



## Department of Toxic Substances Control



**Matthew Rodriguez**  
Secretary for  
Environmental Protection

Deborah O. Raphael, Director  
700 Heinz Avenue  
Berkeley, California 94710-2721

**Edmund G. Brown Jr.**  
Governor

June 12, 2012

Janet Lear  
Department of the Navy  
BRAC Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108-4310

Dear Ms. Lear:

Department of Toxic Substances Control (DTSC) and San Francisco Bay Region, Regional Water Quality Control Board (Water Board) staff completed their review of the *Work Plan for Data Gaps Sampling and Investigation Area K, Former Mare Island Naval Shipyard, Vallejo, California prepared by Batelle and dated April 2012*. Comments from DTSC's Geological Services Branch and Human and Ecological Risk Division are enclosed. In addition, Water Board staff note that photoionization detectors (PID) are affected by moisture. The Work Plan proposes to use the PID to screen sediments in the nearshore adjacent to IR03 where the chemicals of concern are petroleum hydrocarbons (TPH), semivolatile organic compounds (sVOCs) and polycyclic aromatic hydrocarbons (PAHs). As these chemicals are not expected to volatilize significantly from wet sediments, it is unclear how effective the PID will be as a screening tool.

If you have any questions, please contact Janet Naito of my staff at (510) 540-3833 or [jnaito@dtsc.ca.gov](mailto:jnaito@dtsc.ca.gov).

Sincerely,

Barbara J. Cook, P.E., Chief  
Northern California Coastal Cleanup Operations Branch

Enclosures

cc: Elizabeth Wells (via electronic mail to: [EWells@waterboards.ca.gov](mailto:EWells@waterboards.ca.gov))  
San Francisco Bay Region Regional Water Quality Control Board

Janet Lear  
June 12, 2012  
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cc: Carolyn D' Almeida (via electronic mail to: [dAlmeida.carolyn@epamail.epa.gov](mailto:dAlmeida.carolyn@epamail.epa.gov))  
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CDM



Matthew Rodriguez  
Secretary for  
Environmental Protection



## Department of Toxic Substances Control

Deborah O. Raphael, Director  
9211 Oakdale Avenue  
Chatsworth, California 91311



Edmond G Brown, Jr  
Governor

### MEMORANDUM

**TO:** Janet Naito  
Brownfields and Environmental Restoration Program  
Department of Toxic Substances Control  
700 Heinz Avenue  
Berkeley, CA 94710-2721

**FROM:** James M. Polisini, Ph.D., Senior Toxicologist  
Office of Human and Ecological Risk (HERO)  
Ecological Risk Assessment Section (ERAS)  
9211 Oakdale Avenue  
Chatsworth, CA 91311

**DATE:** 18 May 2012

**SUBJECT:** INVESTIGATION AREA K DRAFT WORK PLAN FOR DATA  
GAPS SAMPLING, MARE ISLAND NAVAL SHIPYARD,  
VALLEJO, CALIFORNIA  
[SITE 201208-18 PCA 18040 H:32]

### BACKGROUND

HERO reviewed the document titled *Draft Work Plan for Data Gaps Sampling at Investigation Area K, Former Mare Island Naval Shipyard, Vallejo, California*, dated April, 2012. This document was prepared by Battelle, of Columbus, Ohio.

HERO, then the Human and Ecological Risk Division (HERD), previously reviewed the Investigation Area (IA) K documents titled:

1. *Draft Technical Memorandum Pilot Study for the Offshore Sediment Investigation at Investigation Area K, Former Mare Island Naval Shipyard, Vallejo, California*, dated May 24, 2007, in a HERD memorandum dated October 15, 2007;
2. *Draft Final Sampling and Analysis Plan (Field Sampling Plan/Quality Assurance Project Plan) for the Outfall and Supplemental Sampling Investigations at Investigation Area K, Former Mare Island naval Shipyard, Vallejo, California*, dated October 30, 2008, in a HERD memorandum dated November 24, 2008;

3. *Draft Work Plan for the Remedial Investigation at Investigation Area K, Former Mare Island Naval Shipyard, Vallejo, California*, dated November 8, 2007, in a HERD memorandum dated January 8, 2009; and,
4. *Draft Remedial Investigation Report for Investigation Area K, Former Mare Island Naval Shipyard, Vallejo, California*, dated November 20, 2009, in a HERO memorandum dated March 30, 2010;

IA K is the offshore area along the Mare Island Strait and Carquinez Strait extending from the Fleet Reserve Pier Area in the northern end to the South Shore Area, also referred to as Dikes 12 and 14. Historical operations at IA K included: 1) Industrial activities related to shipbuilding along the eastern side of Mare Island; and, 2) manufacture, storage, and handling of munitions primarily along the southern portion of Mare Island away from the shipyard and residential areas.

