

TECHNICAL MEMORANDUM

To: David Gibson, San Diego Regional Water Quality Control Board **Date:** January 31, 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: January 20 to 25, 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 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 January 20 and 25, 2014. During this week, monitoring was conducted on January 21. 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)-2 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 dredging is presented in Table 1. Turbidity concentrations at one early warning station and one compliance station were more than 20 percent greater than the reference, indicating a potential water quality issue. Visual evidence was evaluated. No discoloration, turbidity, or surface pollution was observed. Dredging best management practices were found to be working properly. The double silt curtain was in place, and no damage, dislocation, or gaps were observed.

Turbidity values were very low at all stations, with concentrations ranging from 0.2 to 0.9 Nephelometric Turbidity Units (NTU). With values this low, variability is expected to be higher; therefore, a small difference in turbidity due to natural variability may result in a 20 percent exceedance of the reference station. The potential exceedance observed at the compliance station during this monitoring event is believed to be the result of natural variability, which was increased due to very low turbidity concentrations and not dredging operations.

Turbidity concentrations were compared to pre-construction baseline conditions and reference conditions during dredging. Turbidity concentrations were below all baseline concentrations measured during pre-construction monitoring (1.0 to 2.6 NTU; Anchor QEA 2013) as well as the average concentration measured at the reference station during all monitoring events (1.7 NTU). These results indicate that the potential exceedance measured during this monitoring event is consistent with baseline and reference conditions.

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.
- Anchor QEA, 2013. *San Diego Shipyard Sediment Site – South Shipyard (Place ID 794466, Order No. R9-2013-0093) Weekly Water Column Monitoring Report: September 30 to October 4, 2013*. October 14, 2013.
- 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 Dredging - January 20 through 25, 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
1/21/2014	12:03:16	Reference	D-BG-140121	32.69115	-117.15028	8.1	7.8	0.7	No	No	No
1/21/2014	13:10:52	Early Warning	D-EWS-140121	32.68909	-117.13916	8.0	7.9	0.9 ²	No	No	No
1/21/2014	12:38:09	Early Warning	D-EWN-140121	32.68914	-117.14044	7.8	7.9	0.5	No	No	No
1/21/2014	12:43:30	Compliance	D-CNN-140121	32.68949	-117.14137	7.7	7.9	0.2	No	No	No
1/21/2014	13:03:43	Compliance	D-CON-140121	32.68796	-117.14080	7.7	7.9	0.8	No	No	No
1/21/2014	13:21:36	Compliance	D-COS-140121	32.68736	-117.13961	7.9	7.9	0.9 ²	No	No	No
1/21/2014	13:15:45	Compliance	D-CNS-140121	32.68807	-117.13816	7.9	7.9	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)

2 Early warning and compliance station results were greater than receiving water limitation compliance criteria. Visual evidence was evaluated as well as pre-construction baseline conditions and reference conditions during dredging. Concentrations were determined to be consistent with baseline and reference conditions and not the result of dredging operations.

FIGURES

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

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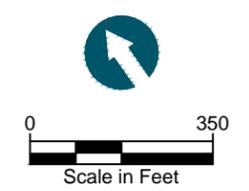


LEGEND:

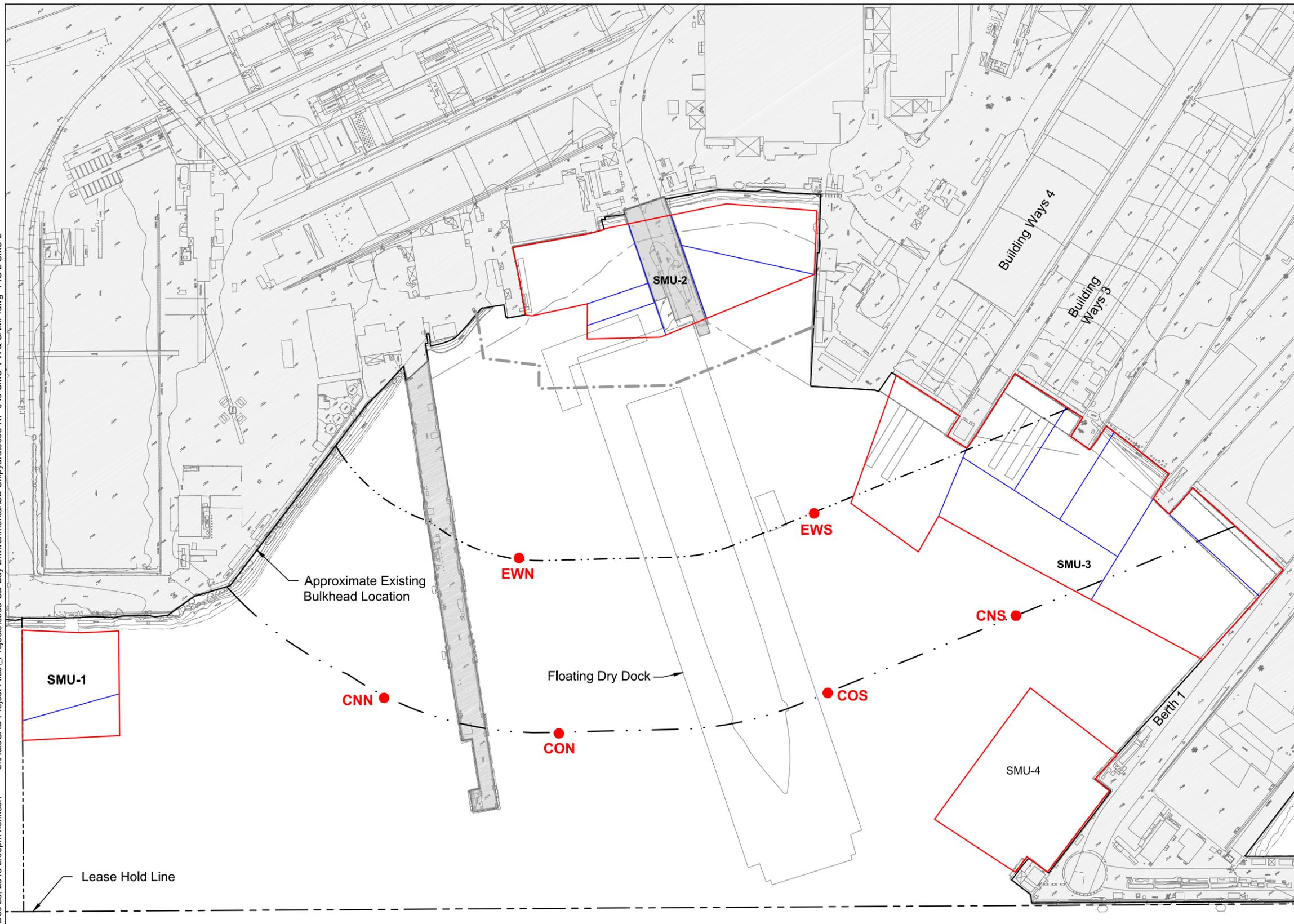
- Remediation Boundary
- BG Reference Sampling Location

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'



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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

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.

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

