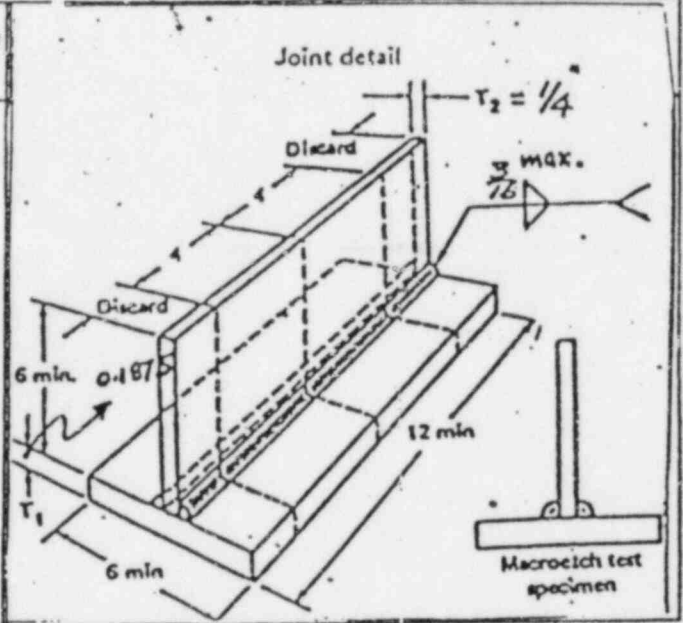
Min Size Multiple Pass		Max Size Single Pass	
Macroetch		Macroetch	
1	<u>N/A</u>	3	<u>N/A</u>
2	<u>N/A</u>	1	<u>Pass</u>
		3	<u>Pass</u>
		2	<u>Pass</u>

Laboratory Test No. 83603-5
 United States Testing Company, Inc.

Frank Pepe
 Frank Pepe, Assistant Vice President
 Engineering Division

WELDING PROCEDURE

Pass no.	Elect. size	Welding Current		Speed of travel
		Amperes	Volts	
1	0.035	160 ± 10	24-28	9-10 ipm



We the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of 5B of AWS D1.1, Structural Welding Code.

Procedure Number 5875 MP-1

Revision Number 6

Manufacturer or Contractor Harold R. Henrich Inc.

Authorized by _____

Date October 27, 1982



WELDING PROCEDURE QUALIFICATION TEST RECORD

PROCEDURE SPECIFICATION

Material specification A569 to A36
 Welding process GMAW (MIG)
 Manual or machine Semi Automatic
 Position of welding 2F Horizontal
 Filler metal specification AWS A5.18
 Filler metal classification E70S-3
 Weld metal grade N/A
 Shielding gas * Flow 25-30 CFM
 Single or multiple pass Single
 Single or multiple arc Single
 Welding current DC
 Welding progression Uphill
 Preheat temperature Ambient
 Postheat treatment N/A
 Welder's name John Wesch

*75% Argon 25% CO₂

GROOVE WELD TEST RESULTS

Reduced-section tension test

Tensile strength, psi:

