

San Diego Bay Environmental Restoration Fund – South

450 Montbrook Lane
Knoxville, TN 37919
Phone: (865) 691-5052

VIA Email and US Mail

February 14, 2014

David Gibson
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, California 92123-4353

Re: January 2014, Monthly Water Column Monitoring Report Submittal
San Diego Shipyard Sediment Site – South Shipyard
Place ID 794466, Order No. R9-2013-0093

To Mr. Gibson:

The January 2013 Monthly Water Column Monitoring Report is being submitted to the San Diego Regional Water Quality Control Board by the San Diego Bay Environmental Restoration Fund – South (Attached).

Should there be any questions regarding this Monthly Report, please do not hesitate to contact me at 619-546-8377 ext. 103 or at mpalmer@demaximis.com.

Sincerely,



Michael A. Palmer
Project Coordinator

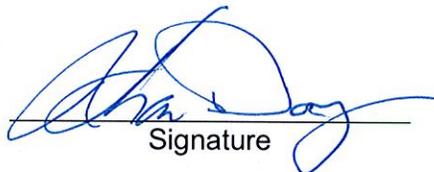
Attachment: San Diego Shipyard Sediment Site – South Shipyard (Place ID 794466, Order No. R9-2013-0093) Monthly Water Column Monitoring Report: January 2014

cc: Mike Chee, NASSCO (Via Email)
David Templeton, Anchor QEA (Via Email)
Chad Carpenter, R. E. Staite Engineering (Via Email)

CERTIFICATION STATEMENT

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

R. Thomas Dorsey
Print Name
Tom Dorsey

 2/14/13
Signature Date

TECHNICAL MEMORANDUM

To: David Gibson, San Diego Regional Water Quality Control Board **Date:** February 14, 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) Monthly Water Column Monitoring Report: January 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). Sediment is being dredged from the South Shipyard and if suitable, dredged material will be disposed of at the Otay Landfill. Water column monitoring must be conducted during dredging operations in order to comply with 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.

This technical memorandum summarizes dredging operations and results of water column monitoring during January 2014. Monitoring during dredging was conducted on January 14 and 21.¹ Monitoring was performed in accordance with the WDR/WQC Section VIII(A) (Water Board 2013) and Appendix C of the Remedial Action Plan (RAP; Anchor QEA 2012). Water quality monitoring included dissolved oxygen (DO), pH, turbidity, and visual observations.

¹ Between January 6 and 11, monitoring was scheduled for January 9; however, dredging operations were suspended on January 8 through the end of that week due to a contractor scheduling conflict involving a short-notice request to perform support work at a different location unrelated to this work. Monitoring for dissolved oxygen, pH, and turbidity was not conducted during this week; however, visual observations were performed each day of dredging operations.

In addition to the manual water quality monitoring conducted by Anchor QEA, an automatic monitoring system was set up and monitored by Tierra Data, Inc. (TDI) in accordance with the Mitigation Monitoring and Reporting Program (MMRP; Water Board 2012b). Automatic monitoring buoys were installed by TDI on September 26, prior to commencing dredging. Buoys are located at the reference station and two early warning stations. The reference station is located 1,000 feet from the remedial footprint in the direction of the ocean. Early warning stations are located 250 feet from the construction area;² however, it was necessary to slightly adjust this distance to allow for vessel traffic, including barge and tugboat access. Automatic monitoring is intended to alert the contractor if early warning triggers are achieved during dredging to allow for additional dredging best management practices (BMPs) to be implemented to prevent an exceedance at the compliance boundary. Automatic monitoring data are not presented in this technical memorandum but are available at <http://www.wqdata.com/webdblink/buoys.php>.

DREDGE VOLUMES AND LOCATIONS

In January, 4,850 cubic yards (cy) of sediment was dredged from within Sediment Management Unit (SMU)-2 (Figure 1). Daily production rates ranged from 50 to 600 cy. All sediment was disposed of at the Otay Landfill. A summary of daily dredge volumes, locations from which sediment was removed, and final disposal locations is presented in Table 1. Waste manifests are provided in Attachment A.

WATER QUALITY MONITORING RESULTS

This section describes water quality monitoring results, including sampling locations, water column measurements, and visual observations.

Sampling Locations

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 and beyond the influence of construction activities (Figure 2). 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

² 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.

for SMU-2 is shown on Figure 3; however, actual locations were positioned in the field relative to the construction area. Latitude and longitude coordinates for each monitoring location are presented in Table 2.

