



SAS Superstructure

Location: 04-SF-80-13.2 / 13.9

Client Name: CalTrans

Run date 22-Nov-14

Time 7:02 AM

Daily Diary Report by Bid Item

Contract No.: 04-0120F4

Diary #: 1095 Const Calendar Day: 668 Date: 03-Apr-2014 Thursday

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 clear

Working Day If no, explain:

Diary:

Dispute

General Comments

CCO 314, SAMPLING AND TESTING A354 GRADE BD MATERIAL:



ABF Engineer Kelvin Chen is working part time in the field and office on CCO 314.

On site today from VGO are Rob Rutledge and Dave Van Dyke. They arrive on site at 0700, take lunch between 1200 and 1300, and leave the site late afternoon. They work late remotely on data reports and the programming for the data collection and reporting.

VGO participates in the TR 13 snug operation and the TR 12 jack and strain gauge exercising procedure, zero procedure, and snug operation first thing this morning, 0700 to 0800. Then, VGO performs reference electrode and pH checks at TR's 12 & 13 approximately 0930 to 1000. Then, the first tensioning step at TR's 12 & 13 is approximately 1015 to 1045. VGO produces jacking reports, summaries, and the evening data reports.

Crews at the Pier 7 warehouse area are working an 8-hour shift 0700 through 1530 today. Ironworker Jared Garret works 0700 to approximately 1300 on CCO 314 for approximately 6 hours chargeable to CCO 314. Ironworker Foreman CJ Biskner works approximately 1000 to 1130 on CCO 314 for approximately 2 hours chargeable to CCO 314. Laborer Carlos (Pedro) Garcia works 0700 to 1200 on CCO 314 for approximately 5 hours chargeable to CCO 314. Portions of the shift not spent at the CCO 314 test rigs are not covered in this diary.

Yesterday, the exercising and zeroing steps were completed at TR 13. This morning, the rod in TR 13 needs to be tensioned to a snug tight load for a seating loss check and a NaCl Solution leak test of the wet chamber. The snug tight operation, with an ABF ironworker to operate the hydraulic pump and tighten the nut and VGO present to monitor the loads being used to guide the operation, starts at about 0715. At 650 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 105 kips. The nut is tightened. The hydraulic fluid is then bled to zero. The load per the primary strain gauges before the bleeding step is 101 kips (4 kip bleed loss) and the load per the primary strain gauges after the seating of the nut is 88 kips (13 kip seating loss). The NaCl Solution leak test of the wet chamber does not happen right away at TR 13 so it can be done at the same time as in the adjacent TR 12.

After the work on TR 13 to tension the test rod to a snug tight load, the ironworker works on completing the previously started setup of the hydraulics at TR 12. After the hydraulic hoses, manifolds, etc are complete at TR 12, the first jacking steps (exercising and zeroing) starts at 0736 with the first exercising jacking step. One ABF ironworker is present to operate the hydraulic pump and tighten the nut, with VGO present to monitor the loads being used to guide the operation. Present from the DJV is Dr. Herb

