

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 #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018865**Date Inspected:** 27-Dec-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**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:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Lifting Lug Hole
- B). Deck Access Hole
- C). QC Inspection Request
- D). Pipe Supports
- E). Miscellaneous Tasks

A). Lifting Lug Hole

The QAI observed the welder, Darcel Jackson ID-9967, perform the Complete Joint Penetration (CJP) groove welding of the Lifting Lug Hole (LLH) identified as WN: 1W-PP9.5-W3-Weld No. 1 located along the grid line W3 of the OBG identified as W1. The welding was also performed utilizing the Shielded Metal Arc Welding (SMAW) process and the 4.0 mm, E7018 H4R electrode as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1110A, Rev. 1. The WPS was also utilized by the QC inspector, Mike Johnson, as a reference to monitor the welding and to verify the welding parameters. The QC verification of the welding parameters was observed by the QAI and recorded as 190 amps. The welding was performed in the flat (1G) position with the work placed in an approximately horizontal plane and the weld metal deposited from the upper side.

The QAI also observed the welder, Mike Jiminez ID-4671, perform the Complete Joint Penetration (CJP) groove

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welding of the Lifting Lug Hole (LLH) identified as WN: 1W-PP9.5-W3-Weld No. 4 located along the grid line W3 of the OBG identified as W1. The welding was also performed utilizing the Shielded Metal Arc Welding (SMAW) process and the 4.8 mm, E7018 H4R electrode as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1070, Rev. 1. The WPS was also utilized by the QC inspector, Mike Johnson, as a reference to monitor the welding and to verify the welding parameters. The QC verification of the welding parameters was observed by the QAI and recorded as 280 amps. The welding conducted during this shift was performed in the flat (1G) position with the work in an approximately horizontal plane and the weld metal shall be deposited from the upper side.

B). Deck Access Hole

The QAI observed the welder, Jorge Lopez ID-6149, perform the CJP welding of the Deck Access Hole- Insert Plate (DAH-IP) identified as Weld Number (WN): 8W-PP61.5-W5-SW located on the "A" deck of the Orthotropic Box Girder (OBG) W8. The welding was performed utilizing the SMAW process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1010, Rev. 1. The WPS was also utilized by the QC inspector, Gary Ehram, as a reference to monitor the welding and to verify the welding parameters which was recorded as 180 amps by the QC inspector. The 4.0 mm low hydrogen electrode, E7018 H4R, was utilized with the welding performed in the flat (1G) position with the work placed in an approximately horizontal plane with the weld metal deposited from the upper side. The groove joint appeared to comply with the AWS joint designation identified as B-U4a and the minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The welding was not completed during this shift and appeared to comply with the contract documents.

The QAI also observed the welder, Jin Pei Wang ID-7299, perform the CJP groove welding of the Deck Access Hole (DAH) identified as WN: 3W-PP23.5-W2-NE which was located at the Panel Point (PP) 23.5 along the grid line W5 of the OBG W1 "A" deck. The welding was performed utilizing the SMAW process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1010, Rev. 1. The WPS was also utilized by the QC inspector, William Sherwood, as a reference to monitor the welding and to verify the welding parameters which was recorded as 162 amps. The 4.0 mm low hydrogen electrode, E7018 H4R, was utilized with the welding performed in the overhead (4G) position with the work placed in an approximately horizontal plane with the weld metal deposited from the underneath side. The minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The welding was not completed during this shift and appeared to comply with the contract documents.

C). QC Inspection Request

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, the QAI randomly verified the visual appearance of the Complete Joint Penetration (CJP) welding of the following; WN: 5E-6E-A-LS1, WN: 6W-7W-D1 and D2 and 1W-PP9.5-W3-Weld No. 4. The QAI verification was performed to verify that the welding and visual inspection performed by the QC inspectors John Pagliero, Jesse Cayabyab and William Sherwood meet the requirements of the contract documents. At the conclusion of the QAI verification it appeared that the welds and the QC inspection complies with the contract documents. Note: the QAI verification performed on the weld identified as WN: 1W-PP9.5-W3-Weld No. 4 was requested by QC for the overhead weld only.

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The QAI also performed an Ultrasonic Test (UT) and a Magnetic Particle Test (MPT) verification of the Complete Joint Penetration (CJP) groove weld identified as WN: 5E-6E-A-LS1 and WN: 6W-7W-D1 and D2 . A total area of 10% was tested to verify the weld and testing by QC meet the requirements of the contract documents. The examination was performed utilizing a Parker Contour Probe (AC Yoke) and a UT report, TL-6027, and a MPT report, TL-6028, was generated on this date.

D). Pipe Supports

The QAI observe the on going installation, field fit-up and tack welding of the pipe supports along the E5 grid line located on top side of the OBG's W7, W8 and W9 "A" deck. The QC inspection was performed by Mike Johnson utilizing the Welding Procedure Specification (WPS) identified as Fillet Murex to monitor the tack welding and to verify the welding parameters. The welding parameters were observed and recorded as 94 amps utilizing 2.4 mm electrodes with the welding performed in the 2F and 3F position. The tack welding was performed by Rick Kiikvee ID-5319 and David Garcia ID-8789.

E). Miscellaneous Task

This QAI also performed a review and update of the project progress utilizing QA field reports and NDT reports. The updated project information was documented into the various QA tracking logs.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW welding process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs on page 4 of this report illustrate the work observed during this scheduled shift.

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Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

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 Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Reyes, Danny

Quality Assurance Inspector

Reviewed By: Mertz, Robert

QA Reviewer