Mare Island Naval Shipyard (MINSY) was the first naval station on the Pacific Coast, where shipbuilding began in 1854. The former MINSY is located on a peninsula approximately 30 miles northeast of San Francisco. The peninsula is bounded to the east, south, and west by the Napa River (Mare Island Strait), Carquinez Strait, and San Pablo Bay, respectively. Mare Island was originally an island of approximately 1,000 acres with surrounding wetlands of approximately 300 acres. Fill material was added to enlarge Mare Island and connect it to the mainland. MINSY has been in operation under Navy control from approximately 1853 until the recent transfer to the City of Vallejo through the State Lands Commission.

### **GENERAL COMMENTS**

HERO has several concerns and suggestions regarding the proposed 'ambient' study for Total Petroleum Hydrocarbon (TPH) and organotin compounds in the sediments of Mare Island Strait. The benefit of implementing immunoassays for Polychlorinated Biphenyls (PCBs) in sediments would appear to outweigh the minor delay (24 hours or less) in determining how to prepare the sediment core samples for the Outfall 22 investigation. Discrete samples from the bottom of each sediment core should be archived, for potential future analysis, prior to preparation of the composite core samples.

### **SPECIFIC COMMENTS**

- 1: The Site Description (Section 2, page 2-1) states that 'the boundaries of IA K do not include the piers that extend into the offshore area'. Please amend the text to indicate in which Investigation Area (IA) or Installation Restoration (IR) Site the offshore piers themselves are evaluated. If another entity has accepted transfer and the responsibility for the offshore piers please identify that entity.

2. Polychlorinated Biphenyl (PCB) immunoassays are eliminated for screening sediment samples in the Outfall 22 investigation (Section 5.2, page 5-3) based on the conclusion that 'immunoassays are labor intensive and costly and do not provide the immediate feedback that was envisioned'. While the immunoassay results are not 'immediately' available the results are available within 24 hours, 30 to 50 samples can be processed in one day, and the Navy has used PCB immunoassays, with Aroclor 1254 detection limits of 50 µg/kg to 500 µg/kg at other Navy sites (Navy, 2001). Discrete samples, at specific depths, should be extracted from different depths in the Outfall 22 sediment cores for PCB immunoassay prior to homogenization of the planned sediment core intervals for the composite samples.
3. No description of the range of sediment contaminants potentially associated with the Artship location is provided (Section 5.3). X-Ray Fluorescence (XRF) to detect inorganic elements should be used, in addition to the planned Photoionization Detector (PID) and visual screening, to identify intervals of the sediment cores for directed sampling at the former mooring for the Artship (Section 5.3, page 5-3).
4. The San Francisco Regional Water Quality Control Board (SFRWQCB) study of 'ambient' sediment concentrations (SFRWQCB, 1998) demonstrated that San Francisco Bay sediment concentrations can be grouped based on grain size (i.e., >40% fines and <40% fines; Attachment C). The discussion of 'ambient' investigation of Mare Island Strait TPH and organotin does not mention measurement of grain size. Please include grain size measurement and Total Organic Carbon (TOC) in the text (Section 5.4, page 5-4) and associated table (Table 4).
5. Ten sampling locations are proposed (Section 5.4, page 5-4) to assess sediment Total Petroleum Hydrocarbon (TPH) and organo-tin concentrations upstream, downstream and immediately across the Mare Island Strait from IA K (Figure 8 and Attachment B). The four sampling locations immediately across Mare Island Strait appear to be sited more to evaluate potential sources to Mare Island Strait than to obtain samples representative of 'ambient' conditions. A search of Google Maps clearly shows these potential sources of TPH, past use of bottom paints, and inorganic elements associated with the proposed 'ambient' sampling locations:
  - a. (AMB-DG-4) Adjacent or down-current from a small boat marina;
  - b. (AMB-DG-5) Adjacent to the Vallejo Ferry Terminal;
  - c. (AMB-DG-6) Down-current from what appears to be a Waste Water Treatment Facility; and,
  - d. (AMB-DG-7) Adjacent to a scrap yard at Lemon Street, Vallejo, CA.Further justification must be provided for these proposed 'ambient' sampling locations (e.g., width of the undredged nearshore sediment deposits relative

to the width of the dredged shipping channel). At a minimum the 'ambient' sediment sampling locations should be moved as far from shore as possible while still sampling undredged Mare Island Strait sediments.