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Townsend. At 650 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 98 kips. The hydraulic pressure per the dial gauge is increased to 1,250 psi with the primary strain gauges giving a force of 185 kips. The hydraulic pressure per the dial gauge is increased to 1,350 psi with the primary strain gauges giving a force of 198 kips. It is noted that the hydraulic pressure needed at TR 12 to get to the exercising load is higher than was needed yesterday at TR 13. The pump is turned off and the pressure and force monitored between 0740 and 0745. The force per the primary strain gauges drops to 192 kips for 6 kips of bleed loss over about 5 minutes. The hydraulic fluid is then bled to zero approximately 0745. A residual force of about 6 kips is noted per the strain gauges – these single action 400 ton jacks do not bleed all the way down to zero without more time. Then the second exercising jacking step is performed, with a hydraulic pressure per the dial gauge of 1,350 psi and the primary strain gauges giving a force of 202 kips. The hydraulic pressure is then brought down to zero without a hold period/time, and a residual force of about 5 kips is noted per the strain gauges. Then the third exercising jacking step is performed, with a hydraulic pressure per the dial gauge of 1,350 psi and the primary strain gauges giving a force of 206 kips. The hydraulic pressure is then brought down to zero without a hold period/time, and a residual force of about 7 kips is noted per the strain gauges. There is more residual tension in the TR 12 rod today after bleeding the hydraulic fluid to zero than was present at TR 13 yesterday. Despite the additional tension in the TR 12 rod, the ironworker is able to loosen the nuts at 0750 at the north end of the test rig setup (on the jacking rod, against end plate and against jacking beam) as part of the zeroing procedure for VGO's strain gauges. Then, VGO performs the zeroing procedure for the strain gauges with the computer. Then, the TR 12 nut against end plate is hand tightened by the ironworker. Then, VGO performs the zeroing procedure for the displacement transducers with the computer. The other TR 12 nut against the jacking beam is not hand tightened (accidentally skipped step), so the next jacking step will waste a small amount of the jack stroke – note that there is still plenty of jack stroke in this equipment. Then the rod in TR 13 needs to be tensioned to a snug tight load for a seating loss check and a NaCl Solution leak test of the wet chamber. Starting at 0751, at 650 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 100 kips. The nut is tightened. The hydraulic fluid is then bled to zero. The load per the primary strain gauges before the bleeding step is 95 kips (5 kip bleed loss) and the load per the primary strain gauges after the seating of the nut is 82 kips (13 kip seating loss).

During the morning's work exercising, zeroing, and snug tightening work by the ironworker, the laborer is doing miscellaneous cleanup work around the test rig work site.

With both TR's 12 and 13 now at a snug tight load, the NaCl Solution leak test of the wet chambers can happen. At this point of the day, NaCl Solution is only in one of the two 300-gallon tanks – yesterday the tank for TR 13 was partially filled and there has been no work yet to fill the tank for TR 12. The plastic tubing from TR 13 is able to reach both TR's 12 and 13 and is used at both locations. NaCl Solution is used to fill the wet chambers at TR's 12 and 13 at about 0815. It is noted that both test rigs have slight leaks at the bellows/flashing at the internal diaphragms that separate the wet chamber and the dry chamber. Note that the NaCl Solution flow / air venting steps for the wet chambers through the notch in the washers are not done at this time because this is just a leak test – the NaCl Solution flow / air venting steps are anticipated to be done later in the day after the first tensioning step.

TR 12 leak summary:

The bellows/flashing detail leaks slightly during the leak test at 1 of the 4 screws/bolts that apply force to the plate washer to compress against the flange of the bellows/flashing. The leakage is between the plate washer and the screw/bolt head, at the bolthole in the flange of the bellows/flashing. Later in the morning, shortly after the load step, the ironworker is able to tighten this screw/bolt a little more to stop the leak. This screw is in a lower half location with difficult access, explaining why it was not fully tightened previously.

TR 13 leak summary:

The bellows/flashing detail leaks slightly during the leak test. The leak comes out at the bottom at the inside diameter of the plate washer adjacent to the bellows/flashing. The bellows/flashing is a solid piece of silicone at this area. It appears that the leak originates elsewhere and is running around the inside diameter of the plate washer to this point. Based on the leakage at a bolthole in the bellows/flashing at TR



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12, this leakage at TR 13 may be a similar situation at a bolthole in the flange of the bellows/flashing, but it comes out at the bellows/flashing to plate washer interface and not at the screw/bolt head. We are not able to do anything to stop or reduce this leak today. At the previous test rigs, slight leakages can slow down or stop with time. Also, this leakage is so slight that it does not run the risk of running down the wet chamber NaCl Solution level to the test rod. The level of the NaCl Solution in the wet chamber will be monitored to verify that the test rod does not get exposed.

