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AUTH. NAME AUTHOR AFFILIATION
LYNCH, P. E. Frank Electric
RECIP. NAME RECIPIENT AFFILIATION
TAYLOR, J. NRC - No Detailed Affiliation Given

SUBJECT: Part 21 rept re welds of alternate shutdown panels. Qualified welding procedures AWS D. 1. 3-81, D. 9. 1-84 & AWS D. 1. 1-86 established & structural integrity of welds verified. Qualification test records encl.

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FRANK ELECTRIC CORPORATION

CUSTOM CONTROL PANELS

June 4, 1987

Mr. J. Taylor, Director
Inspection & Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: 10 CFR Part 21
Our letter 4-21-87 (copy attached)

Dear Mr. Taylor:

We have completed our investigation of the welds of alternate shutdown panels supplied to Duane Arnold Nuclear Power Plant. We have implemented necessary corrective action and now have qualified welding procedures for AWS D1.3-81, AWS D9.1-84 and AWS D1.1-86.

Since the procedures used on the alternate shutdown panels and the welder operator did meet qualification tests, the structural integrity of the welds are not deficient.

Very truly yours,

P. E. Lynch
Acting QA Manager

PEL/pkh
Enclosure

cc: Mr. K. Naidu, Mail Stop EWS 371
w/copies of Test Records

IE19
1/1

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FRANK ELECTRIC CORPORATION

CUSTOM CONTROL PANELS

Manufacturer Frank Electric

Authorized by C. Bollinger

Date 5/1/87

WELDER AND WELDING OPERATOR QUALIFICATION TEST RECORD

Welder or welding operator's name M. Dravk 178-40-7683 Identification no. 42
Welding process MIG Manual ____ Semiautomatic X Machine ____
Position 6G
(Flat, horizontal, overhead or vertical – if vertical, state whether upward or downward)
In accordance with procedure specification no. ____
Material specification AWS A 5.18
Diameter and wall thickness (if pipe) – otherwise, joint thickness 4" Pipe Schedule 40
Thickness range this qualifies .060 To .375

FILLER METAL

Specification no. AWS A 5.18 Classification ER70S3 F no. ____
Describe filler metal (if not covered by AWS specification) ____

Is backing strip used? None
Filler metal diameter and trade name .035 NS101 Flux for submerged arc or gas for gas metal arc or flux cored arc welding ____

VISUAL INSPECTION (9.25.1)

Appearance ____ Undercut ____ Piping porosity ____

Guided Bend Test Results

Type	Result	Type	Result
FACE	SATISFACTORY	ROOT	SATISFACTORY
FACE	SATISFACTORY	ROOT	SATISFACTORY

Test conducted by ASTROTECH INC. Laboratory test no. H-634 WC-11
per L. Mykyta Test date May 18, 1987

Fillet Test Results

P. O. # 20172

Appearance ____ Fillet size ____
Fracture test root penetration ____ Macroetch ____
(Describe the location, nature, and size of any crack or tearing of the specimen.)
Test conducted by ____ Laboratory test no. ____
per ____ Test date ____

RADIOGRAPHIC TEST RESULTS

Film identification	Results	Remarks	Film identification	Results	Remarks

Test witnessed by ____ Test no. ____
per ____

We, the undersigned, certify that the statements in this record are correct and that the welds were prepared and tested in accordance with the requirements of 5C or D of AWS D1.1, (86) Structural Welding Code.
year

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FRANK ELECTRIC CORPORATION

CUSTOM CONTROL PANELS

WELDING PROCEDURE QUALIFICATION TEST RECORD

PROCEDURE SPECIFICATION

Material specification 4" Pipe Schedule 40
Welding process MIG
Manual or machine Manual
Position of welding 6G
Filler metal specification AWS 5.18
Filler metal classification ER70S3
Weld metal grade* Mild Steel
Shielding gas 75%/25% Flow rate 20CFH
Single or multiple pass Multiple
Single or multiple arc Single
Welding current 160
Welding progression Upward & Downward
Preheat temperature None
Postheat treatment None
Welder's name M. Dravk 178-40-7683

*Applicable when filler metal has no AWS classification.

VISUAL INSPECTION (9.25.1)

Appearance
Undercut
Piping porosity

Test date 5/1/87
Witnessed by C. Bollinger

GRDDVE WELD TEST RESULTS

Reduced-section tension tests

Tensile strength, psi
1. 59,899
2. 61,024

Guided-bend tests (2 root-, 2 face-, or 4 side-bend)

Root		Face	
1.	Okay	1.	Okay
2.	Okay	2.	Okay

Radiographic-ultrasonic examination

RT report no. RT-1
UT report no.

FILLET WELD TEST RESULTS

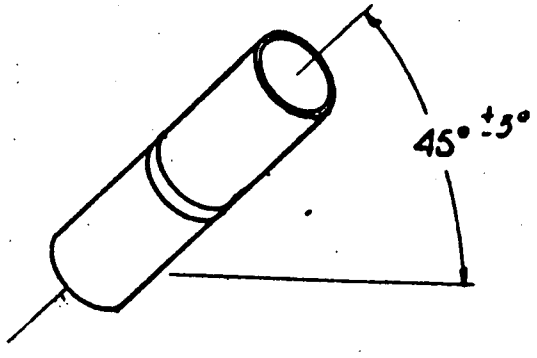
Minimum size multiple pass		Maximum size single pass	
Macroetch		Macroetch	
1.	3.	1.	3.
2.		2.	

All-weld-metal tension test

Tensile strength, psi
Yield point/strength, psi
Elongation in 2 in., %

Laboratory test no. H-634 WC
P.O.# 20172

WELDING PROCEDURE

Pass No.	Elect. size	Welding current: Amperes	Welding current: Volts	Speed of travel	Joint detail
1	.035	160	20	14"	
2	.035	160	20	7"	

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welde and tested in accordance with the requirements of 4E and 5B of AWS D1.1, (86 year) Structural Welding Code.

Procedure no. CP202
Revision no. REV A

Manufacturer or contractor Frank Electric
Authorized by C. Bollinger
Date 5/1/87