6. Total Organic Carbon (TOC) and grain size should be added to the measurements collected for the surface sediment samples collected for bioassays from the Sand Blast Material (SBM) area (Section 5.5, page 5-5; Table 5).
7. The goal and extent of the Interim Removal Action conducted by CH2M Hill in 2009, referenced in the Installation Restoration (IR) 03 figure (Figure 4), should also be briefly described in the IR03 text (Section 5.1, page 5-1).
8. The approximately 26 foot depth of the ADM 2010 dredging performed at Outfall 22, referenced in the Outfall 22 figure (Figure 5), should also be briefly described in the Outfall 22 text (Section 5.2, page 5-2).
9. DTSC should request that the data from this investigation be retained for a minimum of 10 years and DTSC be notified if the data from this investigation is scheduled to be purged (SAP Worksheet #11, page 19 of 55), second bulleted item).
10. For consistency, please amend Data Quality Objectives (DQO) Step 4 for the Outfall 22 investigation (SAP Table 11-2, page 21 of 55) to indicate the vertical boundary of the study is 'approximately' 30 feet bgs. Step 7 of the same DQO table describes the Plan for Obtaining Data as 'a total estimated depth of 26 to 27 feet'.
11. Step 5 (Develop the Analytical Approach) of the DQO table for Outfall 22 (SAP Table 11-2, page 21, of 55); and, the Artship (SAP Table 11-3, page 22 of 55) states the decision criterion as 'consistently exceed San Francisco ambient concentrations and ecotoxicological benchmarks'. HERO ERAS will also evaluate the magnitude of sediment concentrations and the location of any sediment samples with significantly elevated concentrations, in addition to 'consistent' patterns (e.g., group means) as an indicator of ecological hazard.
12. Step 5 (Develop the Analytical Approach) of the DQO table for 'ambient' TPH and organotin sediment concentrations (SAP Table 11-4, page 23 of 55) indicates that the statistical methods used to calculate the San Francisco Ambient Sediment concentrations (SFRWQCB, 1998) will be used to develop 'ambient' TPH and organotin sediment concentrations for Mare Island Strait. The SFRWQCB sediment 'ambient' method relies on a large number of sediment samples to differentiate the 'ambient' concentrations in sediments of differing grain size (Attachment C). The proposed number of 'ambient'

samples does not appear sufficient to utilize the same methods employed by the SFRWQCB. Box and whisker plots of upstream, cross-stream and downstream sediment concentrations may be the most useful approach to utilize the results of the 'ambient' TPH and organotin sampling.

13. All of the bioaccumulation data available from the San Pablo Island Number 1 reference area should be used to evaluate the results of the 28-day bent-nose clam and polychaete bioaccumulation tests (SAP Table 11-5, page 24 of 55) as the results from San Francisco Bay reference sites can be variable over an individual year (i.e., seasonally) and among years.
14. The Project Action Limit Reference column (SAP Worksheet #15-3, page 32 of 55) for hexachlorobenzene incorrectly lists Laboratory QL when it should indicate Benchmark, as 0.32  $\mu\text{g}/\text{kg}$  is listed as the sediment benchmark.
15. Please provide a rationale for 5  $\mu\text{g}/\text{kg}$  as the Project Quantitation Limit Goal (SAP Worksheet #15.4, page 33 of 55) for congeners of Polychlorinated Biphenyl (PCBs), when the Laboratory Specific Quantitation Limit (QL) is 1  $\mu\text{g}/\text{kg}$  and the Method Detection Limit (MDL) is 0.5  $\mu\text{g}/\text{kg}$ .
16. Please verify that the Project Quantitation Limit Goal for TPH-diesel is 10  $\mu\text{g}/\text{kg}$  and for TPH-motor oil is 20  $\mu\text{g}/\text{kg}$  for sediment samples (SAP Worksheet #15.5, page 35 of 55). Please provide the TPH analytical method to the reviewer as Quantitation Goals for TPH are more commonly in the mg/kg range.
17. A discrete sediment sample should be obtained from the bottom of the sediment core and archived for potential future analysis depending on the results of the deeper composite core sample (SAP Worksheet #17, page 38 of 55).
18. Please amend the text to indicate that the decision of whether to carry forward areas sampled in this IA K Data Gap effort to the IA K Feasibility Study (FS) will be made by the Navy and the regulatory agencies, boards and departments. The first indication that the Navy alone will make this decision occurs in the discussion of IR03 (SAP Worksheet #17, Section 17.1, page 38 of 55), but is present in the discussion of other IA K sampling areas.
19. Navy documents indicate that turnaround can be less than 24 hours, as outlined in Specific Comment number 2 above. Discrete samples, at specific depths, should be extracted from the Outfall 22 sediment cores for PCB immunoassay (SAP Worksheet #17, Section 17.2, page 41 of 55) prior to homogenization of the planned sediment core intervals for the composite samples.

