

**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 #: 99.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-030058**Date Inspected:** 19-Sep-2013**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**CWI Name:** Scott Kortum, Tony Sherwood**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:** SAS Tower**Summary of Items Observed:**

Caltrans Quality Assurance Inspector Simion Ramirez (QA Inspector) arrived at job site. QA Inspector performed random QA visual testing (VT) and non-destructive testing (NDT) of ongoing ABF production work. QC Inspectors verified joint fit-up and pre-heat and checked electrical welding parameters of each welder at the start of shift and randomly until the end of shift. Welding procedure specifications (WPS) were available for reference on site. Caltrans QA Inspector random observation of quality control functions are noted below:

Tower Skirt: Skirt Plate #2, Weld Jt's #153 South Shaft, 156 East Shaft, #157 North Shaft

ABF personnel continued fit-up and welding of each partial joint penetration (PJP) splice weld noted above. WPS #ABF-WPS-D15-2140-3 for flux core arc welding (FCAW) was utilized by QC Inspectors. QA Inspector witnessed QC Inspector magnetic particle testing (MT) the root passes of welds noted above. All weld passes were installed in the groove on the exterior face. Be advised that locations where the root gap exceeds 5mm and up to 8mm maximum the contractor utilized steel backing (9mm x 38mm), in accordance with RFI# ABF-RFI-003417R02. ABF personnel ground weld reinforcing of the weld joints above to a flush and smooth contour.

- The weld joint fit-up and alignment was checked with a straight edge and bridge cam gauge.
- Pre-heat was performed with a rosebud torch and verified by QC with temperature stick (200°F).
- Welding was performed by approved welders (Kit Li, Rick Clayborn).
- Electrical parameter check results for Kit Li (20.4 volts / 265 amps) and Rick Clayborn (21 volts / 270 amps).
- The weld procedure and joint details utilized (FWT21 and FWT19) are for a partial joint penetration (PJP) weld.
- Electrode utilized is FCAW NR-232, .072" diameter.
- Weld passes were de-slagged by grinder and wire wheel.

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# WELDING INSPECTION REPORT

( Continued Page 2 of 2 )

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Tower Ring Beam South Shaft @ Level 9: Weld Jt's #150 (Web) & #151 (Flange)

ABF personnel continued fit-up and welding of each complete joint penetration (CJP) splice weld noted above.

WPS #ABF-WPS-D15-2030-3 for flux core arc welding (FCAW) was utilized by QC Inspectors. The weld backing was removed by air arc and the weld was back gouged to sound material. QC performed VT and MT inspection of the back gouged weld areas, all NDT inspection results are in general compliance. The back gouged web was welded with shielded metal arc weld (SMAW) procedure ABF-WPS-D15-1110B.

Weld crowns were ground to a smooth contour. Upon cooling to ambient temperature QC Inspector performed VT, MT and UT on web and flange, all test results are in general compliance.

- The weld joint fit-up and alignment was checked with a straight edge and bridge cam gauge.
- Preheat was performed by rosebud torch and verified with temperature stick (200°F).
- Welding was performed by approved welder (Rick Clayborn)
- QC check results for Rick Clayborn (20 volts / 260 amps).
- The weld procedure and joint details referenced (FWT23 & FWT24) are for a CJP weld.
- Electrodes utilized are FCAW NR-232, .072", except at the web back gouge SMAW E7018 MR 1/8" was used.
- Weld passes were de-slugged by grinder and wire wheel.

### Summary of Conversations:

Communications with QC personnel regarding fit-up efforts and general welding.

QC UT of ring beam flange and web welds.



QC electrical parameter check at ring beam welds.



### 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 Gary Thomas (916) 764-6027, who represents the Office of Structural Materials for your project.

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**Inspected By:** Ramirez, Simion

Quality Assurance Inspector

**Reviewed By:** Riley, Ken

QA Reviewer