

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 #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-000329**Date Inspected:** 02-Aug-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

CWI Name:	Lu Jian Hua	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:	Cold Bent Closed Rib Demonstration	

Summary of Items Observed:

Caltrans Quality Assurance (QA) Inspector Robert Cuellar is present at the fabrication facility of Zhenhua Port Machinery Company (ZPMC), LTD for the purpose of monitoring activities relative to the subsequent fabrication of the SFOBB Self Anchored Suspension Bridge. Also present are Caltrans representatives Mr. Dave McClary, Mr. Alfredo Acuna, Mr. John Kinsey and Mr. Stan Ku. Only observations by QA Inspector Robert Cuellar are being recorded within this report as follows,

15 Meter Cold Bent Closed Rib Plates-Demonstration

The Caltrans QA Inspector and Caltrans Representative Mr. Stan Ku are present as requested by ZPMC and ABF for the purpose of observing the cold bending of ten (10) closed rib plates. Upon arrival at the OBG fabrication area, it was observed that there are numerous ZPMC and ABF representatives present. Several of the representatives recalled by the QA Inspector included, ABF Representatives, Mr. Steve Lawton, Mr. Craig Knops, Mr. Jiao Gong (Bi-lingual Chinese and English), Mr. Peter Ferguson, Mr. Jason E (Bi-lingual Chinese and English), Mr. Warren Buehler and ZPMC representatives Mr. Lu Jian Jua and Mr. Xu Jun (Eric). There were also numerous ZPMC workers as well as ZPMC Quality Control and supervisory personnel present at the area where the closed rib press forming is occurring as well as the area where the closed ribs are being positioned on the inspection platform.

1) The Caltrans QA Inspector observed that ZPMC cold bent ten (10) fifteen (15) meter long closed ribs in approximately 1.5 hours.

2) The Caltrans QA Inspector observed that ZPMC is utilizing two (2) separate press control modules that run simultaneously during the press operation. The Caltrans QA Inspector observed that the press control modules both reflect a force value of 12000 newtons.

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- 3) The piece identification numbers for the ten cold bent closed ribs as they were bent included U105, U104, U102, U101, U71, U73, U70, U74, U75 and U103.
- 4) The Caltrans QA Inspector observed that during the cold bent press forming of the first closed rib that the press held the die down for the full stroke of the press for approximately two to three minutes. After the first closed rib press forming the other remaining ribs were cold bent press formed with the die held down for the full stroke of the press for approximately one to two minutes.
- 5) Upon completion of the cold bent forming of the closed ribs, the closed ribs were then positioned on the inspection platform where a group of ZPMC Quality Control Inspectors performed a variety of dimensional and verification inspections as identified within the applicable deck plate panel mock-up fabrication procedure revision 2 sheets FP-3 and FP-4.
- 6) The Caltrans QA Inspector observed that the ZPMC Quality Control personnel utilized a variety of measuring devices to evaluate the different items listed within table 1 of the applicable deck plate panel mock-up fabrication procedure revision 2 sheet FP-3. In addition to observing ZPMC personnel performing the various measurements of the cold bent press formed closed ribs the Caltrans QA Inspector performed random measurements of the items listed as gap c, warpage w and also the thickness of several of the cold bent press formed closed ribs. The Caltrans QA Inspector recorded closed rib thickness measurements of the steel plates as measured at the ends of 12.5 mm and up to 13 mm in thickness. ZPMC Quality Control personnel were observed recording measured values within a ZPMC Quality Control document.
- 7) Based on observations of the ZPMC Quality Control personnel performing and recording the results of items listed in table 1, ZPMC and ABF personnel informed the Caltrans QA Inspector that the ten (10) cold bent press formed closed ribs are within the allowable tolerances listed within table 1. ABF Representative Mr. Peter Ferguson informed the Caltrans QA Inspector that ABF would provide Caltrans on-site with copies of ZPMC Quality Control recorded measured values for the ten cold bent press formed closed rib demonstration.

The seven items listed above were recorded during the morning hours between 0915 through approximately 1100.

Magnetic Particle Testing of 15 Meter Cold Bent Closed Rib Plates

The Caltrans QA Inspector and Caltrans Representative Mr. Stan Ku are present at approximately 1330 as requested by ZPMC and ABF for the purpose of observing magnetic particle testing of the ten (10) cold bent closed rib plates that are identified above.

- 1) The Caltrans QA Inspector observed that ZPMC has removed the shop primer from the bent convex surface of four closed ribs. These areas are located at both ends of the closed ribs and measure inwards for a length of 133cm.
- 2) The Caltrans QA Inspector observed that there is a ZPMC Quality Control Inspector performing visual inspection utilizing a hand held magnificator of the bent convex surface of the closed ribs scheduled for magnetic particle testing. The Caltrans QA Inspector questioned ABF and ZPMC personnel as to whether or not the magnificator being utilized complies with the 5x strength requirement listed within the Special Provisions. ZPMC presented the Caltrans QA Inspector with the magnificator being used and it was identified that there are no identification markings that indicate what the strength level is. A lengthy discussion occurred between ABF and ZPMC and it was voiced by ABF that ZPMC would present documentation which indicates what the strength level is of the

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magnificator being used. There were no documents provided on this date confirming that the magnificator being used satisfied the 5x requirements.

