

## ANALYTICAL DATA QUALITY CONTROL REVIEW

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**Project:** San Diego Shipyard Sediment Site – North Shipyard  
**Date:** April 20, 2016  
**Laboratory:** Eurofins Calscience, Inc. (ECI)  
**Project#:** 131002-01.03

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This report summarizes the review of analytical results for 32 sediment samples collected between March 6 and December 12, 2015. Samples were collected by Anchor QEA, LLC, and submitted to Eurofins Calscience, Inc. (ECI) in Garden Grove, California. Samples were analyzed for the following parameters:

- Total solids by Standard Method (SM) 2540B
- Polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyl (PCB) congeners by U.S. Environmental Protection Agency (USEPA) Method 8270C-SIM
- Total metals by USEPA Method 6020/7471A
- Organotins by Krone et al., 1989

This report reviews 23 sample data groups (SDGs). Samples reviewed in this report are presented in Table 1 below.

### FIELD DOCUMENTATION AND SAMPLE ANALYSES

Field documentation was checked for completeness and accuracy. The chain-of-custody (COC) forms were signed by ECI at the time of sample receipt; samples were received cold and in good condition.

### HOLDING TIMES AND SAMPLE PRESERVATION

All samples were appropriately preserved, prepared, and analyzed within recommended holding times.

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**Table 1**  
**Sample Summary**

Area	Field Point Name	Sample Name	Collection Date	Laboratory Report ID	Laboratory Sample ID
Pier 3 North	N-SMU10A	SD-N-C-14-D-0535-150306	3/6/2015	15-03-0554_S1	15-03-0554-2
Pier 3 North	N-SMU9B	SD-N-C-14A-D-0535-150306	3/6/2015	15-03-0554_s1	15-03-0554-4
Port of San Diego	N-SMU7A	SD-N-C-10-D-0535-150603	6/3/2015	15-06-0300	15-06-0300-2
Port of San Diego	N-SMU6B	SD-N-C-12-D-0535-150619	6/19/2015	15-06-1664_S3	15-06-1664-4
Port of San Diego	N-SMU9C	SD-N-C-13A-D-0535-150623	6/23/2015	15-06-1875	15-06-1875-2
Port of San Diego	N-SMU6A	SD-N-C-11-D-0535-150626	6/26/2015	15-06-2147	15-06-2147-4
Port of San Diego	N-SMU9A	SD-N-C-13-D-0535-150626	6/26/2015	15-06-2147	15-06-2147-2
Pier 1 North (Northern Section)	N-SMU1A	SD-N-C-01A-D-0535-150730	7/30/2015	15-07-1996_s3	15-07-1996-2
Pier 1 North (Northern Section)	N-SMU1D	SD-N-C-01C-D-0535-150730	7/30/2015	15-07-1996_s3	15-07-1996-4
Pier 1 North (Northern Section)	N-SMU2A	SD-N-C-03-D-0535-150812	8/12/2015	15-08-0857_s1	15-08-0857-6
Pier 1 North (Northern Section)	N-SMU2B	SD-N-C-4A-D-0535-150812	8/12/2015	15-08-0857_s1	15-08-0857-4
Pier 1 North (Northern Section)	N-SMU3A	SD-N-C-4B-D-0535-150812	8/12/2015	15-08-0857_s1	15-08-0857-2
Pier 1 North (Southern Section)	N-SMU1B	SD-N-C-01B-D-0535-150505	5/5/2015	15-05-0268_s4	15-05-0268-2
Pier 1 North (Southern Section)	N-SMU1C	SD-N-C-02-D-0535-150509	5/9/2015	15-05-0697_s4	15-05-0697-2
Pier 1 North (Southern Section)	N-SMU2C	SD-N-C-5A-D-0535-151202	12/2/2015	15-12-0180_s2	15-12-0180-2