1 N/A
 2 N/A

Guided-bend test

	Root	Face
1	<u>N/A</u>	<u>N/A</u>
2	<u>N/A</u>	<u>N/A</u>

Radiographic-Ultrasonic Examination Not Required

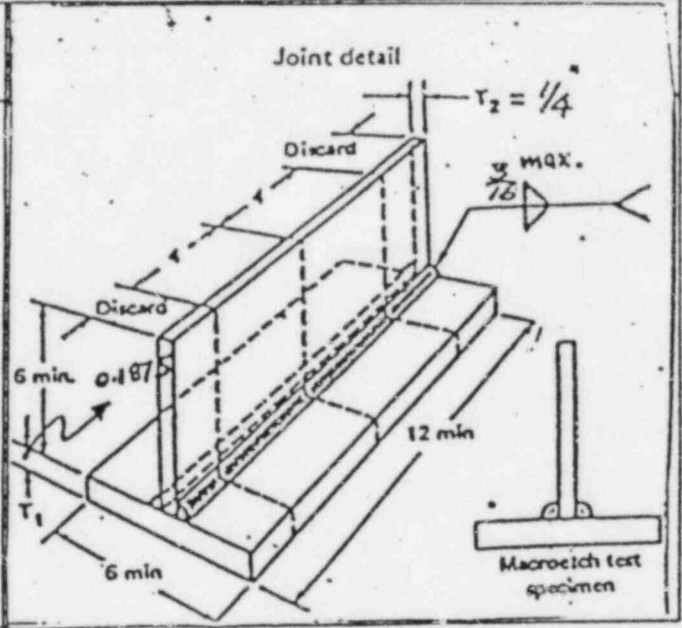
Fillet test results

Min Size Multiple Pass		Max Size Single Pass	
Macroetch		Macroetch	
1	<u>N/A</u>	3	<u>N/A</u>
2	<u>N/A</u>	1	<u>Pass</u>
		3	<u>Pass</u>
		2	<u>Pass</u>

Laboratory Test No. 83603-4
 United States Testing Company, Inc.
 Frank Pepe, Assistant Vice President
 Engineering Division

WELDING PROCEDURE

Pass no.	Elect. size	Welding Current		Speed of travel
		Amperes	Volts	
1	0.035	160 ± 10	24-28	9-10 ipm



We the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of 5B of AWS D1.1, Structural Welding Code.

Procedure Number 5875 MP-1

Manufacturer or Contractor Harold R. Henrich Inc.

Revision Number 6

Authorized by [Signature]

Date October 27, 1982



WELDING PROCEDURE QUALIFICATION TEST RECORD

PROCEDURE SPECIFICATION

Material specification A569 to A36
 Welding process GMAW (MIG)
 Manual or machine Semi Automatic
 Position of welding 2F Horizontal
 Filler metal specification AWS A5.18
 Filler metal classification E70S-3
 Weld metal grade N/A
 Shielding gas * N/A Flow 25-30 CFM
 Single or multiple pass Single
 Single or multiple arc Single
 Welding current DC
 Welding progression Uphill
 Preheat temperature Ambient
 Postheat treatment N/A
 Welder's name Ruben Curiel
 * 75% Argon 25% CO₂

GROOVE WELD TEST RESULTS

Reduced-section tension test
 Tensile strength, psi:
 1 N/A
 2 N/A

Guided-bend test
 Root Face
 1 N/A 1 N/A
 2 N/A 2 N/A

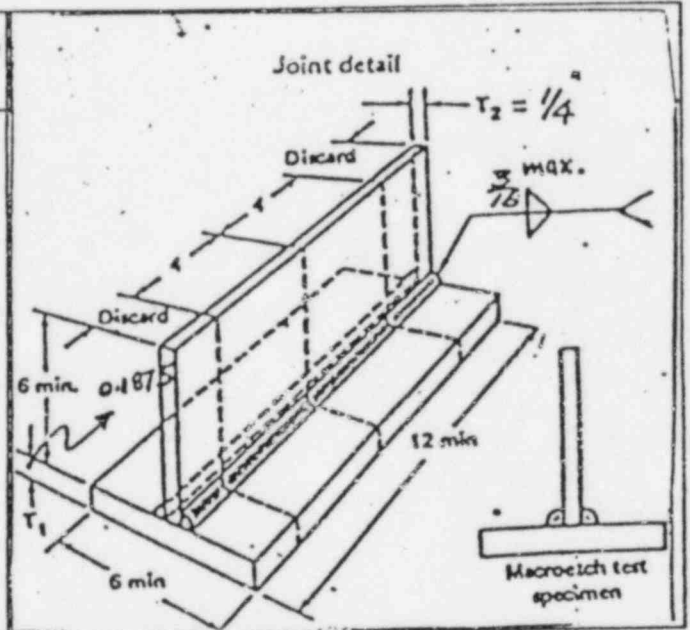
Radiographic-Ultrasonic Examination Not Required

Fillet test results
 Min Size Multiple Pass Max Size Single Pass
 Macroetch Macroetch
 1 N/A 3 N/A 1 Pass 3 Pass
 2 N/A 2 Pass

Laboratory Test No. 83603-3
 United States Testing Company,
 Frank Pepe, Ass't. Vice President
 Engineering Division

WELDING PROCEDURE

Pass no.	Elect. size	Welding Current		Speed of travel
		Amperes	Volts	
1	0.035	160 ± 10	24-28	9-10 ipm



We the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of 5B of AWS D1.1, Structural Welding Code.