3) Prior to the magnetic particle testing of the first cold bent closed rib identified as U74, ABF Representative Mr. Steve Lawton voiced that he did not want ZPMC to proceed with the scheduled magnetic particle testing until the applicable procedure could be provided by ZPMC. The Caltrans QA Inspector suggested that ABF should reconsider such strong position and should consider some other means that would allow ZPMC to proceed with the scheduled magnetic particle testing. After a brief period of time, Mr. Steve Lawton reconsidered his initial statement and allowed ZPMC to proceed with the scheduled magnetic particle testing provided that such testing complies with the submitted magnetic particle testing procedure within the Welding Quality Control Plan for the project.

4) The Caltrans QA Inspector observed a ZPMC magnetic particle testing technician utilize a magnetic field indicator that was positioned within the scheduled closed rib testing area. The ZPMC magnetic particle testing technician demonstrated by use of the magnetic field indicator that the magnetic field is adequate to reveal flux leakage indicators.

5) The Caltrans QA Inspector observed the ZPMC magnetic particle testing technician as he performed magnetic particle testing at the end of closed rib U74 for a length of 133cm.

The Caltrans QA Inspector and Mr. Stan Ku departed prior to the completion of magnetic particle testing of the four closed ribs that were positioned on the inspection platform. The observed magnetic particle testing appeared to comply with the requirements of AWS D1.5 and there were no recordable indications observed during Caltrans presence of such testing.

Included below are digital pictures that support the observations recorded within this report. Additional digital pictures that are not included in this report are being maintained on-site by Caltrans OSM.



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Colb Bent Close Rib U105- QA Measurement of W value

Caltrans EA # 04-0120F4
Prime Contractor- American Bridge/ Fluor
Self Anchored Suspension Bridge
Fabricator-Zenhua Port Machinery Co. (ZPMC)
Location-Changxing Island, Shanghai China

 0935 08-02-2007



ZPMC-QC-Magnetic Particle Testing- Magnetic Field Indicator

Caltrans EA # 04-0120F4
Prime Contractor- American Bridge/ Fluor
Self Anchored Suspension Bridge
Fabricator-Zenhua Port Machinery Co. (ZPMC)
Location-Changxing Island, Shanghai China

 1358 08-02-2007



ZPMC-QC-Magnetic Particle Testing of Cold Bent Closed Rib Demonstration U105

Caltrans EA # 04-0120F4
Prime Contractor- American Bridge/ Fluor
Self Anchored Suspension Bridge
Fabricator-Zenhua Port Machinery Co. (ZPMC)
Location-Changxing Island, Shanghai China

 1403 08-02-2007



ZPMC Cold Bending Demonstration of 1st Steel Closed Rib U-105

Caltrans EA # 04-0120F4
Prime Contractor- American Bridge/ Fluor
Self Anchored Suspension Bridge
Fabricator-Zenhua Port Machinery Co. (ZPMC)
Location-Changxing Island, Shanghai China

 0924 08-02-2007



ZPMC-Quality Control Magnifier With No Power Magnification Identification Markings

Caltrans EA # 04-0120F4
Prime Contractor- American Bridge/ Fluor
Self Anchored Suspension Bridge
Fabricator-Zenhua Port Machinery Co. (ZPMC)
Location-Changxing Island, Shanghai China

 1346 08-02-2007



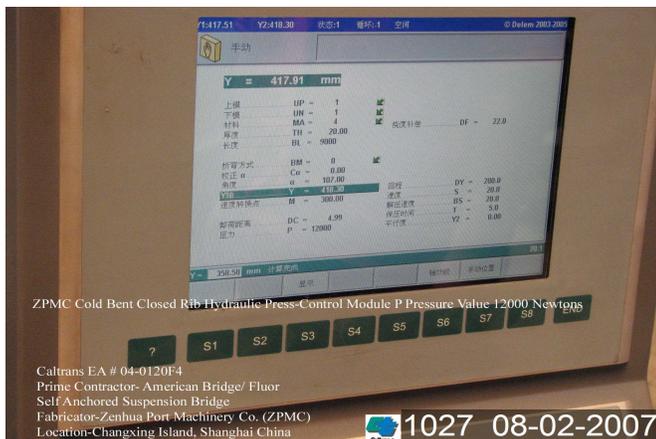
ZPMC-QC Performing Flatness Π Measurement of Cold Bent Closed Rib U105

Caltrans EA # 04-0120F4
Prime Contractor- American Bridge/ Fluor
Self Anchored Suspension Bridge
Fabricator-Zenhua Port Machinery Co. (ZPMC)
Location-Changxing Island, Shanghai China

 0947 08-02-2007

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Summary of Conversations:

As identified within the contents of this report.

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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Cuellar, Robert

Quality Assurance Inspector

Reviewed By: McClary, David

QA Reviewer