

**RESPONSE TO ADDITIONAL REGULATORY AGENCY COMMENTS ON THE
FINAL INVESTIGATION AREA A2, FORMER NORTH BUILDING WAYS AREA
REMEDIAL INVESTIGATION REPORT, MARE ISLAND, VALLEJO, CALIFORNIA,
DATED AUGUST 8, 2002**

This document presents the U.S. Department of the Navy's (Navy) responses to additional comments from the regulatory agencies on the "Final Investigation Area [IA] A2, Former North Building Ways Area Remedial Investigation [RI], Mare Island, Vallejo, California," dated August 8, 2002 (Tetra Tech EM Inc. [Tetra Tech] 2002b). Additional comments were received from Chip Gribble, Department of Toxic Substances Control (DTSC); James Polisini, DTSC's Human & Ecological Risk Division (HERD); Beckye Stanton from the California Department of Fish and Game, Office of Spill Prevention and Response (DFG-OSPR); Carolyn d'Almeida from the U.S. Environmental Protection Agency (EPA); and Linda Rao from the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board). The Final RI Report consisted of a replacement document cover and title page for the Draft Final RI Report (Tetra Tech and Uribe & Associates 2002).

The comments addressed below were received from Mr. Gribble on January 30, 2008; Dr. Polisini on January 30, 2008; Dr. Stanton on January 30, 2008; Ms. d'Almeida on January 31, 2008; and Ms. Rao on February 4, 2008. The comments were also discussed at meetings between the Navy and regulatory agencies on February 5 and March 4, 2008. In addition, the Navy received additional comments from Mr. Gribble on April 8, 2008 and Ms. d'Almeida on April 14, 2008. The Navy contacted DTSC and EPA regarding their additional comments on April 10 and April 22, respectively. The additional comments and responses are provided below.

RESPONSES TO COMMENTS FROM DTSC, DATED JANUARY 30, 2008

1. **Comment:** Page ES-2, para. 3; and page ES-4, para. 3; and page 3-10, para. 2 and para. 3; and page 3-33, sections 3.5.6 and 3.5.8; and page 3-42, section 3.63; and page 4-5, para 2; and page A-1, para. 3, and page A-2, section 2.3: Please remove references to Navy proposed ambient levels for PAHs.

Response: The Revised Final RI Report will exclude all references to "Navy proposed ambient levels for polycyclic aromatic hydrocarbons (PAH)" and will include a discussion of benzo(a)pyrene (BaP) equivalents for PAHs. Per agency request, a revised BaP table has been included in these response to comments (see Attachment A), and will be included in the revised RI report. Based on the maximum detected concentrations at the site, the site-wide average BaP-equivalent concentration of 0.53 mg/kg is less than the screening level of 0.62 parts per million as noted in California Air Resources Board (CARB) and the Office of Environmental Health Hazard Assessment (OEHHA) (1994).

RESPONSES TO COMMENTS FROM DTSC, DATED JANUARY 30, 2008 (CONTINUED)

2. **Comment:** Page ES-4, para. 3 and 4; and page 1-4, para. 1; and page 2-1, last para.: Please revise/edit to refer to site-specific ERAs that are part of this RI and not the older Basewide ERAs.

Response: The Revised Final RI Report will include the entire Onshore Ecological Risk Assessment (ERA) Report (Tetra Tech 2002a) on compact disk in an appendix. The Onshore ERA Report includes a site-specific screening-level ecological risk assessment (SLERA) for IA A2 in Section 9.0 of the report (Tetra Tech 2002a). The Revised Final RI Report will also include a supplemental ecological evaluation that includes additional ecological receptors and toxicity reference values (TRV), as described in responses to DTSC HERD specific comments 13, 14, and 15. The supplemental ecological evaluation will be included as an appendix to the Revised Final RI Report, and the results will be incorporated throughout the upfront text of the document.

