

TECHNICAL MEMORANDUM

To: David Gibson, San Diego Regional Water Quality Control Board

Date: February 21, 2014

From: Chris Osuch, Adam Gale, and Elizabeth Appy, Anchor QEA

Project: 131003-01.02

Cc: Michael Chee, National Steel and Shipbuilding Company
Michael Palmer, de maximis, inc.
David Templeton and Michael Whelan, Anchor QEA
Robert Smith, U.S. Army Corps of Engineers

Re: San Diego Shipyard Sediment Site – South Shipyard (Place ID 794466, Order No. R9-2013-0093) Weekly Water Column Monitoring Report: February 10 to 15, 2014

INTRODUCTION

The San Diego Bay Environmental Restoration Fund – South (South Trust) is remediating contaminated sediments at the South Shipyard portion of the San Diego Shipyard Sediment Site (Site). Remediation is required to comply with Cleanup and Abatement Order (CAO) No. R9-2012-0024 issued by the San Diego Regional Water Quality Control Board (Water Board 2012a). Water column monitoring must be conducted during dredging and sand placement operations in order to comply with the Waste Discharge Requirements and Section 401 Water Quality Certification (WDR/WQC; Water Board 2013). Anchor QEA was contracted by the South Trust to conduct this water column monitoring.

Weekly monitoring reports are required in accordance with Mitigation Measure (MM) 4.2.4 of the Mitigation Monitoring and Reporting Program (MMRP; Water Board 2012b) and Appendix C of the Remedial Action Plan (Anchor QEA 2012). This technical memorandum summarizes results of water column monitoring between February 10 and 15, 2014. During this week, intensive monitoring was conducted during the first 3 days of sand cover placement on February 10, 11, and 12. Water quality monitoring included dissolved oxygen (DO), pH, turbidity, and visual observations.

WATER QUALITY MONITORING RESULTS

DO, pH, and turbidity were measured 10 feet below the surface at each station using a Hydrolab MS5 multi-probe sonde. Monitoring was performed at the reference station, two early warning stations, and four compliance stations. The reference station is located 1,000 feet from the remedial footprint in the direction of the ocean (Figure 1). Early warning and compliance stations are located 250 and 500 feet from the construction area, respectively. The general layout of early warning and compliance monitoring locations for Sediment Management Unit (SMU)-4 are shown on Figure 2; however, actual locations were positioned in the field relative to the construction area.¹

A summary of monitoring results during sand placement is presented in Table 1. On February 10, the turbidity concentration at one compliance station was more than 20 percent greater than the reference (5.0 Nephelometric Turbidity Unit [NTU]), indicating a potential water quality issue. Visual evidence was evaluated. No discoloration, turbidity, or surface pollution was observed. Qualitative observation of the construction area indicated a tightly defined turbidity plume well contained within the silt curtain and no silt curtain breach. Concentrations at both early warning stations were within 20 percent; therefore, it is believed that the elevated turbidity was likely caused by extraneous factors and not by sand placement operations.

No confirmed exceedances related to sand placement operations occurred for 3 consecutive monitoring days (February 10, 11, and 12); therefore, monitoring frequency will be reduced to one time per week.

¹ The construction area is defined as the area occupied by the dredging barge, sediment scow, sand and rock placement equipment, demolition work equipment, silt curtains, and other work.

REFERENCES

- Anchor QEA, 2012. *Remedial Action Plan*. San Diego Shipyard Sediment Site. Revised October 2012.
- Water Board (San Diego Regional Water Quality Control Board), 2012a. Cleanup and Abatement Order R9-2012-0024 for the Shipyard Sediment Site. Issued March 14, 2012.
- Water Board, 2012b. Mitigation Monitoring and Reporting Program for the Shipyard Sediment Remediation Project Environmental Impact Report (SCH#2009111098). Issued on March 14, 2012.
- Water Board, 2013. Waste Discharge Requirements for San Diego Shipyard Sediment Remediation Project, San Diego Bay, San Diego, California. Order No. R9-2013-0093. Issued on July 10, 2013.
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TABLE

Table 1
Water Quality Monitoring Results During Sand Placement - February 10 through 15, 2014

