STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CP-CEM 4601 (Rev. 4/99) (Old HC-10A)

TOLL PROGRAM/DIST. 4 CONSTR.

Job Stamp:
04-SF-80-13.2/13.9 04-0120F4
SFOBB SAS
San Francisco Co. in San Francisco
Fm 0.6 km to 1.3 km East of Yerba Buena
Tunnel East Portal

GVC

Report No. **46.B**

Date the Shift Began: 4/30/09

☐ NIGHTWORK THURSDAY

Shift Hrs Start 6:30 Stop 15:00
Engineer's Hrs Start 7:00 Stop 18:00

ASSISTANT RESIDENT ENGINEER'S DAILY BRIDGE REPORT

Location: Bent W2
Remark:

7-day const. cal.: 869
Project work day: 1079

Weather: Overcast & Cold

Description of Operation: Grouting the Post-tensioning Ducts and Vertical Bars (VBs)

EQUIPMENT AND/OR LABOR: EQPT. NO.	NO. MEN	DESCRIPTION (Of Equipment or Labor)	HOURS - ITEM NO. ITEM NO. >>	38					
			RT	Structural Concrete, Bridge					IDLE OR DOWN/ ELSEWHERE
		Pier E2							
			8.00						
		Pile Driver	8.00						
		Pile Driver	8.00						
		Pile Driver	8.00						
		Pile Driver	8.00						
		Pile Driver	8.00						
		Laborer	8.00						
		Operator	8.00						
		Oiler	8.00						
		Oiler	8.00						
		Ringer Barge #1	8.00						
002062		Lincoln Electric	8.00						
002083		Lincoln Electric							
002068		MQ Power Generator	8.00						
002069		MQ Power Generator							
		Honda 115 Horse Skiff							
002075		Ingersoll Rand P185R							
S-125		Manlift	8.00						

Prime	American Bridge / Fluor JV (P)
Sub #1	SDI (1)
Sub #2	(2)
Sub #3	(3)
Sub #4	(4)
Sub #5	(5)

REMARKS Name	Classification	Prime / Sub
Terry Cronk	Superintendant	p
Alan Briney	Journeyman	p
Luke Paulk	Journeyman	p
Karl Nisley	Journeyman	p
Harry Wheat	Journeyman	p
Jamal Whitney	Apprentice	p
Byron Contreras		p
Joe Showman		p
Theodore Rhor		p
Doug Greene	Apprentice	p
Manitowac Crane		
Vantage 500	6008088	
Vantage 500	6008091	
Whisperwatt 25	6007939	
Whisperwatt 25		
Genie	481936009	

The grouting operation got off to a very rough start this morning as the pump was not working. As a result, the entire tank of grout made at 7:30 had to be discarded. The problem was that there was not a drop of oil in the pump. Finally at 8:20 mixing of a new batch began in a cold cold morning. Using a mud balance, Specific Gravity (SG) was determined to be 2.23 for a Density = 139 lb/cu. ft. This is greater than the manufacturer's recommendation of 125, which explains the thick mix we had. The *Efflux time* was **21 sec**, which is greater than **7-20** sec recommended by Sika. The testing was done by **Joel Nadler** of *Smith Emery*. Grouting began on duct designated as **CBT-22** starting at 8:23 and concluding at 8:40.

Right out of the gate, the pressure gages that were installed at the pump and at the entrance to the duct, were in serious disagreement. While the one at the pump would fluctuate between 55 and 100 psi, the one at the duct would register pressures of 5-15 psi ONLY! At the point where I told Ralph Craig of this problem, the readings were 75 psi at the pump and 30 psi at the duct. He thought that the problem is due to hoses, thus, he replaced the hose carrying grout out of the pump. Consequently, there was a work stoppage for about 20 minutes.

Work resumed at 8:58 with the grouting of **CBT-21,** which lasted 15 minutes (8:58-9:13). The following is a list of tendons grouted today and the associated times.