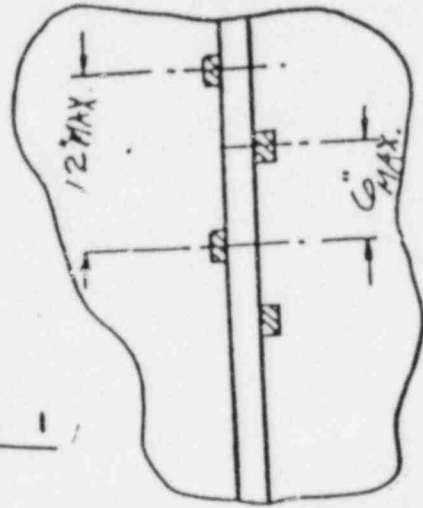
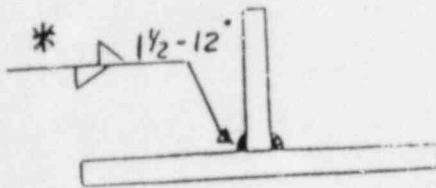
Procedure Number 5875 MP-1
 Revision Number 6

Manufacturer or Contractor Harold R. Henrich Inc.

Authorized by [Signature]

Date October 27, 1982

ALL WELDS SHALL BE:



* NOTE: Minimum fillet weld sizes for: $T < \frac{1}{4}$ $1/8 \pm 1/32"$
 $T = \frac{1}{4}$ $1/4 \pm 1/32"$ FIG. 1

NOTES

1. Base metal shall be ASTM-569 for body steel and ASTM A-36 for frame stiffening and base steel.
2. Edges to be welded shall be prepared by machining, flame cutting or grinding, or any combination of these, to achieve a shape as shown in the attached diagram.
3. Surfaces to be welded shall be cleaned free from slag, paint, oil, rust, scale or any other material which may be detrimental to the weld.
4. The minimum length of an interrupted fillet weld shall be $1\frac{1}{2}$ inches.
5. Groove welds will be in accordance with figure 2.
6. If tack welds are used, they shall be of the same electrode material as the first root pass and shall be deposited in such a manner as to facilitate incorporation into the weld if need be. Cracked or broken tack welds shall be chipped out and all others thoroughly cleansed prior to incorporation into the weld.

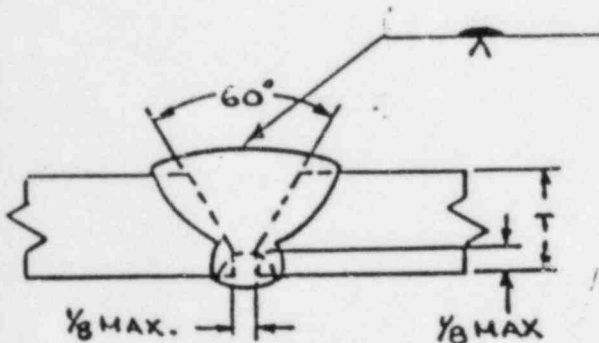


FIG. 2

BECHTEL JOB # 10407

REV NO.	DATE	DESCRIPTION	DRWN BY	CHK'D BY	DRAFT. SUPVR.	QA APPR.	PROJ ENG APPR.

Comsip, Inc. CUSTOMLINE DIVISION
LINDEN, NEW JERSEY

TITLE: **WELDING DETAIL**

PROJECT: **BECHTEL NORWALK, CAL. ARIZONA NUCLEAR POWER PROJECT**

DRWN BY: _____ DATE: _____ SCALE: _____ APPR FOR CONST: _____

CHK'D BY: _____ DATE: _____ DRAWING NO: **5875-WLD** REV. NO: **1**

APP'D BY: *(Signature)* DATE: **5/12/81** SHEET: _____ OF _____

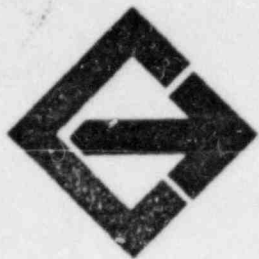
Supplier Deviation Disposition Request

NOTE:

1. COMPLETE INSTRUCTIONS ON BACK OF THIS SHEET
2. Items 1-18 below to be completed by supplier
3. * Items, Bechtel entries only
4. Attach additional information whenever necessary

5. Bechtel must be notified within 5 days after detection of deviation
6. A copy of the completed SDDR form shall be included by the supplier in the quality verification data package for each item to which this SDDR applies

