

**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:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-028225**Date Inspected:** 20-Aug-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** As noted 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:** Tower**Summary of Items Observed:**

Quality Assurance Inspector (QA) William Clifford was at the American Bridge/Fluor (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

**Electroslag Weld Repair Welding**

This QA randomly observed ABF/JV qualified welder Wen Han Yu #6317 performing Shielded Metal Arc Welding (SMAW) with 3.2mm" diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification's (WPS) ABF-WPS-D15-1000-R. The joint being welded was tower shear plate designated as ESW weld, location "P" from face B.

Repairs were being performed to correct surface porosity detected by QC technician Andrew Keech. Mr. Keech discovered the porosity with Magnetic Particle Testing (MT) during QC Visual and Magnetic Particle Testing required for final QC acceptance. Mr. Keech rejected the completed repair at time of testing.

The original dimensions this excavated repairs were:

Weld "P" – Y=3900mm ~ 4240mm

During welding, ABF Quality Control (QC) Andrew Keech was noted monitoring the welding parameters.

This QA observed, at random intervals, ABF/JV qualified welder James Zhen #6001 performing mechanical grinding of tower shear plate designated as ESW weld, location "Q" from face B at (Y= 4040mm, L= 420mm). Mr. Zhen ground smooth approximately 800mm of the weld surface after completion of Flux Cored Arc Welding (FCAW) repairs at this location.

During welding, ABF Quality Control (QC) Andrew Keech was noted monitoring the post welding operation.

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## Magnetic Particle Testing

This QA Inspector observed QC personnel performing Magnetic Particle Testing (MT) of completed weld repair on tower ESW "P", face B. QC personnel observed no rejectable indications at the time of testing. The completed work observed at this location appeared to be in compliance with the contract specifications.

Measurements for testing are:

Weld "P" – Y= 4100mm ~ 5000mm.

This QA Inspector observed QC personnel performing Magnetic Particle Testing (MT) of completed weld repair on tower ESW "B", face A. QC personnel observed one (1) rejectable indication approximately forty-two (42mm) millimeters in length. The indication appeared to be a crack at the toe of the weld repair.

Measurements for this indication are:

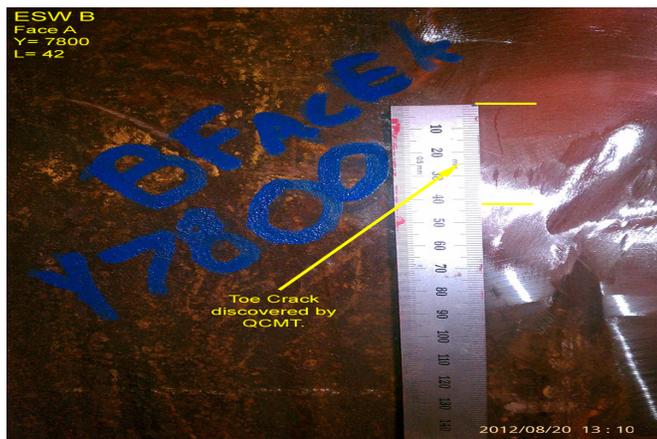
Weld "B" – Y= 7800mm ~ 7842mm.

\*Note: QC personnel was aware of the rejectable indication at the time of QA testing.

## ESW RWR Tracking

This QA was instructed by Task Leader Bill Levell to generate a spread sheet for the tracking of Request for Weld Repair (RWR) forms submitted by ABF for the repair of Electroslag Welds located at the base of the Tower. This assigned task requires review of all submitted RWR's as well as review of approved QA TL-6031 report forms applicable to this welding, testing, and repair. This QA used the balance of time not allocated for in-process inspection and testing to work on this task.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.



## Summary of Conversations:

Conversations were relevant to work performed.

## 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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<b>Inspected By:</b>	Clifford, William	Quality Assurance Inspector
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<b>Reviewed By:</b>	Levell, Bill	QA Reviewer
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