Area	Field Point Name	Sample Name	Collection Date	Laboratory Report ID	Laboratory Sample ID
Pier 1 North (Southern Section)	N-SMU3B	SD-N-C-05B-D-0535-151121	11/21/2015	15-11-1661_s2	15-11-1661-2
Pier 1 South	N-SMU4A	SD-N-C-06-D-0535-151202	12/2/2015	15-12-0181_s2	15-12-0181-10
Pier 1 South	N-SMU4B	SD-N-C-07A-D-0535-151212	12/12/2015	15-12-1012_s1	15-12-1012-6
Pier 1 South	N-SMU5A	SD-N-C-08-D-0535-151212	12/12/2015	15-12-1012_s1	15-12-1012-2
Pier 3 South	N-SMU12A	SD-N-C-17-D-0535-151111	11/11/2015	15-11-0840_s1	15-11-0840-6
Pier 3 South	N-SMU12B	SD-N-C-18A-D-0535-151111	11/11/2015	15-11-0840_s1	15-11-0840-8
Pier 3 South	N-SMU13A	SD-N-C-18B-D-0535-151111	11/11/2015	15-11-0840_s1	15-11-0840-4
Pier 3 South	N-SMU13B	SD-N-C-20-D-0535-151125	11/25/2015	15-11-2003_s1	15-11-2003-2
Pier 3 South	N-SMU11A	SD-N-C-15-D-0535-151030	10/30/2015	15-10-2286_s1	15-10-2286-2
Pier 4 North	N-SMU11B	SD-N-C-16-D-0535-150515	5/18/2015	15-05-1364_s2	15-05-1364-2
Pier 4 North	N-SMU12C	SD-N-C-19-D-0535-150515	5/18/2015	15-05-1364_s2	15-05-1364-4
Pier 4 South	N-SMU14	SD-N-C-21A-D-0535-150717	7/17/2015	15-07-1173_s2	15-07-1173-2
Pier 4 South	N-SMU16A	SD-N-C-22A-D-0535-150721	7/21/2015	15-07-1353_s2	15-07-1353-2
Pier 4 South	N-SMU16B	SD-N-C-22B-D-0535-150724	7/24/2015	15-07-1627_s2	15-07-1627-2
Pier 4 South	N-SMU17A	SD-N-C-21-D-0535-151207	12/7/2015	15-12-0522_s1	15-12-0522-2
Pier 4 South	N-SMU17B	SD-N-C-23-D-0535-151030	10/30/2015	15-10-2286_s1	15-10-2286-6
SCOW-01	SCOW-01	SD-N-C-D-Scow-01-0535-150924	9/24/2015	15-09-1970	15-09-1970-2

## **METHOD BLANKS**

Method blanks were analyzed at required frequencies and were free of target analytes, except for copper in the method blank associated with three samples in SDG 15-11-0840\_s1.

Sample concentrations were significantly greater than (five times) the concentration of the blank; therefore, data are not expected to be affected.

## **SURROGATE RECOVERIES**

Surrogates recovered within laboratory control limits, except for 2-fluorobiphenyl in the PCB analysis of SD-N-C-13A-D-0535-150623 (SDG 15-06-1875). The surrogate recovered below the laboratory control limits; detected results may be biased low, and the limit at which non-detects are reported may be estimated.

## **LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATE**

Laboratory control samples and laboratory control sample duplicates (LCS/LCSDs) were analyzed at required frequencies and resulted in recoveries and relative percent difference (RPD) values within laboratory control limits, except for the LCSD RPD for the PAH compounds dibenz(a,h)anthracene and fluoranthene associated with SD-N-C-21A-D-0535-150717 (SDG 15-07-1173\_s2). The detected fluoranthene result may be biased low, and the limit at which the non-detect of dibenz(a,h)anthracene is reported may be estimated.

## **MATRIX SPIKE AND MATRIX SPIKE DUPLICATE**

Matrix spike and matrix spike duplicate (MS/MSD) samples were analyzed at required frequencies or LCS/LCSDs were analyzed in lieu of MS/MSD samples. Some MS/MSD samples were analyzed on non-project samples; these were not evaluated. Percent recoveries were not calculated when the sample concentration was greater than four times the concentration of the spike. All recoveries and/or RPD values were within laboratory control limits, except for the following:

- SDG 15-11-0840\_s1 metals: Mercury recovered below the laboratory control limit in the MSD sample analyzed on SD-N-C-20-D-0535-151111. Associated results may be biased low.
  - SDG 15-11-1661\_s2 PAHs: Five compounds recovered below the laboratory control limits in the MS and/or the MSD samples analyzed on SD-N-C-05B-D-0535-151121.
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In addition the MS/MSD RPD value was greater than the laboratory control limit for three compounds. These compounds were not detected in the sample, but the level at which they are reported may be estimated.

- SDG 15-12-0522\_s1 PAHs: Four compounds recovered below the laboratory control limits in the MSD sample analyzed on SD-N-C-21-D-0535-151207. The MS/MSD RPD values were greater than the control limit for these four compounds as well. Parent sample results may be biased low.
- SDG 15-06-1664\_s3 metals: The copper MSD sample analyzed on SD-N-C-12-D-0525-150619 recovered above the laboratory control limit. Associated sample results may be biased high.
- SDG 15-06-1875 metals: The copper MS/MSD samples analyzed on SD-N-C-13A-D-0535-150623 recovered below the laboratory control limit. Associated sample results may be biased low.

## **MATRIX DUPLICATE**

Sample duplicates were analyzed for total solids and resulted in RPDs within laboratory control limits.

## **OVERALL ASSESSMENT**

The laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the surrogate, LCS/LCSD, and MS/MSD recoveries. Precision was also acceptable as demonstrated by the laboratory duplicate, MS/MSD, and LCS/LCSD RPD values. Data are acceptable as reported and in accordance with the USEPA Stage 1 validation guidance (USEPA 2009); qualifiers were not applied to results reviewed in this report.

## **REFERENCES**

USEPA (U.S. Environmental Protection Agency), 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. USEPA 540-R-08-005. January 2009.

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