After the exercising, zeroing, snug tightening, and leak test work is complete at both TR's 12 and 13, additional NaCl Solution is put in the 300 gallon tanks starting about 0845. Yesterday one pallet with three 55 gallon drums of pre-mixed NaCl Solution was added to the TR 13 tank. This morning, the ironworker takes the forklift to the warehouse to get two more pallets with five 55 gallon drums of pre-mixed NaCl Solution for the test rig wet chambers. Left over NaCl Solution from the 300 gallon tanks from TR's 5-11 were put in clean 55-gallon plastic drums, sealed, and stored in the warehouse, so the work now only involves adding pre-mixed NaCl Solution into the 300 gallon tanks instead of adding NaCl and De-Ionized Water separately into the 300 gallon tanks. The NaCl Solution from one 55 gallon barrel is pumped by the laborer into the 300 gallon tank designated for TR 13, so it now has 4 total barrels of NaCl Solution in it (previously 3 barrels were put in this tank). Then four 55 gallon barrels are pumped by the laborer into the previously empty 300 gallon tank designated for TR 12. The pumping of NaCl Solution into the tanks for TR's 12 and 13 is complete by about 0915. Then, the laborer finishes work on the tent siding – was previously kept open for easy access to the 300 gallon tanks.

CT-METS Elijah Turner is at the test rigs about 0900 working on the AE System. After installation of a new AE sensor on the rod stickout at TR 12 late yesterday, he removes the magnet that was temporarily securing the sensor while the epoxy cured. At this time, the rod is at a snug tight load (less than 0.10 Fu). Note that CT-METS did not AE monitor during the exercising, zeroing, and snug tightening operations at TR's 12 & 13 yesterday and today, but the loads were so low that this safety check was not required.

The laborer adds red tape (do not enter) at the north and south ends of TR's 12 & 13 to eliminate access to the ends of the test rigs under load. The ironworker adds fittings for a shutoff of the long plastic hose from the TR 13 tank to TR 13 – the 300 gallon tank is located on the other side of TR 12 with a long hose run, so a shutoff is added for control near TR 13.

VGO performs reference electrode and pH checks at TR's 12 & 13 approximately 0930 to 1000. It is noted that the reference electrode stays within 5 mV when compared with the master electrode in the pre- and post- checks. It is also noted that when checking the pH paper with the 7.00 buffer solution, the 4.0-7.0 pH paper and the 6.5-10.0 pH paper both read 6.5.

Starting after the morning break, the first tensioning steps (0.30 Fu) at TR's 12 and 13 happen. Two ironworkers are present to operate the hydraulic pump, turn the nuts, and perform the NaCl Solution flow / air venting steps from the wet chamber at the washer notch. VGO is present to monitor the loads being used to guide the operation. Present from CT-METS is Elijah Turner with MISTRAS personnel on the phone line continuously monitoring all AE data on the two channels for each test rig during the jacking operation and the water/air venting. Present from the DJV are Hayat Tazir, Ashley Takata, Dr. Herb Townsend during the jacking operation and the NaCl Solution flow / air venting steps.

Test Rig #12 (2008 Rod, ID S2-A8, Heat MJF-32, Top) Jacking Step:

This is the 1st jacking step and the rod is being jacked to 0.30 Fu. The post-seating of the nut target is 250.740 +10/-0 kips. The expected hydraulic pressure at this locked off force is 1,500 psi. Based on the previous jacking step (snug tight 0.10 Fu), the expected seating loss is at least 13 kips, meaning the initial jacking target is ~270 kips. Jacking is started at about 1020. At 1,500 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 229 kips. The hydraulic pressure is increased to 1,800 psi and the primary strain gauges give a force of 274 kips. The AE is checked with the ok given at 1025. The nut is tightened. Prior to bleeding off the jacks, the primary strain gauges give a force of 271 kips (bleed loss = 3 kip). After bleeding off the jacks, the primary strain gauges give a force of 245 kips (seating loss = 26 kips). Note that this seating loss at 0.30 Fu is double what it was at 0.10 Fu. The tension in the rod after seating the nut is not within tolerance. For the second jacking step, at 1028, at

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1,850 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 279 kips. The AE is checked with the ok given at 1029. The nut is tightened. Prior to bleeding off the jacks, the primary strain gauges give a force of 277 kips (bleed loss = 2 kips). After bleeding off the jacks, the primary strain gauges give a force of 253 kips (seating loss = 24 kips). The force is within the specified tolerance at 1030.