20. HERO has some concerns regarding the proposed placement of the 'ambient' sampling locations for TPH and organotin across Mare Island Strait (SAP Worksheet #17, Section 17.4, page 44 of 55). Please see Specific Comments number 4, 5 and 12 above. These issues should be resolved prior to sediment sampling.
21. The word 'either' appears in the description of the sediment grab sample size as 0.1 square meter (SAP Worksheet #17, Section 17.6.1, page 48 of 55) with no second alternative. Please correct this typographic error.

## **CONCLUSIONS**

The major technical issues with the draft work plan are: 1) the proposed location of the 'ambient' TPH/organotin Mare Island Strait samples; 2) the proposed use of the same statistical methodology as employed by the SFRWQCB, on a much larger number of samples, to set 'ambient' TPH and organotin concentrations based on ten sediment samples; 3) the proposal not to use immunoassay PCB methods to identify depths of the Outfall 22 sediment core samples for focused analysis; and, 4) reliance on Photoionization Detector (PID) to screen sediments from the former Artship mooring without also screening for inorganic elements. All of these technical issues, as well as those outlined in the Specific Comments, should be resolved prior to sediment sampling.

## **REFERENCES**

Naval Facilities Engineering Center. 2001. Rapid Sediment Characterization of PCBs with ELISA. NAVFAC Port Hueneme, California 93043-4370, TechData Sheet, *TDS-2086-ENV*. June, 2001.  
[https://portal.navy.mil/portal/page/portal/navfac/navfac\\_ww\\_pp/navfac\\_nfac\\_esc\\_pp/environmental/erb/documents-r/tds-2086-rsc.pdf](https://portal.navy.mil/portal/page/portal/navfac/navfac_ww_pp/navfac_nfac_esc_pp/environmental/erb/documents-r/tds-2086-rsc.pdf)

San Francisco Regional Water Quality Control Board (SFRWQCB). 1998. Ambient Concentration of Toxic Chemicals in San Francisco Bay Sediments. May. [Prepared by Tom Gandesbery and Fred Hetzel]

## **ATTACHMENTS**

- Attachment A.** Investigation Area (IA) K with locations of Data Gaps Sediment Sampling in Mare Island Strait [Figure 2 from the Draft Data Gaps Sampling Work Plan, April, 2012].
- Attachment B.** Ambient TPH and organotin sampling locations in Mare Island Strait [Figure 8, Draft Data Gaps Sampling Work Plan]
- Attachment C.** San Francisco Regional Water Quality Control Board (SFRWQCB) example of benzo(a)pyrene sediment concentration grouped by sediment grain size (SFRWQCB, 1998).

Janet Naito  
May 18, 2012  
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Staff Toxicologist, ERAS