Water Column Measurements

DO, pH, and turbidity were measured 10 feet below the surface at each station using a Hydrolab MS5 or Horiba U52 multi-probe sonde. Instruments were calibrated prior to sampling according to the manufacturer's recommendations. Instrument calibration worksheets for each sampling event are provided in Attachment B. Water quality sample forms are provided in Attachment C. A summary of monitoring results during dredging is presented in Table 2.

DO, pH, and turbidity results at each compliance station were compared to receiving water limitation compliance criteria. DO and pH concentrations at the compliance stations were similar to the reference station and met compliance criteria. On January 21, 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 BMPs 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.

Visual Observations

Visual observations are summarized in Table 2. No odors or visual evidence of discoloration, turbidity, or surface pollution was observed at any station. The double silt curtain was in place during all dredging operations, and no damage, dislocation, or gaps were observed.

Visual monitoring of turbidity inside and outside the silt curtains was performed in concert with water quality parameter monitoring. Attachment D provides site photographs of the silt curtains that visualize typical conditions during construction, showing an attenuating turbidity plume inside the two silt curtains. These visual observations are consistent with the results presented in this technical memorandum.

SUMMARY OF NON-COMPLIANCE

Based on the results of water quality monitoring, no incidents of non-compliance were noted during January 2014. Potential exceedances were determined to be consistent with baseline and reference conditions and were attributed to natural variability, which was increased due to very low turbidity concentrations and not dredging operations.

PERSONS CONTRIBUTING TO THIS REPORT

Names, affiliations, and qualifications of the persons contributing to this technical memorandum are summarized in Table 3.

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.

TABLES

Table 1
Estimated Dredge Volumes, Dredging Locations, and Final Disposal Locations
for January 2014

Date	Estimated Dredge Volume (cy)	Dredging Location	Final Disposal Location¹
1/2/2014	300	SMU-2	Otay Landfill
1/3/2014	400	SMU-2	Otay Landfill
1/6/2014	100	SMU-2	Otay Landfill
1/7/2014	50	SMU-2	Otay Landfill
1/8/2014	300	SMU-2	Otay Landfill
1/14/2014	500	SMU-2	Otay Landfill
1/15/2014	500	SMU-2	Otay Landfill
1/16/2014	300	SMU-2	Otay Landfill
1/17/2014	600	SMU-2	Otay Landfill
1/18/2014	300	SMU-2	Otay Landfill
1/20/2014	400	SMU-2	Otay Landfill
1/21/2014	200	SMU-2	Otay Landfill
1/22/2014	400	SMU-2	Otay Landfill
1/23/2014	100	SMU-2	Otay Landfill
1/24/2014	400	SMU-2	Otay Landfill
Total	4,850	-	-

Notes:

cy = cubic yard

SMU = Sediment Management Unit

1 Otay Landfill is located at 1700 Maxwell Road, Chula Vista, California 91912

Table 2
Water Quality Monitoring Results During Dredging - January 1 through 31, 2014

Date	Time	Station Type	Station ID	Latitude ¹	Longitude ¹	Water Quality Measurements			Visual Observations		
						DO (mg/L)	pH	Turbidity (NTU)	Odor	Surface Pollution	Discoloration or Turbidity
1/14/2014	13:58:17	Reference	D-BG-140114	32.69165	-117.15057	7.2	8.1	1.1	No	No	No
1/14/2014	14:19:43	Early Warning	D-EWN-140114	32.68962	-117.14042	8.6	8.1	0.2	No	No	No
1/14/2014	14:26:08	Compliance	D-CNN-140114	32.68958	-117.14133	7.5	8.1	0.8	No	No	No
1/14/2014	14:29:13	Compliance	D-CON-140114	32.68852	-117.14097	7.3	8.1	0.8	No	No	No
1/14/2014	14:34:02	Early Warning	D-EWS-140114	32.68922	-117.13918	7.3	8.1	0.6	No	No	No
1/14/2014	14:37:51	Compliance	D-CNS-140114	32.68860	-117.13850	6.9	8.1	0.8	No	No	No
1/14/2014	14:45:18	Compliance	D-COS-140114	32.68775	-117.13958	7.4	8.1	1	No	No	No
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 Compliance station potentially exceeds receiving water limitation compliance criteria. Upon further investigation, potential exceedances were attributed to natural variability, which was increased due to very low turbidity concentrations and not dredging operations.