Test Rig #13 (2008 Rod, ID S2-A8, Heat MJF-32, Bottom) Jacking Step:

This is the 1st jacking step and the rod is being jacked to 0.30 Fu. The post-seating of the nut target is 250.740 +10/-0 kips. The expected hydraulic pressure at this locked off force is 1,500 psi. Based on the previous jacking step (snug tight 0.10 Fu), the expected seating loss is at least 13 kips, meaning the initial jacking target is ~270 kips. However, based on the other test rig rod just tensioned (TR 12), the seating loss could be twice as much. Jacking is started at about 1032. At 1,500 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 242 kips. The hydraulic pressure is increased to 1,800 psi and the primary strain gauges give a force of 278 kips. The AE is checked with the ok given at 1035. The nut is tightened. Prior to bleeding off the jacks, the primary strain gauges give a force of 273 kips (bleed loss = 5 kip). After bleeding off the jacks, the primary strain gauges give a force of 250 kips (seating loss = 23 kips). The tension in the rod after seating the nut is not within tolerance. For the second jacking step, at 1038, at 1,800 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 284 kips. The AE is checked with the ok given at 1039. The nut is tightened. Prior to bleeding off the jacks, the primary strain gauges give a force of 282 kips (bleed loss = 2 kips). After bleeding off the jacks, the primary strain gauges give a force of 259.7 kips (seating loss = 22 kips). The force is within the specified tolerance at 1041 – note that it is within 1 kip of the top end of the tolerance range.

After the tensioning steps at TR's 12 and 13, the NaCl Solution flow / air venting steps through the notch in the washers need to be completed at the wet chambers. This step was not done a few hours ago when the wet chambers were first filled with NaCl Solution for the leak tests because it was not necessary for the task of performing a leak test. The operation of flowing NaCl Solution from the notch involves removing the plumbers putty and backer rod, flowing NaCl Solution for few minutes (flows into SWPPP containment on the concrete slab), documenting the flow with photos and videos, pushing a small piece of closed cell backer rod in the notch in the washer, and sealing over the backer rod with plumbers putty. For today's operations, Dr Herb Townsend from the DJV witnesses the flow at both test rigs. This operation at TR 13 is at approximately 1045. This operation at TR 12 is at approximately 1050. The NaCl Solution level dropped very little in both wet chambers from this operation, but we still refill the wet chambers at both test rigs at approximately 1055.

After the tensioning and venting steps, the ironworkers do some cleanup operations, address a leak at TR 12 (as noted above), and add the wire ropes at the k-rail and over the traffic plates. The wire rope had previously been completed for the k-rail on the south side of TR's 12 & 12 and at the north side of TR 12. Today it is completed for the k-rail at the north side of TR 13. One ironworker leaves the test rig site before lunch and the other ironworker leaves the test rig site after lunch, as they are needed on other operations at the Pier 7 warehouse area. The laborer works at the test rig site until noon, with most of the morning spent on miscellaneous cleanup operations.

As noted above, the VGO pH paper check this morning (Thursday 4/4/2014) with the 7.00 buffer solution on the three ranges of pH paper had two results/papers that did not match. The 0-14 paper showed 7, the 4.0-7.0 paper showed 6.5, and the 6.5-10.0 paper showed 6.5. There was the same discrepancy for one of the three ranges of pH paper with the same 7.00 buffer solution the day before on Wednesday 4/3/2014 when the DJV (Hayat Tazir, Carol Choi, Dr. Herb Townsend) witnessed the buffer solution checks. For those checks, the 0-14 paper showed 7, the 4.0-7.0 paper showed 7.0, and the 6.5-10.0 paper showed 6.5. Note that the 6.5-10.0 paper does not have a 7.0 value – it has values on either side at 6.8 and 7.1. This range of pH paper will never read 7.0.