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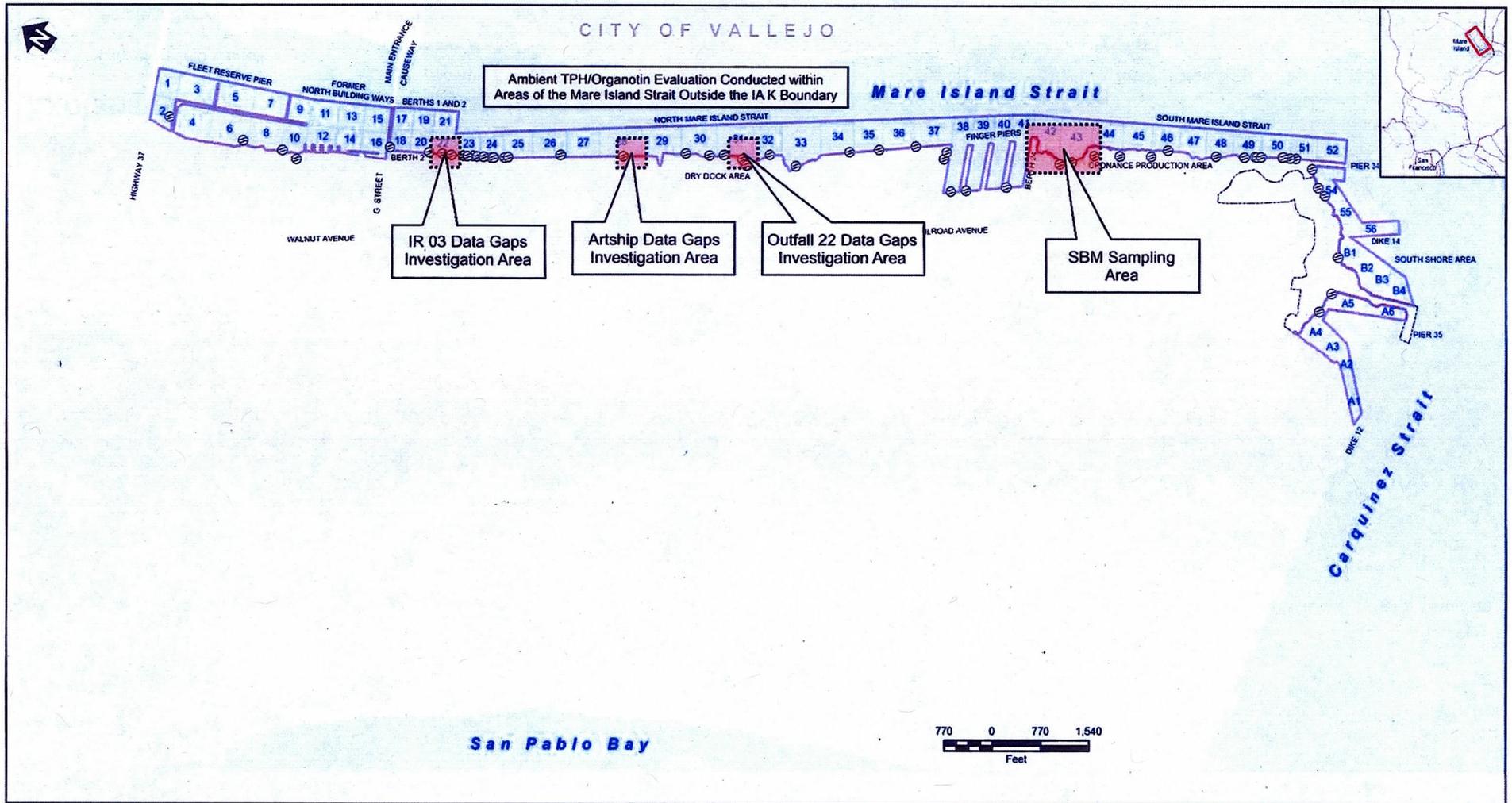
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C:\Risk\MINSY\IA K Draft Work Plan for Data Gaps Sampling Investigation.docx H:32  
DOR:4/20/2012 RCD: None Given DOF: 05/18/2012

**Attachment A. Investigation Area (IA) K with locations of Data Gaps Sediment Sampling in Mare Island Strait [Figure 2 from the Draft Data Gaps Sampling Work Plan, April, 2012].**



**Mare Island**  
 Department of the Navy, BRAC PMO West, San Diego, California

**Date:**  
 8/24/09

**Projection:** California (III) State Plane - NAD 27 (Feet)

**Drawn By:** Leo Chiques

**Document:** FIGURE 1-2 SITE MAP/CDR

**Explanation:**

⊙	Outfall Location	Building/Structure	Wetland
⊙	Offshore Sampling Cell	Road	Mudflat
▭	Investigation Area K Boundary	Site Feature	Water
▭	Concord Annex		