3. **Comment:** Page 1-1, para. 1: Please refer to the 7/15/2002 FFSRA, not the older 1992 FFSRA. Also delete the statement in lines 11 and 12 about "...the only CERCLA site within IA-A2."

Response: Page 1-1 of the Revised Final RI Report will reference the current Federal Facilities Site Remediation Agreement (FFSRA), which was finalized subsequent to the submittal of the Draft Final RI Report. The text will also be revised to specify that the Former North Building Ways Area is the only *currently designated* Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site within IA A2.

4. **Comment:** Page 1-1, last statement, and page 2-1, section 2.1, para 1, last sentence: Please modify to state the designated reuse per the COV Reuse Plan, and cite the Reuse Plan.

Response: Pages 1-1 and 2-1 of the Revised Final RI Report will cite the current City of Vallejo reuse plan for Mare Island (City of Vallejo 1994).

5. **Comment:** Page 1-2, section 1-1, para. 1, lines 7 through 9: For this RI, as should be the case for all RIs, the point of departure for risk management decisions should be a cancer risk above 1×10^{-6} and a HI above 1, not a range of 10^{-4} to 10^{-6} . Please revise accordingly.

Response: Page 1-2 of the Revised Final RI Report will state the following: "For this RI, the risk management range is defined as the range of cancer risks between 1×10^{-4} to 1×10^{-6} (EPA 1991)".

RESPONSES TO COMMENTS FROM DTSC, DATED JANUARY 30, 2008 (CONTINUED)

6. **Comment:** Page 2-1, section 2.1, para. 1, line 5: The area described appears to be within IA-K and not IA-A2 and as such should be deleted.

Response: Page 2-1 of the Revised Final RI Report will exclude the statement that offshore areas are included in IA A2. The text will also clarify that the border between IA A2 and the adjacent offshore site, IA K, is the mean high water line.

7. **Comment:** Page 2-3, section 2.3.1, para. 2: Please revise to state that the Navy and not SSPTS conducted a radiological survey. Also, please modify the last sentence to clarify that the mentioned finding was for radionuclide contamination only.

Response: Page 2-3 of the Revised Final RI Report will state the Navy conducted the radiological survey at Building 593 (Navy 1996) and both California Environmental Protection Agency and EPA submitted a finding of no further action for radionuclide contamination at Building 593.

8. **Comment:** Page 2-4, para. 1: Please modify the first sentence to delete the phrase "PCBs regulated by the Toxic Substances Control Act (TSCA)".

Response: The Navy does not concur with the suggestion to remove references to the Toxic Substances Control Act (TSCA) from the Revised Final RI Report. The Navy intends to close polychlorinated biphenyls (PCB) sites under TSCA, which is consistent with the approach for PCB closure at other Navy installations.

9. **Comment:** Page 2-4, para. 2, line 3: Please delete the modifier "TSCA".

Response: Please see response to DTSC comment 8.

10. **Comment:** Page 209, sections 2.3.3 and 2.3.4: See previous comments from DTSC regarding the need for a site-specific ERA for IA-A2.

Response: Please see response to DTSC comment 2.

11. **Comment:** Page 2-12, para. 1: Please review/update this statement as appropriate.

Response: Page 2-12 of the Revised Final RI Report will be updated to clarify the current boundaries of the Former North Building Ways Area and the current status of investigations upgradient of the site.

RESPONSES TO COMMENTS FROM DTSC, DATED JANUARY 30, 2008 (CONTINUED)

12. **Comment:** Page 3-44, para. 1, lines 9 and 10: Please delete this sentence regarding ARARs.

Response: Page 3-44 of the Revised Final RI Report will exclude the sentence pertaining to applicable or relevant and appropriate requirements (ARAR).

13. **Comment:** Page A-2, section 2.1; and page A-4, section 2.6: Comparison Criteria should use most recent values and reference tables (e.g. current PRG tables).