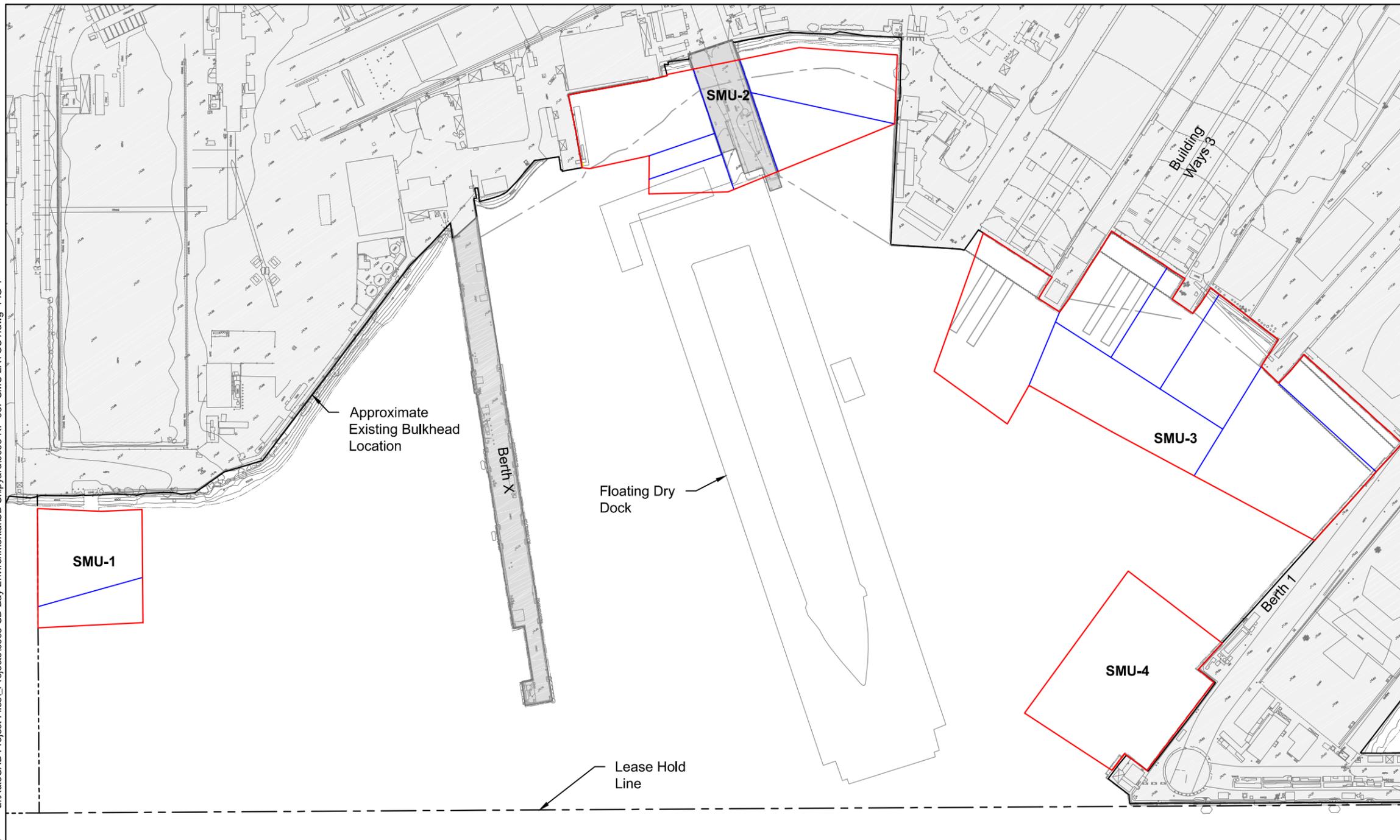
Table 3
Persons Contributing to this Report

Name	Title	Affiliation	Qualifications
Chris Osuch	Senior Scientist	Anchor QEA	University of California, Santa Barbara, B.A., Environmental Studies, 1998 Environmental scientist with more than 14 years of professional experience Experienced with collecting and measuring water quality parameters
Adam Gale	Senior Planner	Anchor QEA	University of Washington, Certificate Program in Geographic Information Systems, 2007; California Polytechnic State University, San Luis Obispo, B.S., Ecology and Systematic Biology, 2004 Planner with more than 8 years of professional experience Experienced with implementing water quality monitoring programs for remediation projects
Elizabeth Appy	Managing Scientist	Anchor QEA	Colby College, B.A., Biology, 1994; Oregon State University, M.S., Marine Resource Management, 2000 Managing scientist with more than 15 years of professional experience Experienced with implementing water quality monitoring programs for remediation projects
Brittany Geisler	Environmental Scientist	Anchor QEA	University of California, Irvine, B.A., Social Ecology, 2006 Environmental scientist with more than 5 years of professional experience Experienced with collecting and measuring water quality parameters