REC'D '09 JUN-25 #010183

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Shift Hrs	Start 6:30	Stop 15:00
Engineer's Hrs	Start 7:00	Stop 18:00

ASSISTANT RESIDENT ENGINEER'S DAILY **BRIDGE** **REPORT**

Location: Bent W2	7-day const. cal.: 869	Weather: Overcast & Cold
Remark:	Project work day: 1079	

3) CBT-20	9:15	- 9:33	
4) CBT-19	9:35	- 9:47	
5) CBT-18	9:49	- 10:07	
6) CBT-17	10:08	- 10:26	
7) CBT-16	10:29	- 10:46	
8) CBT-15	11:03	- 11:17	
9) CBT-14	11:18	- 11:33	
10) CBT-13	11:35	- 11:48	
11) CBT-12	11:51	- 12:06	
12) CBT-11	12:08	- 12:24	12:33*

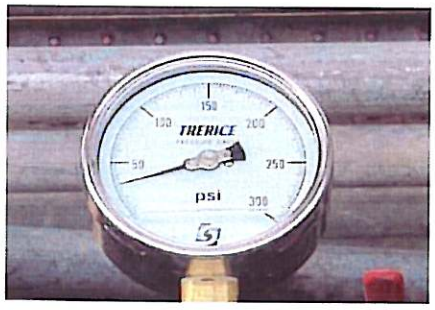
While on CBT-16 & CBT-12, we ran two more sets of tests and made more grout cubes. On **CBT-16**, the *Efflux time* was **27S** with the Temp. of grout coming in at **84F**. On **CBT-12**, the *Efflux time = 30 sec* (much higher than recommended by Sika), with Temp. registering at **86F**, and a *Specific Gravity* coming in at **2.21**, translating to a *Wet Density* of **138 lb/ft3**. This is higher than 125 lb/ft3 recommended by Sika. It should be noted that the temperature in the holding tank reached a high of 90F by Matt's thermometer and 86F by Joel's. I stopped using my gage as it was not registering temperature anywhere close to the other two guys' sticks. The temperature reported earlier was taken inside the cylinder on a sampled grout, with Joel & Matt both reporting 84F.

The last tendon grouted this afternoon was CBT-11. The last set of photos that follow are taken during the grouting of this tendon where the pressure gages show pressures of 135 & 40psi at the pump and at the duct, respectively. On this tendon, following the completion of the grouting, the cap flew out causing a grout spillage. The duct was re-grouted and re-pressurized thus explaining the end time of 12:33 in the table above. This concludes the grouting of the upper row as the remaining 14 lower ducts will be grouted tomorrow.

This operation was followed by the grouting of the vertical bars (VBs) on the South end of the cap beam starting with VB #5. Between 12:39 & 12:44, 5 VBs (5-9) were grouted.

Attached, please find a copy of the manufacturer's data on this product: *SikaGrout 300PT.*

For more details on the VBs and a list of workers for this operation, please refer to Matt Bruce's report.



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ASSISTANT RESIDENT ENGINEER'S DAILY BRIDGE REPORT

Location:	Bent W2	7-day const. cal.:	869	Weather:	Overcast & Cold
Remark:		Project work day:	1079		

Materials:

Insp. Hrs.	
REG: 8.0	INTERMITTENT
OT: 2.0	INSPECTION

Saman Soheili — ASR/CT
Saman Soheili — Title

Construction

Product Data Sheet
Edition12.2003
Identification no. 528-500 Sand Free
SikaGrout 300 PT

SikaGrout® 300 PT

High performance, zero bleed, sand-free, cementitious grout

Description

SikaGrout 300 PT is a non-shrink, cementitious grout with a unique 2-stage shrinkage compensating mechanism. It is non-metallic and contains no chlorides. With a special blend of shrinkage-reducing and plasticizing/water-reducing agents, SikaGrout 300 PT compensates for shrinkage in both the plastic and hardened states.

Where to Use

- Use for horizontal and vertical grouting of ducts within bonded, post-tensioned structures.
- Use to grout and fill or repair voids within ducts of post-tensioning strands for corrosion protection.
- Use for grouting tight clearances.