Response: The Revised Final RI Report will include a table of updated comparison criteria; however, the 1998 preliminary remediation goals (PRG) were current when the draft version of this RI report was prepared. As a result, the comparison criteria will not be evaluated in the Revised Final RI Report to avoid repeatedly re-evaluating the same data for each version of the RI report.

14. **Comment:** Page A-2, section 2.2: PCB screening values for HHRA should be current PRG values.

Response: The Navy does not concur with revising the human health risk assessment (HHRA) to include current PRGs for PCBs. The Navy only uses the TSCA screening level of 1.0 milligram per kilogram (mg/kg) for the nature and extent of contamination evaluation in RI reports. This criterion originates from the TSCA PCB spill rule included in 40 *Code of Federal Regulations*, Parts 750 and 761, and was identified as an ARAR by EPA (EPA 1990). The results of the evaluation are used to determine where additional cleanup of PCBs may be warranted under the Navy's separate PCB cleanup program. The HHRA quantitatively evaluates the effects of all PCB data using appropriate and current toxicity criteria for PCBs. PCB concentrations below 1.0 mg/kg were not screened from further consideration; samples with detected concentrations of PCBs below the comparison criteria were included in the HHRA. Therefore, the screening value for PCBs in the Revised Final RI Report will remain the TSCA value of 1.0 mg/kg.

RESPONSES TO ADDITIONAL COMMENTS FROM DTSC, DATED APRIL 8, 2008

1. **Comment:** The RI report should be revised to address all PCB related issues, including the added risks the PCB contamination contributes to the cumulative human health risk and ecological risk in order to determine if further evaluation or remediation is required. Without such inclusion, a remedial investigation report is considered incomplete.

Response: The Navy is planning to remove PCBs detected above the TSCA screening level at the Former North Building Ways Area under a separate contract under the Navy's PCB program. Since the Navy already has plans to remove the PCB-contaminated soil from the Former North Building Ways Area, the Navy does not intend to revise the risk assessments in the Revised Final RI Report since the revision would present risks that are not representative of the residual risk at the site. As iterated in the Navy's RTCs dated December 2006, the Navy will address final clean up of the PCB sites in a basewide PCB report rather than the RI. Therefore, the Navy will revise the Final RI Report to include the current status of the PCB program and the Navy's plans for PCB removal at the site. Please see response to DTSC HERD specific comment 20.

2. **Comment:** The IA-A2 RI report addresses only a subsection that has been called the Former North Building Ways (FNBW), and not all of IA-A2. Specifically, all figures in the RI report are for the FNBW only. The RI report should be revised to address all of IA-A2 and not only the portion that has been called the Former North Building Ways.

Response: The RI report addresses all of IA A2 as written. However, as described and shown in the July 15, 2002 FFSRA, the Former North Building Ways Area was identified as the only Group I or Group II/III site within IA A2 that required further investigation for chemical contamination. Thus, the IA A2 RI was conducted to investigate only the Former North Building Ways area of IA A2 since it was the only designated CERCLA site within IA A2. Because there are no other CERCLA sites within IA A2, there are no other areas of IA A2 requiring additional CERCLA response action. The decision to publish an IA A2 RI report rather than a Former North Building Ways RI Report was made in consultation with the DTSC, and at DTSC's request, as documented in BCT meeting minutes.

RESPONSES TO COMMENTS FROM DTSC HERD, DATED JANUARY 30, 2008

General Comment

1. **Comment:** Additional justification and ecological evaluation is required for the Draft Final Remedial Investigation to be considered complete.

Response: The Revised Final RI Report will include additional ecological receptors and updated ecological benchmarks as discussed below in the response to HERD specific comment 13.

Specific Comments

1. **Comment:** The results of the onshore Ecological Risk Assessment (ERA) (Section 2.2.2, page 2-9) and the offshore ERA (Section 2.3.4, page 2-9) appear to be accurately summarized as they pertain to IA A2. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.

Response: Comment noted.