FIGURES

L:\AutoCAD Project Files\Projects\0995-SD Bay Environmental\SD Shipyard\0995-RP-037 SMU LAYOUT.dwg FIG 1

Nov 07, 2013 10:43am mpratschmer



LEGEND:

- Remediation Boundary
- Sub-SMU Boundary

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.



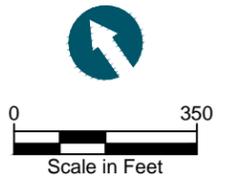
L:\AutoCAD Project Files\Projects\0995-SD Bay Environmental\SD Shipyard\0995-RP-027 REF SAMP 2.dwg FIG 2

Nov 07, 2013 10:04am mpratschner

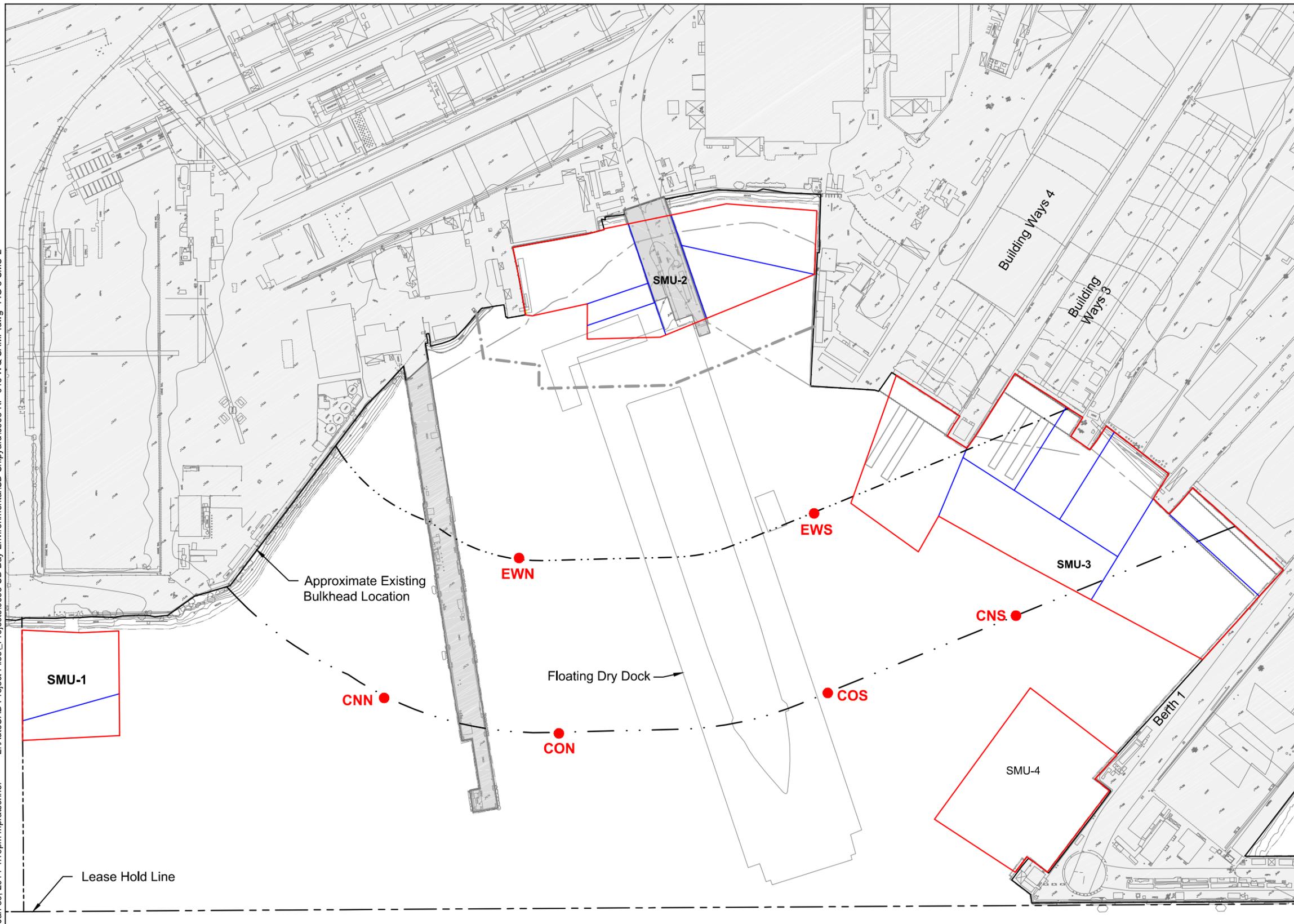


SOURCE: Aerial from ESRI base maps. Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.

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-046 WQ SAMP.dwg FIG 3 SMU-2
 Jan 30, 2014 4:19pm mpraichner

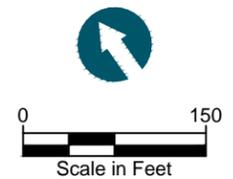


LEGEND:

	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.



ATTACHMENT A
WASTE MANIFESTS

PROVIDED ON CD

ATTACHMENT B
CALIBRATION LOGS



INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

1340 Reynolds Avenue, Suite 108
Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 17229
Description Horiba U-52
Calibrated 1/13/2014 7:31:48PM

Manufacturer Horiba
Model Number U-52
Serial Number/ Lot Number H10W0S7
Location California
Department

State Certified
Status Pass
Temp °C 23
Humidity % 45

Calibration Specifications

				Range Acc %				
				Reading Acc %				
				Plus/Minus				
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>	
Group # 1				Range Acc %	0.0000			
Group Name PH				Reading Acc %	3.0000			
Stated Accy Pct of Reading				Plus/Minus	0.00			
7.01 / 7.01	PH	7.01	PH	7.00	7.00	-0.14%	Pass	
4.01 / 4.01	PH	4.01	PH	4.00	4.00	-0.25%	Pass	