Advantages

- Sand-free allows filling and repairing of voids within ducts of post-tensioned structures.
- Prepackaged by an ISO 9001/9002 approved company ensures consistency of manufactured material.
- Does not contain aluminum powder nor any components which generate hydrogen gas, carbon dioxide or oxygen.
- Silica fume enhanced for low permeability.
- For additional corrosion protection, 2.5 oz. of Sika FerroGard 901 may be substituted for 2.5 oz. of mixing water for each 50 lb. bag of SikaGrout 300 PT.
- Easy to use...just add water.
- Non-metallic, will not stain or rust.
- Zero bleed, even at high flow.
- Low heat build-up.
- Excellent for pumping: Does not segregate...even at high flow. No build-up on equipment hopper.
- Non-corrosive, does not contain chlorides.
- Superior freeze/thaw resistance.
- Meets CRD C-621.
- Meets ASTM C-1107 (Grade C).
- Shows positive expansion when tested in accordance with ASTM C-827.

Typical Data *(Material and curing conditions @ 73°F and 50% R.H. Water used: 12.5 pints per 50 lb. bag)*

Shelf Life Nine months in original, unopened bags.

Storage Conditions Store dry at 40°-95°F (4°-35°C). For best results, it is suggested to condition material to 65°-75°F before using.

Wet Density (ASTM C-138) Approximately 125 lbs. per cf.

Total Chloride Ions (ASTM C-1152) less than 0.04% by weight of cementitious material

Fine Aggregate contains none (sand-free)

Volume Change (ASTM C-1090)

24 hours	0.0% shrinkage
28 days	between 0 and +0.2% expansion

Expansion (ASTM C-940) **3 hours** between 0.0 and +2.0%

Compressive Strength (ASTM C-942)*

1 day	3,000 psi	(20.0 MPa)
3 days	5,000 psi	(33.3 MPa)
7 days	7,000 psi	(46.7 MPa)
28 days	8,000 psi	(53.3 MPa)

Initial Set (ASTM C-953) Approximately 3 to 12 hours

Fluidity Test (ASTM C-939 Modified per FL Dot Section 938 and PTI Section 4.4.5.2)

Immediately after mixing	7-20 seconds
30 minutes after mixing	7-20 seconds
	see Mixing section for clarification on flow testing

Bleeding (ASTM C-940 Modified per FL Dot Wick Induced Bleed Test) **4 hours** 0.0%

Gelmen Pressure Induced bleed test (PTI Specification Section 4.4.6.2 and Table 4-1 Grout Type C)
Less than 0.0% bleed at 100 psi for 5 minutes

Permeability (ASTM C-1202 modified per FL DOT section 938 and PTI section 4.4.3)

28 days	Less than 2500 Coulombs
90 days	In progress

Electrical Resistivity (ASTM C-1202) **28 days** Less than 10,000 ohm·cm

W/C Less than 0.40

Accelerated corrosion test (reference FL DOT Specification Section 938-6) Time to Corrosion

Control	344 hours
SikaGrout 300 PT	greater than 1,000 hrs.

Independent lab results available upon request.
*Compressive Strengths' of material manufactured in California: 1 day=3,300 psi; 3 day=6,000 psi; 7 day=7,500 psi; 28 day=8,500 psi

Construction

Coverage	Approximately 0.50 cu. ft./bag. Use between 11.5 and 13 pints of water per 50 lb. bag in order to achieve the proper flow.
Packaging	50-lb. multi-wall bags; 40 bags/pallet.

How to Use

Surface Preparation

Ducts: Ensure that ducts, voids, openings, inlets and outlets are clean and free of debris, fuel, oils, other contaminants, and site trash at all times.

Other grouting applications: Remove all dirt, oil, grease, and other bond-inhibiting materials by mechanical means. Anchor bolts to be grouted must be de-greased with suitable solvent which will not inhibit grout bonding. Follow solvent manufacturer's instructions and warnings. Concrete must be sound and roughened to promote mechanical adhesion. Prior to pouring, surface should be brought to a saturated surface-dry condition.

Forming

Ensure forms and ducts will retain grout without leakage.