2. **Comment:** The lateral extent of lead in sediment has not been determined at locations FNBWSD012 and FNBWSD016 (Section 3.3.4.2, page 3-16). This is a data gap for sediment characterization. The lateral extent of the elevated sediment lead at these locations should be determined.

Response: As requested by DTSC, additional step-out sampling was conducted at the Former North Building Ways Area in September 2003 to supplement the data presented in the RI Report. During a meeting held on January 31, 2003, the Navy and regulatory agencies agreed that step-out samples for metals would only be collected around two locations: FNBWGB001 and FNBWGB009 (Sullivan Consulting Group, Inc. [Sullivan] and Tetra Tech 2003). The concentration of lead detected at FNBWSD016 (277 mg/kg [estimated]) is only slightly above comparison criterion (242 mg/kg), and the lead detected at FNBWSD012 is not likely to be an ecological or human health concern based on the depth at which it was detected (5 feet below ground surface [bgs]). As a result, the Navy does not agree a data gap exists for sediment characterization.

3. **Comment:** Groundwater analytical data for organics were compared to ecological criteria. Groundwater grab samples collected at IA A2 were not analyzed for inorganic elements, therefore, no comparison was made to aquatic ecological criteria (Section 3.3.5, page 3-17). While the lack of groundwater data for inorganic elements is a data

RESPONSES TO COMMENTS FROM DTSC HERD, DATED JANUARY 30, 2008 (CONTINUED)

gap, the IA A2 average soil concentration exceeded the Mare Island 'ambient' 95th percentile concentration only for lead. The IA A2 average soil lead concentrations was 82 mg/kg where the Mare Island soil 'ambient' concentration is 59 mg/kg (Section 3.4.4.7, page 3-25). Groundwater concentrations of inorganic elements would not be expected to be elevated due to infiltration from soil which only exceeds 'ambient' concentrations for one inorganic element. HERD does not consider the lack of groundwater data for inorganic elements a fatal data gap in this instance.

Response: Comment noted.

4. **Comment:** Discussions of fate and transport of groundwater contaminants is limited to those COPCs which exceed evaluation criteria at two locations because these COPCs would pose a greater threat due to lateral extent and volume (Section 3.4.1, page 3-18). These are TPH-dr, TPH-mr, benzo(a)pyrene, and lead (Section 3.4.3, page 3-20).

Response: Comment noted.

5. **Comment:** Sheet flow would not appear to be a significant transport mechanism given the slight grade and the presence of a soil berm at the boundary of the intertidal [sic] (Section 3.4.4.2, page 3-22). However, during a site walk on January 16, 2008, surface waters were observed discharging across the mudflat to Mare Island Strait. Please provide more detailed justification for eliminating this transport pathway and exposure route given the observation of surface water discharges.

Response: Section 3.4.4.2 of the Revised Final RI Report will include sheet flow as a potential transport pathway; additionally, sheet flow will be added to Figure 3-12 of the Revised Final RI Report. The Navy believes that the current sampling pattern adequately characterizes the potential contaminants that sheet flow may have carried into the wetlands, mudflat, and offshore areas.

6. **Comment:** What are termed 'relatively low concentrations' of organics in groundwater grab samples are used as the basis for stating that groundwater to surface water pathway is minor (Section 3.4.4.3, page 3-22). Please provide a comparison to no-effect or effect-level water concentrations to further justify this conclusion.

RESPONSES TO COMMENTS FROM DTSC HERD, DATED JANUARY 30, 2008 (CONTINUED)