Group # 2				Range Acc %	0.0000			
Group Name Turbidity				Reading Acc %	3.0000			
Stated Accy Pct of Reading				Plus/Minus	0.00			
0.00 / 0.00	NTU	0.00	NTU	0.00	0.00	0.00%	Pass	
800.00 / 800.00	NTU	800.00	NTU	800.00	800.00	0.00%	Pass	
Group # 3				Range Acc %	0.0000			
Group Name Conductivity				Reading Acc %	3.0000			
Stated Accy Pct of Reading				Plus/Minus	0.000			
0.718 / 0.718	ms/cm	0.718	ms/cm	0.718	0.718	0.00%	Pass	
5.000 / 5.000	ms/cm	5.000	ms/cm	5.000	5.000	0.00%	Pass	
80.000 / 80.000	ms/cm	80.000	ms/cm	80.000	80.000	0.00%	Pass	
Group # 4				Range Acc %	0.0000			
Group Name Redox (ORP)				Reading Acc %	3.0000			
Stated Accy Pct of Reading				Plus/Minus	0.00			
240.00 / 240.00	mv	240.00	mv	240.00	240.00	0.00%	Pass	
Group # 5				Range Acc %	0.0000			
Group Name Dissolved Oxygen Zero				Reading Acc %	3.0000			
Stated Accy Pct of Reading				Plus/Minus	0.00			



INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

1340 Reynolds Avenue, Suite 108
Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 17229
Description Horiba U-52
Calibrated 1/13/2014 7:31:48PM

Group # 5				Range Acc % 0.0000			
Group Name Dissolved Oxygen Zero				Reading Acc % 3.0000			
Stated Accy Pct of Reading				Plus/Minus 0.00			
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
0.00 / 0.00	mg/L	0.00	mg/L	0.00	0.00	0.00%	Pass
Group # 6				Range Acc % 0.0000			
Group Name Temperature DO Span				Reading Acc % 0.0000			
Stated Accy Plus / Minus				Plus/Minus 0.00			
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
20.00 / 20.00	degrees C	8.84	mg/L	8.84	8.84	0.00%	Pass

