

Memo

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To: Stefan Galvez, California Department of Transportation
From: MICHAEL THILL
CC: Ivy Edmonds-Hess, Parsons Brinckerhoff
 Courtney Cacace, Garcia and Associates
Date: October 28, 2009

Re: San Francisco-Oakland Bay Bridge East Span Seismic Safety Project, Self-Anchored Suspension Span

Subject: T1 Temporary Access Trestle Installation – Hydroacoustic Measurements For October 28, 2009

The California Department of Transportation (Department) is in the process of replacing the existing East Span of the San Francisco-Oakland Bay Bridge (SFOBB) with a new bridge immediately to the north. To facilitate the construction of the Self-Anchored Suspension Span portion of the new East Span, twenty 36-inch diameter steel pipe piles will be installed to support a temporary access trestle (see Figure 1). Hydroacoustic data was collected during impact pile driving of one pile with the bubble curtain in operation. The pile was identified from Figure 1 as pile number 15. Underwater sound measurements were collected at positions 10 meters (33 feet) and 28 meters (92 feet), at a depth of 2 to 3 meters (7 to 10 feet) on October 28, 2009 during impact driving. The impact driving was conducted using the Delmag 30-32 diesel impact hammer. There were approximately 140 pile strikes during the driving of pile 15. The peak criteria of 206 dB re: 1µPa at 10 meters (33 feet) from the pile was exceeded. The accumulated SEL criterion of 187 dB re 1µPa-sec² at 28 meters (92 feet) from the pile was also exceeded. The measurement results for the close-in measurements including accumulated SEL are summarized Table 1. Root-Mean-Square (RMS) sound levels are summarized in Table 2 below.

Table 1: Summary of Measured Sound Levels for October 28, 2009

Pile	Time	Location	Peak		SEL		
			Maximum	Range	Typical Single Strike	Range	Accumulated SEL
15	1107 to 1110	10 meters	208 dB	204 to 208 dB	180 dB	178 to 180 dB	200 dB
	(195 sec)	28 meters	205 dB	200 to 205 dB	177 dB	174 to 177 dB	197 dB

Table 2: Summary of Measured RMS Sound Levels for October 28, 2009

Pile	Time	Location	RMS	
			Mean	Range
15	1107 to 1110	28 meters	189	188-191

Figure 1

