

**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:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-026666**Date Inspected:** 03-Nov-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 600**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**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:** OBG**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the SAS project site and observed the work and the inspection performed by American Bridge/Fluor Enterprises (AB/F) personnel. The inspection was performed as noted below:

A). This Quality Assurance Lead Inspector (QALI) assigned the QAI, Art Peterson, to the following but not limited to the work stations listed below, to observe the welding and the QC inspection:

1). OBG W13/W14

1A). At the start of the shift QA Inspector, Art Peterson, observed the Complete Joint Penetration (CJP) welding of the field splice identified as 13W-14W-D2. The welding was performed by James Zhen ID-6001 utilizing the Sub-Merged Arc Welding (SAW) as per the Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1, Rev. 0 which was utilized by the QC Inspector, Patrick Swain, as a reference to monitor the welding, verify the welding parameters, the minimum preheat and maximum interpass temperatures. Mr. Peterson also observed and monitored the inspection performed by the QC inspector.

1B). The QAI, Mr. Peterson, observed the continued fillet welding (continuous tack weld) of the "A" deck plate, designated as Seismic Performance Critical Member (SPCM), to the backing bar identified as 13W-14W-A2 through A5. The welding was performed by Xiao Jian Wan ID-9667 and Wai Kitlai ID-2953 utilizing the Flux Cored Arc Welding w/gas (FCAW-G) as per the Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2, Rev. 0. The weld inspection was performed by the QC inspector, Mr. Swain, utilizing the WPS as a reference. The welding was completed during this shift.

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B). This Quality Assurance Lead Inspector (QALI) assigned the QAI, Joselito Lizardo, to the following, but not limited to the work stations listed below, to observe the welding and QC inspection:

- 1). Cross Beam # 1
- 2). OBG Survey
- 3). OBG E12/E13
- 4). OBG E13/E14

1). At the start of the shift the QAI, Joselito Lizardo, observed the welders Eric Sparks ID-3040 and Todd Jackson ID-4639 performing work of the stair tread modifications due to the incorrect rise dimension of shop fabrication of approximately 297 mm. This work was not completed during this shift and was performed in reference to RFI, ABF-RFI-002417R00.

2). The QAI also performed a survey of various open items in regards to QA verification. These items were generated by this QA lead inspector at the conclusion of review OBG tracking documentation. This survey was completed during this shift.

3). The QAI also observed the Complete Joint Penetration (CJP) groove welding of the bottom plate field splice identified as 12E-13E-D1. The welding operator Jin Pei Wang ID-7299 performed the Flux Cored Arc Welding w/gas (FCAW-G) as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-3110-4, Rev. 0. The QC inspector, Fred Von Hoff, also utilized the WPS as a reference to monitor the welding and perform the weld inspection. The work performed at this station was turned over to QA Inspector Craig Hager.

4). The QAI also observed the QC inspector, Sal Merino, perform the inspection of the welding of the fitting gear (blank nuts) and the field fit-up on the bottom, vertical and side plate identified accordingly as WN: 13E-14E-D1, H and I. The welding of the fitting gear and the assembly fit-up were performed by Rick Clayborn ID-2773 utilizing the SMAW process during the welding as per the WPS ABF-WPS-D15-F1200A Rev. 1. The WPS was also used by the QC inspector Mr. Merino as a reference to monitor the welding and verify the welding parameters. At the conclusion of the fit-up inspection no fit-up or planar misalignment issues were noted. At this time the QAI, at the request of Mr. Merino, verified the fit-up and planar alignment dimensions and the QAI concurs with the QC inspector's assessment.

C). This Quality Assurance Lead Inspector (QALI) assigned to the QAI, Craig Hager, to the following but not limited to the work stations listed below, to observe the welding and QC inspection:

- 1). OBG E12/E13

1). The QAI, Mr. Hager, assumed this task from the QA inspector Joselito Lizardo. Mr. Hager continued the observation task of the Complete Joint Penetration (CJP) groove welding of the bottom plate field splice identified as 12E-13E-D1. At the conclusion of the welding the QC inspector, John Pagliero, informed Mr. Hager that due from an earlier rain shower that water had accumulated on the interior side of the OBG restricting the heat induction equipment from maintaining the required post heat of 200 degrees Celsius. The welding of this field splice was completed during this shift. For additional information see QALI Summary on page four (4) of this report.

D). This Quality Assurance Lead Inspector (QALI) assigned to the QAI, Doug Frey, to the following but not

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limited to the work stations listed below, to observe the welding and QC inspection:

1). Lifting Lug Holes (LLH)

1A). The QAI, Doug Frey, observed the welder, Salvador Sandoval ID- 2202, to perform the Complete Joint Penetration (CJP) welding of the LLH identified as 11W-PP114-W3-W3. The field welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1050A-CU. The WPS was also utilized by the QC inspector, John Pagliero, to monitor the welding and to perform the in progress weld inspection. The welding of the LLH (A-Face) was not completed during this shift.