<u>Test Instruments Used During the Calibration</u>					<u>(As Of Cal Entry Date)</u>	
<u>Test Standard ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number / Lot Number</u>	<u>Last Cal Date / Opened Date</u>	<u>Next Cal Date / Expiration Date</u>
CA 240MV 2855	CA ORP 240 mV	Hanna		Lot# 2855		11/20/2015
CA 7 PH 8879	CA PH 7	Aurical		Lot# 10675		11/8/2014
CA 800NTU	CA TURB 800	Horiba		201046-4		1/3/2015
CA COND 5000 (LOT# 9964)	CA COND 5000	Aurical		9964		2/21/2015
CA COND 718 (LOT# 9963)	CA COND 718	Aurical		10175		2/21/2015
CA COND 80,000 (LOT#9974)	CA COND 80,000	Aurical		10174		2/21/2015

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Jennifer Bunch

All instruments are calibrated by Pine Environmental Services, LLC. according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

**Notify Pine Environmental Services, LLC. of any defect within 24 hours of receipt of equipment
Please call 866-960-7463 for Technical Assistance**

HYDROLAB CALIBRATION WORKSHEET

PROJECT(S): SD Shipyards

PROJECT #: 13103-01.02

REMINDER: ALLOW TWO MINUTES WARMUP BEFORE CALIBRATION OR USE.

Calib by:	Date	Time (24 Hr)	DO				pH					REDOX		
			Temp. (°C)	BP (mm Hg)	Initial DO (mg/L)	Final DO (mg/L)	Initial pH 7.0	Final pH 7.0	Temp. (°C)	Initial pH: 10	Final pH: 10	Initial (mV)	Final (mV)	Temp. (°C)
DF	1.21.14	0630	23.9	767	8.4	8.5	7.0	7.0	23.8	10.3	10.02			

Calib by:	Date	Time (24 Hr)	CONDUCTIVITY				TURBIDITY					
			Initial 0 µs/cm	Final 0 µs/cm	Temp. (°C)	Initial 1412 µs/cm	Final 1412 µs/cm	Initial 0 NTU	Final 0 NTU	Temp. (°C)	Initial 40 NTU	Final 40 NTU
DF	1.21.14	0630	0.0	0.0	21.0	1428	1412	0.0	0.0	24.0	42.4	40.0

Dissolved Oxygen Method (circle one):

Air Saturated Water Winkler Titration

Source of Barometric Pressure Surveyor
 Turb. Std. (40 NTU)
 Lot # A3280 Exp. 10/19

Turbidity Std (40.1 NTU)

Lot# A8347 Exp. Date: 12/10

Conductivity Stds: Calibration: 1412 µs/cm

Lot # A3262 Exp. Date: 9/14

Verification: _____ µs/cm

Lot # _____ Exp. Date: _____

pH Buffers:

pH 7.0 Lot # A3046 Exp. Date: 2/15

pH 10 Lot# A3042 Exp. Date: 2/14

pH 4 Lot# A3042 Exp. Date: 2/14

4.4 @ 24.0
4.01

Redox Standard:

428 mV ± @ 25 °C (Zobell's)

Lot# _____ Exp. Date: _____

NOTES:

ATTACHMENT C
WATER QUALITY SAMPLE FORMS



27201 Puerta Real, Suite 350
 Mission Viejo, California 92691
 Phone 949.347.2780
 www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: ^{A.M. GAZLE} D. Fellers, B. Geister		Date: 01.09.14.14	Tide: Flood <input checked="" type="radio"/> Ebb <input type="radio"/> Slack	
Station ID: D-BG-140114		Water Depth (ft): 69.3		
Coordinates				
Latitude/Northing: 32° 41.499		Longitude/Easting: 117° 09.034		
Weather and Wind Conditions: sunny, light wind				
Predominant Current Direction: NE				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:01.13	10	^{PF} 8.1 7.2	^{PF} 7.2 8.1	1.1
Odor: <input checked="" type="radio"/> none slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y <input checked="" type="radio"/> N		Photograph(s) Taken: <input checked="" type="radio"/> Y <input type="radio"/> N		
Discoloration or Turbidity: Y <input checked="" type="radio"/> N		Recorded by: AMG		
Comments: None				