**Battelle**

**Site Map Showing Investigation Area K at Former Mare Island Naval Shipyard**

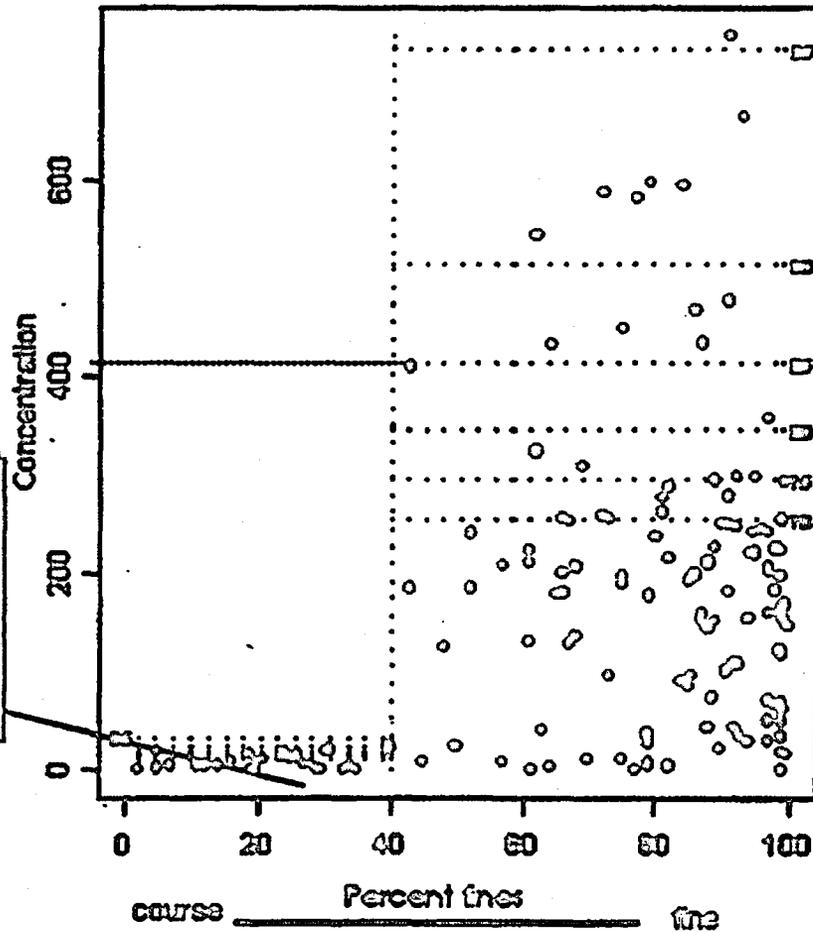
Attachment B. Ambient TPH and organotin sampling locations in Mare Island Strait [Figure 8, Draft Data Gaps Sampling Work Plan]



**Attachment C.** San Francisco Regional Water Quality Control Board (SFRWQCB) example of benzo(a)pyrene sediment concentration grouped by sediment grain size (SFRWQCB, 1998).

Example of a Scatter Plot for the PAH Benzo(a)pyrene  
Shows range of P-Values.  
Break on X-Axis indicates a change in sample population.  
NOTE: Not all contaminants exhibit a sharp break at 40% fines.

Non-zero values (censored) are an artifact of the analysis; many are at detection limits



P-Value of 0.85 for 40-100 % fines



**Matthew Rodriguez**  
Secretary for  
Environmental Protection

## Department of Toxic Substances Control

Deborah O. Raphael, Director  
700 Heinz Avenue  
Berkeley, California 94710-2721



**Edmund G. Brown Jr.**  
Governor

### MEMORANDUM

**TO:** Janet Naito, Project Manager  
Senior Hazardous Substances Scientist  
Cleanup Program, Berkeley Office  
Brownfields and Environmental Restoration Program

**FROM:** Eileen Hughes, PG 8170 *Eileen Hughes*  
Engineering Geologist, Geological Services Unit  
Geological Services Branch  
Brownfields and Environmental Restoration Program

**CONCUR:** Brian Lewis, PG 4287, CEG 1414, CHG 136 *Buck Kinney for B.L.*  
Senior Engineering Geologist, Unit Chief, Geological Services Unit  
Geological Services Branch  
Brownfields and Environmental Restoration Program

**DATE:** June 8, 2012

**SUBJECT:** INVESTIGATION AREA K, WORK PLAN FOR DATA GAPS SAMPLING,  
FORMER MARE ISLAND SHIPYARD, VALLEJO, CALIFORNIA

PCA: 18040

SITE: 201208-18

WR: 20012420

### ACTIVITIES REQUESTED

Geological Services Unit (GSU) reviewed: *Draft Work Plan for Data Gaps Sampling at Investigation Area K, Former Mare Island Naval Shipyard, Vallejo, California.* The work plan (dated April 2012) was prepared by Battelle for Department of the Navy, Base Realignment and Closure Program Management West (Navy).