- Response:** Section 3.4.4.3 of the Revised Final RI Report will include a comparison of appropriate chronic and acute ambient water quality criteria with concentrations of organics detected in groundwater grab samples.
7. **Comment:** The average soil concentration of Total Petroleum Hydrocarbon-motor oil range (TPH-mr) is 900 mg/kg and Total Petroleum Hydrocarbon-diesel range (TPH-dr) is 420 mg/kg (Section 3.4.4.5, page 3-23). An estimated transport time for groundwater to reach Mare Island Strait is provided as 60 years based on standard groundwater flow modeling. This estimate of transport time is the same order of magnitude estimated at other MINSY sites along Mare Island Strait. HERD defers to the San Francisco Regional Water Quality Control Board (SFRWQCB) for evaluation of the ecological significance of the detected TPH-mr and TPH-dr concentrations.
- Response:** Comment noted.
8. **Comment:** Lead in soil averaged 82 mg/kg, which is greater than the 95th percentile 'ambient' soil concentration of 59 mg/kg (Section 3.4.4.7, page 3-25). Lacking groundwater concentrations for lead, the argument is made that lead in groundwater at IA A2 would not be significantly elevated given that groundwater concentrations at monitoring wells ds [sic] not elevated at locations where the soil concentration of lead exceeds that at IA A2. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.
- Response:** Comment noted.
9. **Comment:** HERD participated, with the U.S.EPA Region 9 staff, in the informal ecological risk assessment discussions alluded to in the document (Section 3.6.1, page 3-34). This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.
- Response:** Comment noted.
10. **Comment:** An argument is provided for the fur of mammals and feathers for birds acting as a barrier for ranking dermal exposure low (Section 3.6.6.1, page 3-35). HERD does not accept this argument as provided. While HERD would agree that this semi-quantitative comparison given the habitat, soil type and receptors included in the Conceptual Site Model (CSM), an alternate view of the importance of feathers or

RESPONSES TO COMMENTS FROM DTSC HERD, DATED JANUARY 30, 2008 (CONTINUED)

hair to dermal exposure (National Research Council, 2003, page 178) is:

“Hair follicles and sweat glands, although offering means for chemicals to circumvent the stratum corneum barrier, have usually been regarded as minor pathways for dermal absorption because they comprise a very small percentage of the surface area of the skin. However, experiments using rat skin where hair follicles and sweat gland pathways have been eliminated suggest that, at least in some circumstances, their contribution to dermal absorption may be substantial (Zatz, 1993).”

This information is provided to clarify HERD’s position that the presence of hair or feathers is not an absolute barrier to dermal exposure and that exclusion of dermal exposure in estimating intake should be a site-by-site determination. The text should be amended to state the argument that because of the various physical impediments (e.g., dermal adherence and solubility limits to absorption into the blood supply) dermal absorption is a minor exposure pathway compared to the ingestion pathway for the receptors and COPECs being evaluated at IA A2.

Response: Section 3.6.6.1 of the Revised Final RI Report will state that dermal absorption is a minor exposure pathway compared to the ingestion pathway because there are various physical impediments (such as solubility limits to absorption into the blood supply and dermal adherence) that may reduce the potential for dermal absorption for the receptors and contaminants of potential ecological concern (COPEC) evaluated for the Former North Building Ways Area.

11. Comment: Soil samples were taken at 78 locations. The soil concentrations of beryllium, chromium, copper, lead, mercury, nickel, vanadium and zinc exceeded Mare Island 95th percentile ‘ambient’ concentration in individual samples (Section 3.6.1.2, page 3-35). However, the average soil concentration for all inorganic elements, except lead, did not exceed the Mare Island soil 95th percentile ‘ambient’ concentrations. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.

Response: Comment noted.

12. Comment: Sediment samples were taken from 28 locations, at 1-1.5 feet below the sediment surface, and compared to the National Oceanic and Atmospheric Administration (NOAA) Effects Range-Low (ER-L) (Section 3.6.1.2, page 3-36). Sediment Contaminants of Potential

RESPONSES TO COMMENTS FROM DTSC HERD, DATED JANUARY 30, 2008 (CONTINUED)

Ecological Concern (COPECs) exceeding the ER-L in individual samples were antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc. Additional COPECs, which lacked ER-Ls were carried forward in the assessment. This risk assessment methodology is protective. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.

Response: Comment noted.