27201 Puerta Real, Suite 350
 Mission Viejo, California 92691
 Phone 949.347.2780
 www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Beister ^{A. Gale}		Date: 1.28.14	Tide: Flood <input checked="" type="radio"/> Ebb <input type="radio"/> Slack	
Station ID: D-EWN-140114		Water Depth (ft): 60.6		
Coordinates				
Latitude/Northing: 32° 41.377		Longitude/Easting: 117° 08.425		
Weather and Wind Conditions: sunny light wind				
Predominant Current Direction: NE				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:45:67	10'	8.6	8.1	0.2
Odor: <input checked="" type="radio"/> none <input type="radio"/> slight <input type="radio"/> moderate <input type="radio"/> strong <input type="radio"/> H ₂ S <input type="radio"/> petroleum <input type="radio"/> septic				
Presence of Surface Pollution: Y <input checked="" type="radio"/> N		Photograph(s) Taken: Y <input checked="" type="radio"/> N		
Discoloration or Turbidity: Y <input checked="" type="radio"/> N		Recorded by: AMG		
Comments: None				



27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, ^{A. Gate} B. Baister		Date: 1.9.14.14.	Tide: Flood / <u>Ebb</u> / Slack	
Station ID: D-EWS-140114		Water Depth (ft): 52.2		
Coordinates				
Latitude/Northing: 32° 41.353		Longitude/Easting: 117° 08.351		
Weather and Wind Conditions: Sunny, light wind				
Predominant Current Direction: NE				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:59.23	10'	7.3	8.1	0.6
Odor: <u>none</u> slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y/ <u>N</u>			Photograph(s) Taken: Y/ <u>N</u>	
Discoloration or Turbidity: Y/ <u>N</u>			Recorded by: AMG	
Comments:				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Gaister ^{A. Gale}		Date: 01.09.14	Tide: Flood / <u>Ebb</u> / Slack	
Station ID: D-CNS-140114			Water Depth (ft): 48.2	
Coordinates				
Latitude/Northing: 32° 41.36		Longitude/Easting: 117° 08.310		
Weather and Wind Conditions: sunny, light breeze				
Predominant Current Direction: NE				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:02.32	10'	6.9	8.1	0.8
Odor: <u>none</u> slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y <u>N</u>			Photograph(s) Taken: <u>Y</u> / N	
Discoloration or Turbidity: Y <u>N</u>			Recorded by: AMG	
Comments: None				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Easter ^{A. GALE}		Date: 01.09.14, 14	Tide: Flood / <input checked="" type="radio"/> Ebb / Slack	
Station ID: D-COS-140114		Water Depth (ft): 63.4		
Coordinates				
Latitude/Northing: 32° 41.265		Longitude/Easting: 117° 08.375		
Weather and Wind Conditions: sunny, light wind				
Predominant Current Direction: N/E				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:04.08	10'	7.4	8.1	1.0
Odor: <input checked="" type="radio"/> none slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y/ <input checked="" type="radio"/> N			Photograph(s) Taken: <input checked="" type="radio"/> Y / N	
Discoloration or Turbidity: Y/ <input checked="" type="radio"/> N			Recorded by: <u>AMB</u>	
Comments: <u>NONE</u>				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Berster ^{A. Gale}		Date: 01.02.14	Tide: Flood / <input checked="" type="radio"/> Ebb / Slack	
Station ID: D-CON-140114		Water Depth (ft): 62.9		
Coordinates				
Latitude/Northing: 32° 41.311		Longitude/Easting: 117° 08.458		
Weather and Wind Conditions: Sunny, light wind				
Predominant Current Direction: NE				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:55.47	10'	7.3	8.1	0.8
Odor: <input checked="" type="radio"/> none slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y / <input checked="" type="radio"/> N			Photograph(s) Taken: <input checked="" type="radio"/> Y / N	
Discoloration or Turbidity: Y / <input checked="" type="radio"/> N			Recorded by: AMC	
Comments: NONE				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, ^{A. GALE} B. Geisler		Date: 01.14.14	Tide: Flood / <u>Ebb</u> / Slack	
Station ID: D-CNN-140114		Water Depth (ft): 47.2		
Coordinates				
Latitude/Northing: 32° 41.375		Longitude/Easting: 117° 08.480		
Weather and Wind Conditions: SUNNY light wind				
Predominant Current Direction: NE				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:50.15	10'	7.5	8.1	0.8
Odor: <u>none</u> slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y <u>N</u>			Photograph(s) Taken: <u>Y</u> / N	
Discoloration or Turbidity: Y <u>N</u>			Recorded by: <u>AMG</u>	
Comments: <u>None</u>				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Geisler		Date: 1.21.14	Tide: Flood (Ebb) Slack	