1B). Mr. Frey also observed CJP groove welding of the LLH identified as 11W-PP103-W3-W3 and W4. The welding was performed by Jorge Lopez ID-6149 utilizing the Shielded Metal Arc Welding (SMAW) process as per the WPS identified as ABF-WPS-D15-1050A-CU. The WPS was also utilized by the QC inspector, John Pagliero, to monitor the welding and perform the in progress weld inspection. The field fit-up was also verified by the QAI prior to the welding. The welding of the LLH (A-Face) identified as 11W-PP103-W3-W3 was completed and 11W-PP103-W3-W4 was not completed during this shift.

1C). Later in the shift, Mr. Frey observed CJP groove welding of the LLH identified as 11W-PP101-W4-W4. The welding was performed by Mike Jiminez ID-4671 utilizing the Shielded Metal Arc Welding (SMAW) process as per the WPS identified as ABF-WPS-D15-1050A-CU. The WPS was also utilized by the QC inspector, John Pagliero, to monitor the welding and perform the in progress weld inspection. The field fit-up was also verified by the QAI prior to the welding. The welding of the LLH (A-Face) was completed during this shift.

D). This Quality Assurance Lead Inspector (QALI) assigned to the QAI, William Clifford, to the following but not limited to the work stations listed below, to observe the welding and QC inspection:

1). OBG W12/W13

1A). The QAI, Mr. Clifford, observed the welder, Fred Kaddu ID-2188, perform the CJP groove welding on the longitudinal stiffener field splice identified as WN: 12W-13W-A-LS4. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector John Pagliero as a reference.

1B). The QAI also observed the Flux Cored Arc Welding w/gas (FCAW-G) of the bottom plate field splice identified as 12W-13W-D. The welding was performed by welding operators Rory Hogan ID-3186 and Jeremy Dolman ID-5042 utilizing the Welding Procedure Specification identified as ABF-WPS-D15-3040A-1, Rev.1. The WPS was also utilized by the QC inspector Bernie Docena to monitor the welding and verify the welding parameters.

Note: Also per the direction of this QALI, Mr. Clifford developed the documentation for the recording of field as built dimensions in regards to planar alignments.

### Quality Assurance Lead Inspector (QALI) Summary

Later in the shift, this QA Lead Inspector (QALI) also observed the QA Inspector's Craig Hager, Art Peterson, Joselito Lizardo, Douglas Frey and William Clifford monitor the work performed by the QC inspectors at random intervals and also observed the QA Inspectors verify the welding parameters, the minimum preheat and the

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maximum interpass temperatures. The QAI's utilized a Fluke 337 clamp meter to measure the electrical welding parameters, Tempil Heat Indicators and/or a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. At the conclusion of the shift, this QA Lead Inspector discussed and reviewed the work performed by the QAI's in regards to the various observations and the verifications of the WPS's, consumables, welding parameters, preheat and interpass temperatures as described above. The QAI observations of the QC inspection and verification of the welding parameters performed on this date appeared to comply with the contract specifications with one (1) issue noted.

Issue

Item C, Para. 1

Issue (ref. Item C, Para. 1)

This QALI was informed by the QAI, Craig Hager, of the water accumulation between the bottom plate stiffeners of the OBG field splice identified as 12E-13E-D1 due to the rain showers which occurred during this scheduled shift. The accumulation of the water interrupted maintaining of the pre heat temperature three hours at the conclusion of welding. (for reference see the Special Provisions, Item C on page 334-335. This QAI contacted the QC Lead Inspector, Bonifacio Daquinag, Jr. and informed him of this issue. Mr. Daquinag said he would direct the QC inspector to incorporate this issue in his daily report. Later in the shift Mr. Daquinag informed this QALI that the ABF QC department will generate an internal Non-Conformance Report (NCR) as a first step to resolving this issue. See Summary of Conversations for additional information.

For additional detailed information see the individual QAI, submitted and approved, Weld Inspection Reports (WIR).

This QA Inspector continued the daily review of field inspection reports and update of the field document control tracking records regarding the Orthotropic Box Girders (OBG, Longitudinal and Transverse "A" Deck Stiffeners, Deck Access Holes and the Tower Shear plates). The daily updates and project information was provided by QAI Art Peterson.

### **Summary of Conversations:**

There were general conversations with Quality Control Lead Inspector, Bonifacio Daquinag, Jr., at the start of the shift regarding the location of welding, inspection personnel scheduled for this shift.

In conversation with QA Supervisor, William Levell said that per Charles Kanapicki has already generated an Non-Conformance Report (NCR) identified as RFI # 196, in regards to maintaining the preheat temperature for 3 hours at the conclusion of the welding.

### **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.

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**Inspected By:** Reyes,Danny

Quality Assurance Inspector

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**Reviewed By:**      Levell,Bill

QA Reviewer