SUPPLIER COMPLETED	FOR SUPPLIER USE		PROJECT <u>Arizona</u>		FOR BECTHEL USE	
	Supplier SDDR No. <u>AR-182</u>	Date Submitted <u>11/5/82</u>	JOB NO. <u>10407</u>		Bachtel SDDR No.	Date Received
	1. Supplier Name <u>Comsip Inc., Customline Div. 1418 E. Linden Ave. Linden, NJ 07036</u>					
	2. Supplier's Order No. <u>5875</u> <u>UNITS 1,2,3</u>	3. Supplier's Part No. <u>N/A</u>	4. Supplier's Part Name <u>N/A</u>	5. Deviation Detected <u>11/5/82 Disc.w/QA</u>		6. All Previous SDDR (No.'s & Date's) <u>AR-181, 10/18/82</u>
	7. Bachtel P.O. & Rev. No. <u>10407-13-JM-200</u> <u>Rev. 20</u>	8. Bachtel Part No. <u>N/A</u>	9. Bachtel Part Name <u>Main Control Panels</u>	10. Bachtel SQR Notified <u>11/5/82 SDDR</u>	11. Bachtel Engrg Notified <u>11/5/82 SDDR</u>	
	12. Deviation Description (Attach extra sheets, photographs, sketches, etc. as necessary and identify quantity and serial No.'s as applicable) <u>B01-B07 (Para. 4.5.2.21)</u> <u>Concealed fasteners were welded (GTAW) to the 1/8" thick stainless steel protective strip. Spec. calls for AWS D1.1 welding.</u>					
	13. Suppliers Proposed Disposition <input checked="" type="checkbox"/> Use-As-Is <input type="checkbox"/> Repair <input type="checkbox"/> Modify Bechtel Requirement					
	14. Cost Impact <u>None</u>			15. Schedule Impact <u>None</u>		
	16. Proposed Disposition and Technical (plus Cost/Schedule if applicable) Justification: Attach extra sheets, sketches, etc. as necessary <u>Because of the minimal number of studs to be placed on the S.S. protective strip, to be fastened to the front edge of the bench section, and in view of the fact that this protective strip is a non-structural low stress element of the units, Comsip requests a waiver as it was not indicated through the spec. how this was to be accomplished.</u>					
	17. Associated Supplier Document Change(s) <u>None</u>					
18. Suppliers Authorized Representative Name <u>K. Kopans</u> Title <u>Project Manager</u> Signature <u>K. Kopans</u> Date <u>10/25/82</u>						
BECTHEL	*19. Bachtel Engrg. Action		Engrg. <input type="checkbox"/> Dwg Change (<input type="checkbox"/> Bechtel <input type="checkbox"/> Supplier)		<input type="checkbox"/> Licensing Doc. Change	
	<input type="checkbox"/> Accepted		Follow-up <input type="checkbox"/> Spec/Req. Change (<input type="checkbox"/> Bechtel <input type="checkbox"/> Supplier)		<input type="checkbox"/> Price Adjustment	
	<input type="checkbox"/> Rejected		<input type="checkbox"/> Other Suppliers Affected		<input type="checkbox"/> Other _____	
	*20. Bachtel Disposition Statement Including Justification (Attach extra sheets, sketches, etc. as necessary)					
	Construction Action Required <input type="checkbox"/> YES <input type="checkbox"/> NO					
*21. Bachtel Acceptance/Signature		Date	*22. Supplier		Date	
GS _____		_____	_____		_____	
PE _____		_____	*23. Bachtel Supplier Quality Representative		_____	
_____		_____	_____		_____	



Comsip, inc.

instrument and control systems

CUSTOMLINE DIVISION
1418 E. Linden Avenue
P.O. Box 152
Linden, NJ 07036
(201) 486-1272
Telex 13-8496

DELPHI SYSTEMS DIVISION
10650 E. Rush Street
South El Monte, CA 91733
(213) 442-0882
Telex 67-4768

VISUAL WELD AND DIMENSIONAL INSPECTION PROCEDURE

ADDENDUM TO PROCEDURE 5875-MP-1, REV. 5

1. Purpose

The purpose of this procedure is to define the requirements for Dimensional and Visual Inspection of welds in accordance with AWS D1.1 (Modified).

2. Scope

2.1 This procedure is applicable to all panels, racks, cubicles and sub-assemblies of contracts requiring a Quality Assurance Quality Control Program.

