

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-004270**Date Inspected:** 15-Oct-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2300**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai China

CWI Name:	Sun Bo			CWI Present:	Yes	No	
Inspected CWI report:	Yes	No	N/A	Rod Oven in Use:	Yes	No	N/A
Electrode to specification:	Yes	No	N/A	Weld Procedures Followed:	Yes	No	N/A
Qualified Welders:	Yes	No	N/A	Verified Joint Fit-up:	Yes	No	N/A
Approved Drawings:	Yes	No	N/A	Approved WPS:	Yes	No	N/A
				Delayed / Cancelled:	Yes	No	N/A
Bridge No:	34-0006			Component:	OBG		

Summary of Items Observed:

New Deck Panel Tack weld procedure

This Caltrans QA Inspector arrived in OBG bay 1 at 1750 hrs for observations of the new deck panel tack weld procedure number WPS-B-T-2342-U5 for the 80 mm tack welds on deck panel DP109-001. During the observations it was noted that ZPMC had "hand rolled" the GMAW welding electrode ER70S-6, 1.4mm on 2 rolls to be used during this process which was not factory tight. The contractor (ZPMC) had 2 welding personnel for this process welder 1- Xiao Bianbin # 059440 and welder 2 – Shi Yunli #050409, ZPMC had CWI Sun Bo at this location that arrived approximately at 1845 hrs 45 min after the start of this process. ABF personnel were also present for the new tack welding procedure.

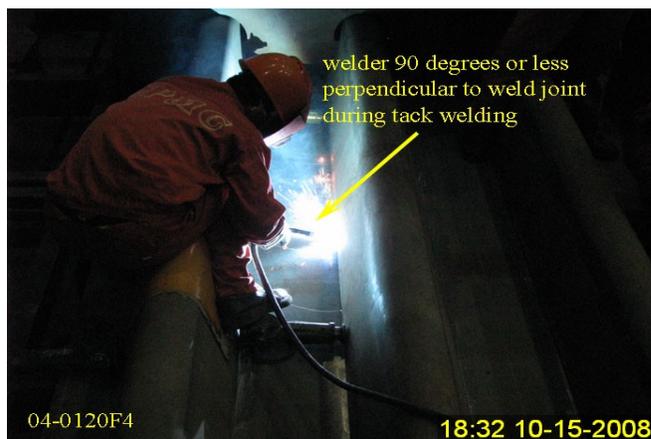
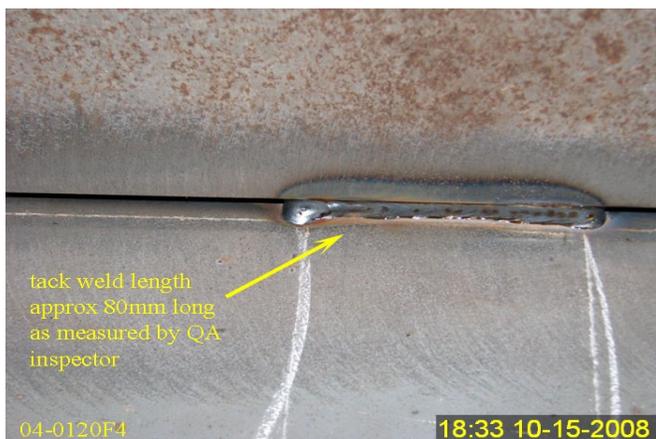
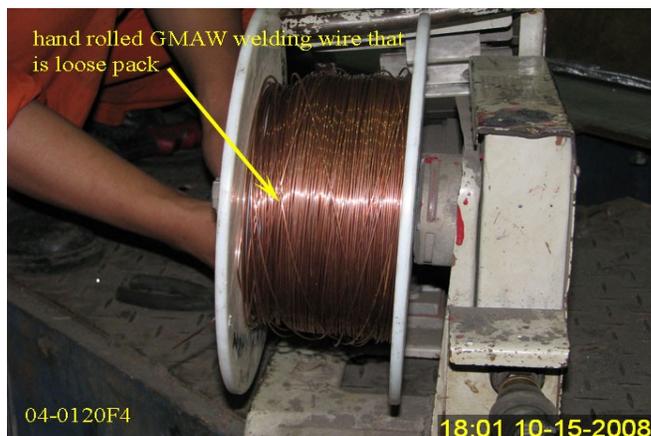
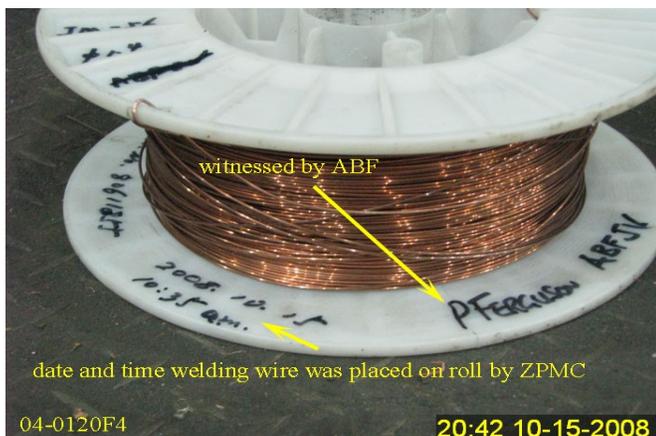
Welder-1, while setting the parameters ZPMC was placing tack welds and adjusting the equipment simultaneously to the range of the WPS, it was noted that at this time the parameters were not within the specified range of 330-350 amps the range was approximately 318-380 +/- amps with the voltage at 26.8 (within the specified range) as verified by this QA Inspector. The Gas shielding flow rate as observed was outside the specified range of 20-25L/Min this QA Inspector observed a rate of 30+ L/Min flow rate. The QA Inspector informed ZPMC of the flow rate which was adjusted 1915 hrs. Once the parameters were adjusted, the welding angle was observed by Caltrans QA inspector to be 90° or less perpendicular to the tack weld. One observation was that as the welder completed the weld pass he would back weld the area (approx. 10mm) to fill the crater upon doing this the welding parameter would drop drastically to a range of 100- 230 amps and the welder would "drag" the weld due to the angle of the electrode being reversed. Continued observation noted that the welding parameters were dropping out of the specified range per the WPS, this was brought to the attention of ZPMC who then stopped the welding to try adjusting the wire feeder due to not being able to make this adjustment ZPMC made