Station ID: D-BG-140121		Water Depth (ft): 37.1		
Coordinates				
Latitude/Northing: 32° 41' 28.128"		Longitude/Easting: 117° 09' 00.990"		
Weather and Wind Conditions: Cloudy, light to moderate wind				
Predominant Current Direction: SE				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:03:16	10	8.1	7.8	0.7
Odor: none slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y/N			Photograph(s) Taken: Y/N	
Discoloration or Turbidity: Y/N			Recorded by: B. Geisler	
Comments:				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Geisler		Date: 1.21.14	Tide: Flood / <u>Ebb</u> / Slack	
Station ID: D-EWN-140121		Water Depth (ft): 39.1		
Coordinates				
Latitude/Northing: 32° 41' 20.898"		Longitude/Easting: 117° 08' 25.572"		
Weather and Wind Conditions: Cloudy, light wind				
Predominant Current Direction: NW				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:38:09	10	7.8	7.9	0.5
Odor: <u>none</u> slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y / <u>N</u>			Photograph(s) Taken: <u>Y</u> / N	
Discoloration or Turbidity: Y / <u>N</u>			Recorded by: B. Geisler	
Comments:				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Geisler		Date: 1.21.14	Tide: Flood / <input checked="" type="radio"/> Ebb / Slack	
Station ID: D-EWS-140121			Water Depth (ft): 28.2	
Coordinates				
Latitude/Northing: 32° 41' 20.712"		Longitude/Easting: 117° 08' 20.958"		
Weather and Wind Conditions: cloudy, light wind				
Predominant Current Direction: SE NW				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:10:52	10	8.0	7.9	0.9
Odor: <input checked="" type="radio"/> none slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y / <input checked="" type="radio"/> N			Photograph(s) Taken: <input checked="" type="radio"/> Y / <input type="radio"/> N 1	
Discoloration or Turbidity: Y / <input checked="" type="radio"/> N			Recorded by: B. Geisler	
Comments:				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Geisler		Date: 1.21.14	Tide: Flood / <input checked="" type="radio"/> Ebb / Slack	
Station ID: D-COS-140121		Water Depth (ft): 33.8		
Coordinates				
Latitude/Northing: 32° 41' 14.508"		Longitude/Easting: 117° 08' 22.602"		
Weather and Wind Conditions: cloudy, light wind				
Predominant Current Direction: NW				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:21:36	10	7.9	7.9	0.9
Odor: <input checked="" type="radio"/> none slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y / <input checked="" type="radio"/> N			Photograph(s) Taken: Y / N	
Discoloration or Turbidity: Y / <input checked="" type="radio"/> N			Recorded by: B. Geisler	
Comments:				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Geisler		Date: 1.21.14	Tide: Flood / <input checked="" type="radio"/> Ebb / Slack	
Station ID: D-CNS-140121 CON D-CNS-140121		Water Depth (ft): 33.4 ⁸⁶ 34.3		
Coordinates				
Latitude/Northing: 32° 41' 10.402"		Longitude/Easting: 117° 08' 20.892"		
Weather and Wind Conditions: Cloudy, light wind				
Predominant Current Direction: NW				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:03:43	10	7.7	7.9	0.8
Odor: <input checked="" type="radio"/> none slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y / <input checked="" type="radio"/> N			Photograph(s) Taken: Y / <input checked="" type="radio"/> N	
Discoloration or Turbidity: Y / <input checked="" type="radio"/> N			Recorded by: B. Geisler	
Comments:				



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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site		Project Number: 131003-01.02		
Field Personnel: D. Fellers, B. Gerster		Date: 1.21.14	Tide: Flood / <input checked="" type="radio"/> Ebb / Slack	
Station ID: D - CNN - 140121		Water Depth (ft): 29.3		
Coordinates				
Latitude/Northing: 32° 41' 22.104"		Longitude/Easting: 117° 08' 28.920"		
Weather and Wind Conditions: Cloudy, light wind				
Predominant Current Direction: NW				
Field Parameters				
Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:43:30	10	7.7	7.9	0.2
Odor: <input checked="" type="radio"/> none slight moderate strong H ₂ S petroleum septic				
Presence of Surface Pollution: Y / <input checked="" type="radio"/> N			Photograph(s) Taken: Y / <input checked="" type="radio"/> N	
Discoloration or Turbidity: Y / <input checked="" type="radio"/> N			Recorded by: B. Gerster	
Comments:				

ATTACHMENT D
PHOTOGRAPHS



View northwest of silt curtains at SMU-2, January 14, 2014



View northeast of silt curtains at SMU-2, January 21, 2014