2.2 This procedure covers methods utilized by Comsip Inc., Customline Division, and any sub-contractor working under its direction.

3. Definitions

None.

4. Responsibilities

4.1 The Sub-Contractor shall be responsible for performing dimensional and welding inspection on structural steel fabrications. These inspections shall be in accordance with the latest approved drawings, welding procedure and this procedure.

4.2 Comsip shall be responsible for auditing/monitoring sub-contractor's welding inspections.


Page of 1830801/5/84

- 4.3 The Comsip Quality Assurance Manager/Representative shall be responsible for receiving inspection in accordance with Procedure 10.1 and W.1 #1.

5. Instructions

- 5.1 Designated panels, racks, cubicles shall undergo Visual Welding Inspection at the sub-contractor.
- 5.2 Form VWI-1 (Attached) shall be used for each partial or complete shipment to document final inspection.
- 5.3 Direct visual examination shall be made when access is sufficient to place the eye within 24 inches (610mm) of the surface to be examined and at an angle not less than 30 degrees from the surface to be examined. The specific section under immediate examination shall be illuminated with a flashlight or other auxiliary lighting to attain a minimum of 50 fc for general and specific examination.
- 5.4 Visual Welding Inspection shall be performed by the Q.A. Manager/Representative and by someone assigned by the sub-contractor qualified to inspect in accordance with this procedure and AWS D1.1 (Modified).
- 5.5 Personnel conducting visual examination shall have an annual visual examination to assure natural or corrected near distance acuity that they are capable to reading standard J-1 letters on a Jaegar chart.
- 5.6 Visual welding inspection (In-Process) shall be performed by the sub-contractor every two (2) weeks, depending on the fabrication life of the job, and at least once during the job, if the period of fabrication is less than two (2) weeks.
- 5.7 An inspection (In-Process) shall be performed to assure compliance to the dimensional requirements of the purchase order documents. This inspection shall consist of 100% dimensional inspection of all cutouts and other dimensions.

5.8 Final inspection shall be performed by the sub-contractor, before the units are turned over to Comsip Quality Assurance for Receiving Inspection.

 5.9 All welding machines used in the fabrication of Class IE panels shall be calibrated once (1) a year and recorded for verification.

6. Visual Inspection Acceptance

6.1 A random sampling of approximately 25% of the welds shall be visually inspected for location, size, length, cracks, etc. in accordance with drawing(s). A weld shall be considered acceptable by visual inspection if it shows the following:-

- a) No Cracks
- b) All craters filled to the full cross section of the weld.
- c) Complete fusion between base metal and weld metal.
- d) No undercut exceeding the following criteria:
 1. 1/16" for members 1/4"
 2. 1/32" for members 3/16"
- e) Peening of welds shall not be allowed.
- f) Blemishes or cracks caused by arc strikes shall be ground to a smooth contour and checked to ensure soundness.
- g) The sum of diameters of piping porosity in fillet welds shall not exceed 3/8" in any linear 2" of weld.
- h) No porosity in complete joint penetration groove welds.

- i) Barriers, Front of Panel Plate Supports, Unistrut Supports for instruments and Door Framing are not considered structural members and as such do not contribute to the structural integrity of the panels, therefore, these are excluded from the stringent requirements of AWS.

7. Non Conformance

- 7.1 Welding identified during inspection to be in non-conformance to the purchase order documents shall be corrected in accordance with Repair Procedure in Section 9.

8. Documentation

Appropriate records shall be accrued and maintained by Comsip and its sub-contractors.

9. Weld Repair Procedure

The removal of weld metal or portions of Base Metal shall be done by grinding, chipping or machining. The remaining weld metal shall be free of nicks and cuts.

The surfaces shall be cleaned thoroughly before welding.

<u>Condition</u>	<u>Method</u>
1. Excessive Concavity, under sized welds. Undercutting.	Deposit additional weld metal.
2. Excessive weld porosity, incomplete fusion.	Remove unacceptable portion. Re-Weld.
3. Cracks in welds and base metals.	Remove the crack and sound metal 2" beyond each end of the crack and Re-Weld.
4. To repair those structural areas of the control panels where complete joint penetration was not realized, the other side of member shall be backed gouged being careful to remove a minimum of base and weld metals, but ensuring, that complete penetration can be achieved, by welding from this side.	

The above weld repair procedure shall be done in accordance with the requirements of Procedure Specification 5875-MP-1.