The work plan was reviewed with respect to geological and hydrogeological adequacy and data interpretation. GSU defers issues related to human health and ecological risk assessments to DTSC's Office of Human and Ecological Risk Assessment (HERO).

### BACKGROUND

Mare Island Naval Shipyard (MINS), founded in 1854, is the oldest naval shipyard on the West Coast. MINS expanded during World War I and reached its peak during World War II. Navy offshore activities ceased in 1995 and MINS was closed in 1996.

Shipbuilding activities included: construction, maintenance, overhaul, repair, sandblasting, painting, and refueling. Munitions and explosives of concern (MEC) activities included: manufacturing, testing, storage, cleaning/refilling, deactivation, and disposal. Submarine and nuclear-powered vessels were serviced. A hospital, various training functions, manufacturing facilities, and dredge ponds were located at MINS.

Investigation Area K (IAK: about 300 acres along 5.2 miles of coastline) comprises eastern and southern offshore areas along Mare Island and Carquinez Straits. Contaminants from upland activities and source areas have migrated to IAK sediments. For example, wastes from onshore operations were disposed to storm and sanitary sewer lines which discharged offshore. Maintenance of the storm system (e.g., by jetting or hydraulically flushing with water) resulted in discharges to MI Strait (SPORTS 1997; IT 2002). Abrasive sand blast material (SBM) was disposed offshore at IR04. Polychlorinated biphenyls (PCBs) migrated from an electrical cableway into the storm system near Building 516 and Outfalls S021 and S022 (CH2MHill 2007). Volatile organic compounds (VOCs) and PCBs migrated from a sump into the storm system at IR12 (near Building 742 and Outfall S026). VOCs, including dense non-aqueous phase liquids (DNAPLs) were released at IR15. Contaminated soils directly adjacent to IAK may be eroding into IAK (e.g., at IR04, the Production Manufacturing Area (PMA), and the South Shore Area (SSA)).

Offshore disposal from vessels occurred, including accidental releases during shiploading operations.

The Navy Channel and the Main Channel were regularly dredged to -36 feet mean lower low water (MLLW). Berths and pier areas were dredged to various depths, from -12 feet MLLW (Mine Wharf) to - 41 feet MLLW (Berths 38 and 39). Areas close to shore and north of the causeway—and areas near the Production Manufacturing Area (PMA) and the South Shore Area (SSA)—were not dredged. MEC and radioactive items have been recovered in significant quantities in IAK dredge spoils. Areas which were not dredged may still be contaminated (i.e., deeper sediments and areas adjacent to seawalls, around pilings, and under piers).

IAK is currently owned by the Navy. In the future, IAK will be turned over to the City of Vallejo as trustee for the State Lands Commission. Interim reuses of the offshore area have included: ferry maintenance, CalTrans barge activity, berthing of the Artship, shipbreaking, and release of Chinook salmon smolts.

Offshore areas are within the designated critical habitat for delta smelt, a threatened species (state- and federal-listed). Sensitive species potentially occupying the wetlands adjacent to IAK include: the salt marsh harvest mouse, California Clapper Rail, California Black Rail, and Mason's lilaeopsis.

## **GENERAL COMMENTS AND RECOMMENDATIONS**

- 1) The IAK data gaps addressed in this work plan are:

- Characterization of nearshore sediment adjacent to IR03;
- Investigation of PCBs in deep sediment adjacent to Outfall 22;
- Investigation of ambient concentrations of total petroleum hydrocarbons (TPH) and organotins in MI Strait outside of the IAK boundary;
- Investigation of sediment in the area of the Artship; and.
- Collection of additional bioassays within the sandblast material area (SBM area).

The work plan is responsive to GSU's comments. Approval is recommended, provided that HERO's comments (dated May 18, 2012) are adequately addressed.