Date	Time	Station Type	Station ID	Latitude ¹	Longitude ¹	Water Quality Measurements			Visual Observations		
						DO (mg/L)	pH	Turbidity (NTU)	Odor	Presence of Surface Pollution	Discoloration or Turbidity
2/10/2014	15:15:58	Reference	P-BG-140210	32.69110	-117.15015	8.0	8.0	1.0	No	No	No
2/10/2014	15:45:42	Early Warning	P-EWN-140210	32.68756	-117.14026	8.3	8.1	0.2	No	No	No
2/10/2014	15:50:50	Compliance	P-CNN-140210	32.68915	-117.14019	8.2	8.1	0.9	No	No	No
2/10/2014	15:56:24	Compliance	P-CON-140210	32.68755	-117.14120	8.2	8.1	0.7	No	No	No
2/10/2014	16:02:49	Early Warning	P-EWS-140210	32.68682	-117.13981	8.2	8.1	1.0	No	No	No
2/10/2014	16:16:10	Compliance	P-CNS-140210	32.68638	-117.13772	7.8	8.1	5.0 ²	No	No	No
2/10/2014	16:28:51	Reference	P-BG-140210	32.69121	-117.15018	8.1	8.1	0.9	No	No	No
2/10/2014	16:45:18	Compliance	P-CNS-140210	32.68641	-117.13783	8.0	8.1	4.2 ²	No	No	No
2/10/2014	16:59:45	Compliance	P-COS-140210	32.68651	-117.14025	8.1	8.1	1.4 ³	No	No	No
2/10/2014	17:07:09	Reference	P-BG-140210	32.69126	-117.15037	8.0	8.1	1.5	No	No	No
2/10/2014	17:13:49	Compliance	P-COS-1402103	32.68668	-117.14078	8.0	8.1	1.4	No	No	No
2/11/2014	12:29:43	Reference	P-BG-140211	32.69161	-117.15054	8.0	8.0	1.5	No	No	No
2/11/2014	12:46:53	Compliance	P-CON-140211	32.68700	-117.14193	8.0	8.0	0.4	No	No	No
2/11/2014	12:55:34	Compliance	P-COS-140211	32.68598	-117.14035	8.0	8.0	0.7	No	No	No
2/11/2014	13:13:55	Early Warning	P-EWN-140211	32.68734	-117.14062	7.9	8.0	1.3	No	No	No
2/11/2014	13:25:52	Compliance	P-CNN-140211	32.68892	-117.14074	7.7	8.0	2.4 ³	No	No	No
2/11/2014	13:40:42	Reference	P-BG-140211	32.69125	-117.15032	8.1	8.0	2.3	No	No	No
2/11/2014	13:55:18	Compliance	P-CNN-140211	32.68897	-117.14081	7.6	8.0	2.5	No	No	No
2/11/2014	14:01:13	Early Warning	P-EWS-140211	32.68645	-117.13947	7.8	8.0	2.8 ⁴	No	No	No
2/11/2014	14:05:38	Compliance	P-CNS-140211	32.68647	-117.13755	7.8	8.0	1.1	No	No	No
2/12/2014	13:17:54	Reference	P-BG-140212	32.69137	-117.15037	7.9	8.0	0.7	No	No	No
2/12/2014	13:34:17	Compliance	P-CON-140212	32.68669	-117.14164	7.8	8.1	0.8	No	No	No
2/12/2014	14:00:01	Early Warning	P-EWN-140212	32.68758	-117.14074	7.6	8.0	8.4 ⁴	No	No	No
2/12/2014	14:05:05	Compliance	P-CNN-140212	32.68900	-117.14095	7.6	8.0	0.5	No	No	No
2/12/2014	14:13:43	Early Warning	P-EWS-140212	32.68684	-117.13956	7.7	8.0	1.0 ⁴	No	No	No
2/12/2014	14:18:26	Compliance	P-CNS-140212	32.68646	-117.13772	7.7	8.0	0.8	No	No	No
2/12/2014	14:27:10	Compliance	P-COS-140212	32.68584	-117.13925	7.8	8.0	0.8	No	No	No

Notes:

Receiving water limitation compliance criteria: DO shall not be depressed more than 10 percent from the reference (BG); pH shall not be changed more than 0.2 unit from reference (BG); pH shall not be depressed below 7.0 nor raised above 9.0; turbidity must not exceed 20 percent of reference (BG; if natural turbidity from 0 to 50 NTU).

DO = dissolved oxygen

mg/L = milligrams per liter

NTU = Nephelometric Turbidity Units

¹ Latitude and longitude coordinates in decimal degrees, North American Datum 1983 (NAD83)

- Compliance station potentially exceeds receiving water limitation compliance criteria for turbidity. Measurements were re-taken at the reference station and compliance station to confirm the exceedance. The turbidity concentration was greater than 20 percent of the second reference measurement; therefore, the initial result was confirmed. Visual observations indicated elevated turbidity was likely caused by extraneous factors.
- Compliance station potentially exceeds receiving water limitation compliance criteria for turbidity. Measurements were re-taken at the reference and compliance stations to confirm the exceedance. Turbidity concentrations were within 20 percent of the reference; therefore, compliance criteria were not exceeded.
- Early Warning station results exceeded the receiving water limitation criteria for turbidity. These results were used as an early indicator of a potential water quality issue. Results at the compliance stations met criteria; therefore, compliance criteria were not exceeded.

FIGURES

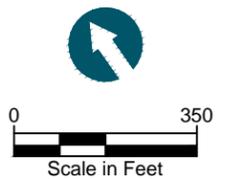
L:\AutoCAD Project Files\Projects\0995-SD Bay Environmental\SD Shipyard\0995-RP-027 REF SAMP 2.dwg FIG 1

Nov 07, 2013 10:04am mpratschner



SOURCE: Aerial from ESRI base maps. Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.

