

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-021201**Date Inspected:** 28-Feb-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

|                                    |                                 |           |            |                                  |                        |           |            |
|------------------------------------|---------------------------------|-----------|------------|----------------------------------|------------------------|-----------|------------|
| <b>CWI Name:</b>                   | John Pagliero and Fred Von Hoff |           |            | <b>CWI Present:</b>              | <b>Yes</b>             | <b>No</b> |            |
| <b>Inspected CWI report:</b>       | <b>Yes</b>                      | <b>No</b> | <b>N/A</b> | <b>Rod Oven in Use:</b>          | <b>Yes</b>             | <b>No</b> | <b>N/A</b> |
| <b>Electrode to specification:</b> | <b>Yes</b>                      | <b>No</b> | <b>N/A</b> | <b>Weld Procedures Followed:</b> | <b>Yes</b>             | <b>No</b> | <b>N/A</b> |
| <b>Qualified Welders:</b>          | <b>Yes</b>                      | <b>No</b> | <b>N/A</b> | <b>Verified Joint Fit-up:</b>    | <b>Yes</b>             | <b>No</b> | <b>N/A</b> |
| <b>Approved Drawings:</b>          | <b>Yes</b>                      | <b>No</b> | <b>N/A</b> | <b>Approved WPS:</b>             | <b>Yes</b>             | <b>No</b> | <b>N/A</b> |
|                                    |                                 |           |            | <b>Delayed / Cancelled:</b>      | <b>Yes</b>             | <b>No</b> | <b>N/A</b> |
| <b>Bridge No:</b>                  | 34-0006                         |           |            | <b>Component:</b>                | Orthotropic Box Girder |           |            |

**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

QA randomly observed ABF/JV qualified welder Rory Hogan continuing to perform CJP groove (splice) back welding fill pass on Orthotropic Box Girder (OBG) 8W/9W side plate 'E1' outside. The welder was observed back welding in the 4G (overhead) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3110-4. The welder was using a track mounted welder holder assembly that was remotely controlled. The joint being welded has the backing bar gouged using the Esab Plasma Arc machine and was ground smooth. The gouged and ground splice butt joint was also Non Destructive Testing (NDT) tested using the Magnetic Particle Testing (MT). The splice joint was preheated and maintained to greater than 150 degrees Fahrenheit using Miller Proheat 35 Induction Heating System located on top of the plate prior welding and by moving the blanket to the side of the weld being welded during welding. The vicinity was also properly protected from wind and other climatic conditions. ABF Quality Control (QC) Fred Von Hoff was noted monitoring the welding parameters of the welder. At the end of the shift, fill pass welding was still continuing and should remain tomorrow.

At OBG 8W-PP70.5-W5-SE deck access hole to top deck plate outside/inside, QA randomly observed ABF/JV qualified welder Jorge Lopez perform CJP repair welding. The welder was noted welding in 1G/4G (flat/overhead) position utilizing SMAW with 1/8" diameter E7018H4R electrode implementing new Caltrans approved Welding

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Procedure Specification (WPS) ABF-WPS-D15-1001 Repair. The first time welding repairs were excavated to a boat shape profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC John Pagliero was noted monitoring the welder and his welding parameters. QA noted parameter during welding was 135 amperes which appears in compliance to the WPS. At the end of the shift, welding repair at the following locations was completed. The locations of the repairs were noted below;

| Location | Y-dimension | Length | Width | Depth | Remarks            |
|----------|-------------|--------|-------|-------|--------------------|
| 1.       | 3285mm      | 80mm   | 25mm  | 6mm   | Inside-Completed   |
| 2.       | 3605mm      | 115mm  | 25mm  | 7mm   | Inside- Completed  |
| 3.       | 90mm        | 130mm  | 20mm  | 5mm   | Inside- Completed  |
| 4.       | 240mm       | 130mm  | 20mm  | 12mm  | Outside- Completed |
| 5.       | 4155mm      | 155mm  | 20mm  | 18mm  | Outside- Completed |

At OBG 8W/9W top deck plate 'A5' outside, QA randomly observed ABF/JV qualified welder Wai Kitlai continuing to perform CJP repair welding. The welder was noted welding in 1G (flat) position utilizing SMAW with 5/32" diameter E7018H4R electrode implementing new Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1003 Repair. The new repair procedure includes putting in place a copper backing alongside the typical steel backing bar when the repair excavation is expected to occur at the edge of the steel backing. The third and fourth time welding repairs were excavated to a boat shape profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC John Pagliero was noted monitoring the welder and his welding parameters. QA noted parameter during welding was 165 amperes which appears in compliance to the WPS. The locations of the repairs were noted below;

| Location | Y-dimension | Length | Width | Depth | Remarks        |
|----------|-------------|--------|-------|-------|----------------|
| 1.       | A5 2800mm   | 195mm  | 20mm  | 15mm  | Completed (R3) |
| 2.       | A5 210mm    | 110mm  | 15mm  | 15mm  | Completed (R4) |

At OBG 9W/10W side plate 'E' inside, ABF welder Songtao, Huang was noted moving his welding equipment and accessories to this new location. While the welder was setting up to weld at this new splice butt joint, this QA performed fit up verification. The offset was measured less than 2.0mm while the root gap was measured more than 10.0mm which deemed in compliance to the approved WPS ABF-WPS-D15-3042A-1. At the end of the shift, setting up and moving of welding equipment was still continuing and so there was no welding performed today.

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the Complete Joint Penetration (CJP) welding of the three longitudinal stiffeners splice butt joint. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the welds and the QC inspection complied with the contract documents.

1. 2W/3W LS1 longitudinal stiffener inside – QA VT/MT verified
2. 2W/3W LS2 longitudinal stiffener inside – QA VT/MT verified
3. 2W/3W LS3 longitudinal stiffener inside – QA VT/MT verified

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## Summary of Conversations:

No significant conversation occurred today.

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

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Levell, Bill

QA Reviewer