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MONITORING WELDING ACTIVITIES	PREPARED BY: <u>George Willis</u>			5/8/84 DATE
	APPROVED BY: <u>C. Vega</u>			5/14/84 DATE

1.0 REFERENCES

- 1-A QI-QP-11.21-1, "Requirements for Visual Weld Inspection"
- 1-B WES-16, "Schedule of Standard Test, Weld Qualification Matrix and Welder Performance Qualification Log"
- 1-C CP-QP-16.0, "Nonconformances"
- 1-D CP-QAP-16.1, "Control of Nonconforming Items"
- 1-E CP-CPM-6.9B, "Welding Filler Material Control"
- 1-F CP-CPM-6.9D, "Welding and Related Processes"

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2.0 GENERAL

2.1 PURPOSE AND SCOPE

The purpose of this procedure is to outline steps taken to monitor welding activities. Monitoring of welding activities shall assure that the welders are welding within the parameter specified by the applicable WPS. Personnel performing these monitoring activities shall be qualified in accordance with Reference 1-A.

3.0 INSTRUCTION

3.1 WELDER MONITORING

Ten (10) welders shall be chosen at random from the welders matrix of Reference 1-B for monitoring of welding activities in the shop and the field.

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3.1.2 Monitoring will consist of verifying the following for 1 weld made by each of the ten (10) welders chosen:

- a. Welder is currently qualified to the WPS he is using
- b. Weld rod classification is as specified on the WDC
- c. A copy of the correct Parameter Guide is available at the weld site
- d. Tools for use on stainless steel material are marked in accordance with Reference 1-F
- e. Low Hydrogen weld rod exposure time is within the limits set in Reference 1-E
- f. The following are in accordance with the WPS being used:
 1. Shield gas and flow rate
 2. Purge gas and flow rate
 3. Preheat
 4. Interpass temperature
 5. Polarity
 6. Amperage
 7. Voltage
 8. Hand Speed/Max heat input
 9. Bead width

3.1.3 Amperage, voltage, and temperatures shall be determined using calibrated equipment obtained from the Calibration Facility. The equipment identification and expiration date shall be recorded on the Welding Monitoring Checklist.

3.2 FREQUENCY

Monitoring of welding activities shall be performed at a frequency necessary to assure that welding activities are accomplished in accordance with procedural requirements. This frequency shall be as determined by the Quality Engineering Supervisor, via a 3-part memo to the QC Supervisor.

3.3 DOCUMENTATION

Shop and field weld monitoring activities shall be documented on the "Welding Monitoring Checklist" (Attachment 1).

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Unsatisfactory conditions shall be reported on Attachment 1 and forwarded to Quality Engineering for review and possible corrective action.

Welding Monitoring Checklists shall be kept on file by Quality Engineering.

3.4 NONCONFORMANCES

Nonconforming conditions shall be reported per Reference 1-C or 1-D as applicable.

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ATTACHMENT 1

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WELDING MONITORING CHECKLIST

WELDER SYMBOL _____
DRAWING/REV. _____
SHOP WELD NO: _____
FIELD WELD NO: _____
WPS NO./REV _____
PROCESS _____

THERMOMETER: M&TE _____ EXP. _____
AMP METER: M&TE _____ EXP. _____
VOLT METER: M&TE _____ EXP. _____

CHARACTERISTIC	SAT	UNSAT	N/A
a. Welder Qualification per WPS			
b. Weld Rod Classification per WDC and Dwg.			
c. Copy of correct Parameter Guide at Weld Site			
d. Tool Identification for S.S.			
e. Low Hydrogen Weld Rod Exposure Time			
f. Shielding Gas and Flow Rate per WPS			
g. Purge Gas and Flow Rate per WPS			
h. Preheat per WPS			
i. Interpass Temperature per WPS			
j. Polarity per WPS			
k. Amperage per WPS			
l. Voltage per WPS			
m. Travel Speed/Maximum Heat Input			
n. Weld Bead Width per WPS			

COMMENTS:

Signature _____

Date _____