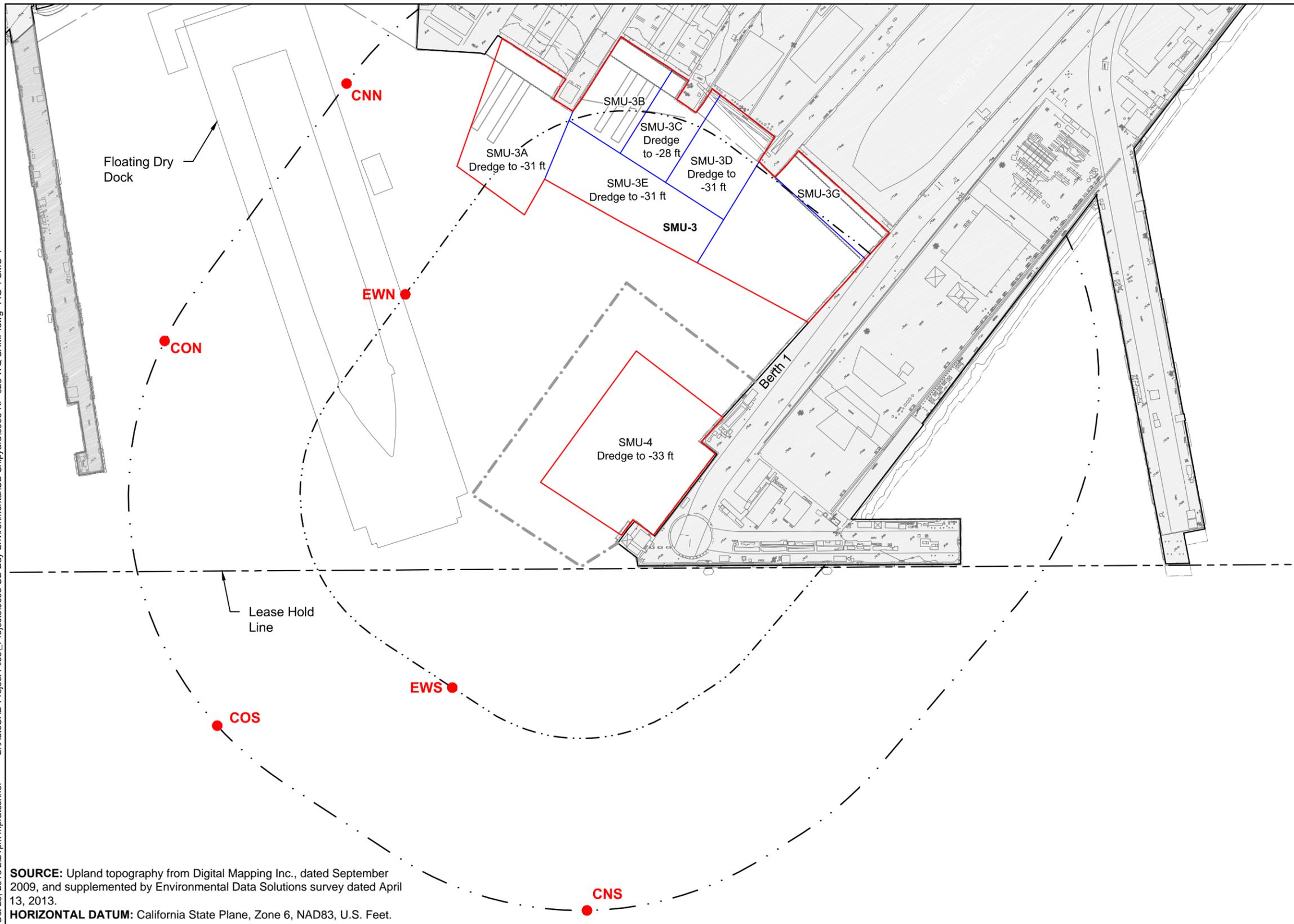
NOTES:
 Reference Sampling Location BG
 Latitude: 32° 41.4970'
 Longitude: 117° 09.0185'



L:\AutoCAD Project Files\Projects\0995-SD Bay Environmental\SD Shipyard\0995-RP-023 WQ SAMP.dwg FIG 4 SMU-4

Oct 23, 2013 2:21pm mpratschner

SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.



LEGEND:

	Remediation Boundary
	Sub-SMU Boundary
	250 ft from Construction Area
	500 ft from Construction Area
	Sampling Location
	Silt Curtain
EWN	Early Warning North
EWS	Early Warning South
CNN	Compliance Nearshore North
CNS	Compliance Nearshore South
CON	Compliance Offshore North
COS	Compliance Offshore North

NOTE:
 Actual sampling locations determined in the field based on the location of the construction area.