- 2) **Sample elevations.** Sampling elevations for IR03, IR22, and the Artship are described (Tables 17-2 to 17-4) with respect to the elevation of the mudline (i.e., top of sediment surface) as determined during the February 2012 bathymetry study. However, it has not been demonstrated that the February 2012 mudline will be identical to the mudline at the time of sampling. Similarly, sampling elevations for the MI Strait and the SBM area are described in terms of feet below the ground surface (fbgs) and "surface", respectively—which are not fixed elevation data. It is recommended that all sampling locations be reported with respect to a fixed elevation datum (e.g., depth below mean lower low water or MLLW)—as well as fbgs or "surface."
- 3) A *DGPS Daily Log* is included and entries for DGPS readings are provided on the Vibracore sampling log and *Sediment Grab Sampling Log* (in Attachment 2). However, a description of the differential global positioning system (DGPS) that will be used is not provided. Please identify the DGPS that will be used, and specify the accuracy required for easting, northing, and elevation measurements, in *17.6.1 Sediment Sample Collection* of *SAP Worksheet #17—Sampling Design and Rationale*. Add a footnote to Tables 17-2 to 17-6 regarding the accuracy of the location measurements.
- 4) *Figure 17-4. Proposed Sampling Locations Supporting the Investigation of ambient concentrations of TPH and Organotins in the Mare Island Strait.* Please revise the Figure 17-4 to show location of dredging channels. In the data evaluation report, include dates of recent channel dredging, as well as disposal at SF-9 Disposal Site.

#### Appendix A. Sampling and Analysis Plan (SAP)

- 5) *SAP Worksheet #15—Reference Limits and Evaluation Tables*
  - a) Add a statement to Footnote c (on each table in SAP Worksheet #15) to clarify that when ecological screening benchmarks and sediment background concentrations are not available, the project quantitation limit goal (PQLG) is listed as the project action limit (PAL).
  - b) On each table in SAP Worksheet #15, change the column title *Sediment Background Concentration* to *Sediment Ambient Concentrations*, to be consistent with the Regional Water Quality Control Board reference cited in Footnote b. Revise references in the column *Project Action Limit Reference* and other worksheets of the SAP accordingly.

6) *SAP Worksheet #15.2*

- a) The PAL (9.8 micrograms per kilogram or  $\mu\text{g}/\text{kg}$ ) for 2,3,5-trimethylnaphthalene is less than the PQLG of 10  $\mu\text{g}/\text{kg}$ . Please revise the PQLG to be less than the PAL.
- b) The PALs for 2,4,5-trichlorophenol, 2-nitroaniline, and 3-nitroaniline are incorrectly stated as 800  $\mu\text{g}/\text{kg}$ . Revise the PALs to be equal to the PQLGs of 660  $\mu\text{g}/\text{kg}$ .

7) *SAP Worksheet #15.3*

- a) The PAL (0.50  $\mu\text{g}/\text{kg}$ ) for  $\alpha$ -chlordane is less than the PQLG of 1.0  $\mu\text{g}/\text{kg}$ . Similarly, the PALs are less than the PQLGs for dieldrin, endosulfan I and II, endrin, gamma-BHC (lindane), and hexachlorobenzene. Please revise the PQLGs to be less than the PALs.

8) *SAP Worksheet #15.4*

- a) Explain why the PQLG for each congener (5  $\mu\text{g}/\text{kg}$ ) is more than the Laboratory-Specific Quantitation Limit for each congener (1  $\mu\text{g}/\text{kg}$ ).
- b) Footnote d says that the value for Total PCBs will be calculated as two times the sum of the 18 PCB congeners. Add a statement clarifying how non-detected values will be treated in the calculation of Total PCBs.

9) *17.6.1. Sample Sediment Collection*

- a) In *Sample Processing*, identify the locations of the sediment processing area(s).

10) *17.6.2. Decontamination*

- a) With respect to investigation-derived waste (IDW) from decontamination and sample processing, identify the location of the waste storage area.

**Peer reviewer:** Gerard Aarons, PG 7430, CHG 771  
Engineering Geologist, Geological, Services Unit  
Geological Services Branch  
Brownfields and Environmental Restoration Program

If you have any questions or comments regarding this memorandum, please contact me at (510) 540-3760 or at [ehughes@dtsc.ca.gov](mailto:ehughes@dtsc.ca.gov) or Brian Lewis at (510) 540-3950 or [blewis@dtsc.ca.gov](mailto:blewis@dtsc.ca.gov).