At the DJV's request, between about 1430 and 1500, we (CT = Bob B., VGO = Rob R.) checked pH papers again with buffer solution the afternoon of Thursday 4/4/2014, and I reported the results to the DJV. This afternoon check was with both the VGO pH paper and the DJV pH paper. Note that the pH paper brand

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and supplier for both VGO and the DJV are the same and the pH paper was purchased about the same time during previous rounds of testing. The results from these additional requested checks were as follows:

4.00 Buffer Solution:

0-14 pH paper = 4 (VGO's paper) and 4 (DJV's paper)

4.0-7.0 pH paper = 4.0 (VGO's paper) and 4.0 (DJV's paper)

7.00 Buffer Solution:

0-14 pH paper = 7 (VGO's paper) and 7 (DJV's paper)

4.0-7.0 pH paper = 6.5 (VGO's paper) and 6.5 (DJV's paper)

6.5-10.0 pH paper = 6.8 (VGO's paper) and 6.8 (DJV's paper)

10.00 Buffer Solution:

0-14 pH paper = 10 (VGO's paper) and 10 (DJV's paper)

6.5-10.0 pH paper = 10.0 (VGO's paper) and 10.0 (DJV's paper)

A 7kW generator – Whisperwatt 7000 – ABF ID 002343 is used for parts of the day, mostly by the laborer. A 40kW generator – MQ Power 40 – ABF ID 002051 is used to run the hydraulic pump for the jacks for an hour or two. An oxyacetylene torch is on idle/standby at the test rig work area. A compressor – IR P185 ABF ID 000002 is on idle/standby at the test rig work area. A Hyster 120 forklift - ABF ID 002351 - is used at the test rig work area briefly. A Kubota Cart is used by the laborer at the test rig work area.

Note that there is k-rail at this work area. Some of the k-rail is rented and addressed by the rental agreement. Some of the k-rail is ABF's k-rail used on site and paid as rented from ABF on a daily basis. To elevate the k-rail, crane mats and timber blocking (12x12's) are in use. The k-rail quantities are as follows:

10' bought k-rail = 20 pieces

10' ABF k-rail = 4 pieces

20' rented k-rail = 16 pieces

20' ABF k-rail = 19 pieces

Note that this includes three 20' ABF k-rail between the CCO 314 work area and FW Spencer's yard, with that k-rail being in place prior to the CCO work and not related to CCO 314.

The agreed extra work with ABF is as follows:

Engineer Kelvin Chen - 4 hr

Ironworker Jared Garrett - 6 hr

Ironworker Foreman CJ Biskner - 2 hr

Laborer Carlos (Pedro) Garcia - 5 hrs

Radio (3 radios) - 13 hrs

Kubota Cart - 5 hrs

40kW Generator - 1 hr

k-rail: 16 pcs @20' and 4 pcs @10'

Crane Mats (12x12 - 5'x16') - 4 pcs

Crane Mats (12x12 - 5'x7') - 15 pcs

See the attached Extra Work Order - Signed with ABF for CCO 314 work

CCO 96; MOVE CT MATERIALS IN THE WAREHOUSE TO ACCOMMODATE FENCE:

Today, an operator (Matt Morton) works approximately 2 hours with an extendable forklift moving CT material in the warehouse. Material designated to be turned over to CT is stored in the south east corner of the warehouse and a fence is planned for enclosing this area for security (property control). The CT material located in Bays 18 and 20 extends out of the storage bay, past the planned fence line, into the main east-west driveway through the center of the warehouse. Note that there is also CT material stored in Bays 22, 24, and 26, but that material is located near the south wall of the warehouse, not near the main



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east-west driveway through the center of the warehouse. Today, the material encroaching into the main east-west driveway through the center of the warehouse is relocated within these bays designated for CT material so that it does not extend into the main east-west driveway through the center of the warehouse. This is in anticipation of the building of the fence planned for enclosing this area for security (property control).

The agreed extra work with ABF is as follows:

Operator Matt Morton - 2 hrs

Extendable Forklift - 2 hrs

See the attached Extra Work Order - Signed with ABF for CCO 96 work

INSPECTOR OT REMARK:

Field and Office 2 hours: Field 0700 through 1500 and then both in the field and in the office through 1730. ABF is working in the field on CCO 314 from 0700 to 1300 (but end of shift with work elsewhere is 1530), VGO performs some pH tests (additional testing requested by the DJV after this morning's official tests) 1430 to 1500, I perform a late check in the field for water leaks, and I am in the office addressing various DJV and CT-METS issues through 1730. ABF's shift is 0700 to 1530 (but CCO 314 operations are only through 1300), and VGO performs inspected work to 1500. My shift is 0700 to 1730 and my OT hours are 1530 to 1730.