



SAS Superstructure

Location: 04-SF-80-13.2 / 13.9

Client Name: CalTrans

Run date 21-Nov-14

Time 10:06 AM

Daily Diary Report by Bid Item

Contract No.: 04-0120F4

Diary #: 049 Const Calendar Day: 185 Date: 12-Mar-2010 Friday
 Inspector Name: Brignano, Bob Title: Transportation Engineer
 Inspection Type:
 Shift Hours: Break: Over Time:
 Federal ID:
 Location:
 Reviewer: Schmitt, Alex Approved Date: Status: Submit

04-0120F4
 04-SF-80-13.2/13.9
 Self-Anchored
 Suspension Bridge

Weather

Temperature	7 AM	12 PM	4PM
Precipitation			Condition

Working Day If no, explain:

Diary:

Dispute

General Comments

ITEM 56 ERECT STRUCTURAL STEEL (BRIDGE)(BOX GIRDER):
 U-RIB BOLTED SPLICES AT OBG FIELD SPLICES:



There is some disagreement between CT and ABF in the field about bolt assembly tightening. ABF has tightened some bolt assemblies beyond the turn of the nut match marking. Caltrans inspectors have concerns about bolt assemblies being overtightened. These bolt assemblies do not meet the spec requirements for turn of the nut turn amount (not within the required turn tolerances). ABF engineer Chris Bausone and I meet at the warehouse bolt testing conex to discuss and test some bolt assemblies between 1030 and 1230.

Included in the discussion is Chris's suggestion to look at the New York State Steel Construction Manual which designates a "maximum job inspecting torque" that is determined by multiplying the "minimum job inspecting torque" by 1.5. The New York State Steel Construction Manual calls for physically checking the overtightened bolts - overtightened bolts are bolts exceeding this "maximum job inspecting torque". Any overtightened bolts are loosened and the bolt and nut removed for visual inspection of the bolt and nut threads. If there is visible thread damage or the nut does not spin freely on the bolt when turned by hand without the aid of a wrench, a new bolt and nut shall be installed. I am not able to enforce such a spec that is not included in this contract's requirements, but we use this other spec as a basis for discussion and the testing described below.

We sample some bolt assemblies of the same rocap lots (same length and diameter bolts) as the U-Rib bolted splices. Based on the length and diameter of the bolts, these bolt assemblies have a specified turn of the nut installation amount of 180-degrees and a rocap turn amount of 360-degrees. We turn some bolt assemblies by the turn of the nut to 180-degrees, loosen the nut, and examine the material - the nut freely runs down the threaded portion to the shank. We turn some bolt assemblies by the turn of the nut to 360-degrees, loosen the nut, and examine the material - the nut freely runs down to the position of the nut at the end of the turning operation and does not run all the way down the threaded portion to the shank. We test some other bolt assemblies by the turn of the nut to various points between 180-degrees and 360-degrees, and we find a turn amount of 270-degrees where the nut begins to have a problem running past its previous position on the removed bolt (threads ok with lesser turn amounts, threads problem with greater turn amounts). This is the turn amount at which the inelastic elongation of the bolt is so much that the pitch changes enough that a nut cannot be run past this point. This point determined by testing is greater than the 180-degree turn amount plus the + 30-degree tolerance. We discuss going to the field, removing some bolts, checking if the nuts can run all the way down to the shanks on the removed bolts, considering any bolts for which a nut does not run all the way down the threaded portion to the shank to be overtightened, and replacing all removed bolt assemblies (galvanized assemblies fully tensioned cannot



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be reused). Note that this field examination procedure is only for a location where CT inspectors have seen match marked assemblies that do not meet the required tolerances for the turn of the nut turn amount and have been rejected by CT. This procedure is only for this one U-rib field splice location and is not an across the board added inspection criterion imposed on ABF. This field inspection does not happen today and will happen next week.