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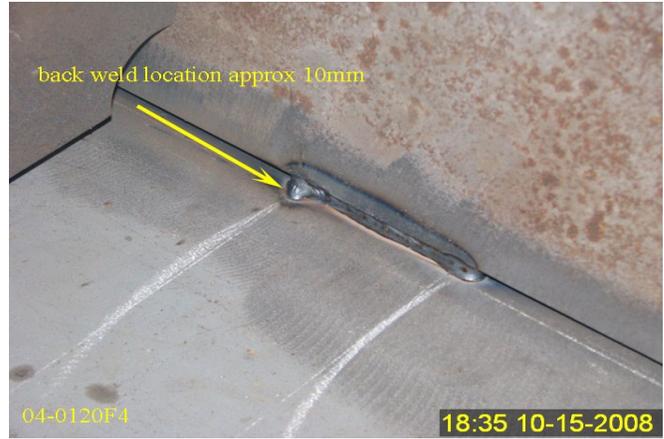
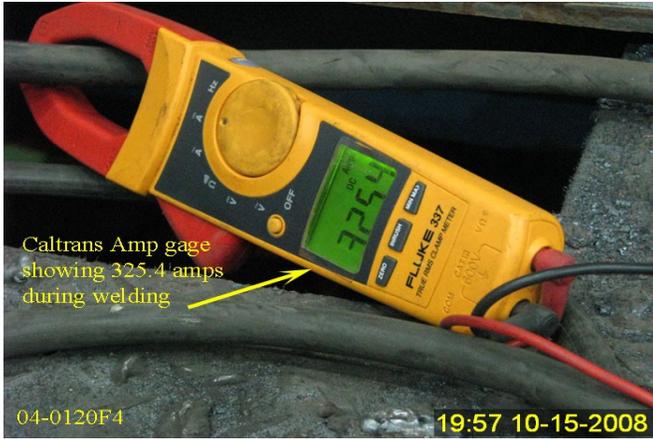
the decision to remove the equipment and halt welder 1 from proceeding with the tacking welding at this point.

Welder-2 used a piece of scrap material to set his welding parameters as was verified by this QA inspector. The parameters were set to a range specified by the WPS range of 330-350 amps and volts were 27.4. Once the parameters were adjusted, the welding angle was observed by Caltrans QA inspector to be 90° or less perpendicular to the tack weld. One observation was that as the welder completed the weld pass he would back weld the area (approx. 10mm) to fill the crater upon doing this the welding parameter would drop drastically to a range of 100- 230 amps and the welder would “drag” the weld due to the angle of the electrode being reversed. Continued observation by this QA inspector observed that the welder’s parameters would fluctuate above and below the required ranges of the WPS this appeared to be from the welders stick out not being consistent. The parameters would range at different times and different welds to a low of 316 to a high of 402 amps. The QC inspector appeared to be talking with the welder about his technique which resulted in some changes in the parameters. The wide range gap did close to a narrow gap with an average amperage of about 345, but on the QA inspectors amp gage there was still some minor deflection outside the WPS range. While the parameters were being adjusted the welder was placing tack welds on the deck panel and also using scrap material for this purpose. Several pictures were taken throughout this process and placed on the Caltrans server under folder “team OBG” sub-folder “New Tack weld procedure”.



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Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Peter Dautermann, 1-500-219-9593, who represents the Office of Structural Materials for your project.

Inspected By:	Riley, Ken	Quality Assurance Inspector
Reviewed By:	Carreon, Albert	QA Reviewer
