

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 #: 74.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-007112**Date Inspected:** 09-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 730**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1900**Contractor:** Goodwin Steel, UK**Location:** Stoke on Trent, UK

CWI Name:	N/A	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:	Cable Band	

Summary of Items Observed:

The following report is based on METS observations at Goodwin Foundry, Stoke on Trent, England.

Repair

QA inspector witnessed buildup welding of casting B8/M-1, GG29426-1 as submitted in ABF-SUB-000366 Rev. 31. The welder was observed welding in the flat position utilizing approved welding procedure WPS04-0120F4B. Parameters were observed to be within the limits of the WPS.

Radiography

The QA inspector witnessed radiography performed by Goodwin Steel Castings. Mr. Scott Bennett performed radiography on casting GG29434-1, B8/M-1. The casting was radiographed using a single wall exposure. The radiographs were performed using a 3.2mm effective focal spot size, 8MEV linear accelerator. The source to film distance was maintained at 2,500mm. Number 40 to 80 hole type and Set 1C wire type image quality indicators were placed source side on each different thickness radiographed. AGFA type D4 and D7 film of various sizes were used for single and composite views to cover the range of thicknesses. Radiography of this casting was not completed on this date.

Radiography Review

The QA inspector reviewed radiographic film of casting B10/F-1 GG29439-1 with Goodwin Steel Castings NDT Level II technician Mr. Ian Pointon. Unacceptable levels of shrinkage and gas were observed at three locations. See RADIOGRAPHIC FILM REVIEW SUMMARY-CASTINGS (TL-6030) for details.

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Mechanical Testing

The following tensile testing was performed by Goodwin Steel Castings Quality Control Technician, Mr. Rob Freeman. The testing was witnessed and completed today:

GG29420-11, Heat F7522 RETEST

Yield Strength 421 N/mm²

Ultimate Tensile Strength 608 N/mm²

Elongation 28 %

Reduction of area 55 %

GG29432-1, Heat C7934 After PWHT

Yield Strength 384 N/mm²

Ultimate Tensile Strength 571 N/mm²

Elongation 30 %

Reduction of area 56 %

GG29417-3, Heat F7475 After PWHT

Yield Strength 460 N/mm²

Ultimate Tensile Strength 635 N/mm²

Elongation 24 %

Reduction of area 60 %

GG29421-8, Heat C7986 Initial test

Yield Strength 410 N/mm²

Ultimate Tensile Strength 628 N/mm²

Elongation 22 %

Reduction of area 44 %

GG29421-11, Heat C7996 Initial test

Yield Strength 441 N/mm²

Ultimate Tensile Strength 648 N/mm²

Elongation 28 %

Reduction of area 48 %

GG29421-14, Heat F7567 Initial test

Yield Strength 420 N/mm²

Ultimate Tensile Strength 600 N/mm²

Elongation 30 %

Reduction of area 57 %

GG29420-10, Heat F7518 Initial test

Yield Strength 355 N/mm²

Ultimate Tensile Strength 583 N/mm²

Elongation 33 %

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Reduction of area 60 %

GG29420-12, Heat F7519 Initial test

Yield Strength 385 N/mm²

Ultimate Tensile Strength 617 N/mm²

Elongation 29 %

Reduction of area 56 %

GG29421-17, Heat C7998 Initial test

Yield Strength 447 N/mm²

Ultimate Tensile Strength 632 N/mm²

Elongation 28 %

Reduction of area 55 %

GG29420-17, Heat F7530 Initial test

Yield Strength 409 N/mm²

Ultimate Tensile Strength 642 N/mm²

Elongation 28 %

Reduction of area 55 %

Documents received and reviewed

The QA inspector received a copy of the Goodwin Steel Castings “Weld Excavation Map” for casting GG29446-2, B14 CBT, Revision 1. The Weld Excavation Map, was reviewed for accuracy and compliance with contract documents. This second repair cycle of three additional repair locations is a major repair and requires post weld heat treatment. Caltrans Lot Number B228-016-09 was assigned for tracking purposes.

The QA inspector received a copy of the Goodwin Steel Castings “Weld Excavation Map” for casting GG29447-2, B14 CBB. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B228-017-09 was assigned for tracking purposes.

The QA inspector received a copy of the Goodwin Steel Castings “Weld Excavation Map” for casting GG29430-1, B7/M. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B228-018-09 was assigned for tracking purposes.

Summary of Conversations:

During this visit, METS met with Mr. Ian Pointon, NDE Level II technician. Mr. Pointon reviewed unacceptable radiographic indications with this QA Inspector.

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:	Lanz,Joe	Quality Assurance Inspector
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Reviewed By:	Levell,Bill	QA Reviewer
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