Mixing

For best results use a colloidal mixer similar to ChemGrout CG-600 series or other type of high shear mixer at approximately 1800 rpm. Mix for approximately 3 minutes after the addition of the last bag or until a homogeneous mix is achieved. Continue to agitate material in the holding hopper to achieve best flow. Alternately, for quantities less than 1 bag, such as when vacuum grouting voids, mechanically mix with high-speed drill (2500 rpm) and Sika jiffy paddle for a minimum of 6 minutes. Method of mixing may significantly affect the material properties, particularly flow. At higher temperatures and/or with higher water amounts, the grout will behave more non-thixotropically. Therefore, it may be more appropriate to measure the flow using the standard flow cone test (ASTM C-939). The preferred efflux time is between 15-30 seconds under these conditions. Project specific testing by the engineer is recommended to ensure that the mixing and placement methods result in the specified requirements.

Add appropriate quantity of clean water. Add bag of material to mixing vessel. Start by using 11.5 pints of water per 50 lb. bag of material. Add additional water as needed (a total maximum of 13 pints per 50 lb. bag) in order to achieve the flow specified on the technical data sheet. Ambient and material temperature should be as close as possible to 70°F. If higher, use cold water; if colder, use warm water.

Application

Make sure all forming, mixing, placing, and clean-up materials are on hand. The grout shall be used within 60 minutes from the start of mixing. The method of pumping grout shall ensure complete filling of the ducts and complete surrounding of the strand or bar. A mock-up should be completed on-site and inspected by the engineer to ensure that the placement means and methods yield the specified results.

When grouting ducts or critical elements, it is highly recommended that experienced, certified technicians complete the work.

Limitations

- Minimum ambient and substrate temperature 40°F and rising at time of application. For lower temperatures, refer to the Post-Tensioning Institute (PTI) Guide Specification for Grouting of Post-Tensioned Structures dated February, 2001.
- Maximum ambient and substrate temperature is 100°F at the time of placement. For higher temperatures, refer to the PTI Guide Specification for Grouting of Post-Tensioned Structures dated February, 2001.
- Minimum application thickness: 1/8 in.
- Maximum application thickness (neat): comply with PTI specification for grouting of post-tensioned structures.
- Do not use as a patching or overlay mortar or in unconfined areas.
- Material must be placed within 60 minutes of mixing.
- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur Hi-Mod 32.

Caution

Irritant. Skin/Eye/Respiratory Irritant. Avoid breathing dust. Dust may cause respiratory tract irritation. May cause delayed lung injury (silicosis).
Warning: This product contains crystalline silica, which in the state of California, is known to cause cancer.

First Aid

Eyes-rinse thoroughly with water a minimum of 15 minutes. Consult a physician. **Skin**-wash thoroughly with soap and water. Remove contaminated clothing. **Inhalation**-Remove person to fresh air. Consult a physician. **Ingestion**-Dilute with water. Consult a physician. In all cases, if symptoms persist contact a physician.

Handling and Storage

Avoid contact. Wear suitable personal protective equipment (chemical resistant goggles/gloves/clothing). Remove contaminated clothing and launder before reuse. Use in the presence of adequate ventilation. In the absence of adequate ventilation, wear a properly fitted NIOSH respirator. Uncured material can be removed with water. Cured material can only be removed mechanically. Store in a cool, dry area. Keep bag tightly closed.

Clean Up

In case of spill, wear protective equipment (chemical resistant gloves/goggles/clothing). Ventilate area. In the absence of adequate ventilation, use a properly fitted NIOSH respirator. Confine spill. Vacuum or scoop into an appropriate container. Dispose of in accordance with current applicable local, state and federal regulations.

In case of emergency, call CHEMTREC at 1-800-424-9300. 703-527-3887 (outside USA & Canada).

KEEP CONTAINER TIGHTLY CLOSED
KEEP OUT OF REACH OF CHILDREN
NOT FOR INTERNAL CONSUMPTION
FOR INDUSTRIAL USE ONLY
CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current technical data sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

NO OTHER WARRANTIES EXPRESSED OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES.

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