13. **Comment:** Salt marsh harvest mouse (SMHM), the gray fox, and the Northern Harrier were assessed by food web modeling of dose (Section 3.6.1.2, page 3-36). HERD recommends that the suite of representative species be expanded to include the additional vertebrate receptors recently evaluated in the IA H1 ERA. For the upland habitat at IA H1 the species evaluated were: 1) Western Meadowlark; 2) California vole; 3) ornate shrew; 4) gray fox; and, 5) Northern Harrier.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes evaluations of risk to the following three additional upland receptors (1) Western meadowlark, (2) California vole, and (3) ornate shrew. The supplemental ecological evaluation will be included as an appendix to the Revised Final RI Report, and the results will be incorporated throughout the upfront RI text.

14. **Comment:** The waterfowl, shorebirds and Great Blue Heron vertebrate species selected for the non-tidal wetland habitat at IA H1 also utilize the tidal wetland habitats of IA A2 (Section 8.2 of Appendix F). The full list of vertebrate species utilized for the IA H1 tidal wetland habitat is: 1) SMHM; 2) Killdeer; 3) breeding and non-breeding Mallard; 4) Great Blue Heron; 5) gray fox; and 6) Northern Harrier. California Clapper Rail and Black Rail have been observed at Mare Island. These species should be considered as additional vertebrate receptors as well, unless recent surveys suggest they are not present at IA A2.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes evaluations of risk to the following seven additional wetland receptors: (1) killdeer, (2) mallard [non-breeding and breeding], (3) great blue heron, (4) black rail, (5) California clapper rail, (6) gray fox, and (7) northern harrier. The supplemental ecological evaluation will be included as an appendix to the Revised Final RI Report, and the results will be incorporated throughout the upfront RI text.

RESPONSES TO COMMENTS FROM DTSC HERD, DATED JANUARY 30, 2008 (CONTINUED)

15. **Comment:** Only those COPECs with Biological Technical Assistance Group (BTAG) Toxicity Reference Values (TRVs) were evaluated quantitatively in food web transfers (Section 3.6.1.2, page 3-36). Other COPECs were evaluated 'qualitatively'. Alternate sources of TRVs (e.g. the IA H1 ERA and more recent publications) should be utilized as a source of TRVs to include the COPECs qualitatively evaluated into the quantitative evaluation.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes additional TRVs. If Biological Technical Assistance Group TRVs are unavailable, EPA ecological soil screening levels (Eco-SSL) TRVs, and no observed adverse effect level and lowest observed adverse effect levels from Sample and others (1996) will be used as TRVs. As a result, a number of additional COPECs will be evaluated quantitatively. The supplemental ecological evaluation will be included as an appendix to the Revised Final RI Report, and the results will be incorporated throughout the text.

16. **Comment:** No Hazard Quotients (HQs), based on the TRV-high, exceeded one for the SMHM. Arsenic, cadmium, copper, lead, manganese, zinc have $HQ > 1$ for TRV-low indicating potential hazard to SMHM (Section 3.6.1.2, page 3-37). However, ambient concentrations of arsenic and lead exceed HQs of 1.0 for TRV-low. On the whole, this analysis would indicate no immediate significant ecological hazard for the SMHM exposed to IA A2 sediments. This conclusion should be revised as necessitated by the inclusion of additional COPECs based on the IA H1 TRVs in the quantitative assessment.

Response: The conclusions presented in the Revised Final RI Report will incorporate the results of the evaluation of additional TRVs. Please see response to DTSC HERD specific comment 15.

17. **Comment:** There would appear to be no immediate threat to the gray fox based on HQs less than one for the TRV-high (Section 3.6.1.2, page 3-37). This conclusion should be revised as necessitated by the inclusion of additional COPECs based on the IA H1 TRVs in the quantitative assessment. The discussion contained in the text makes reference to sections of the onshore ERA without reference to a table of HQs for each species evaluated. A summary table, presenting the HQ based on the TRV-low and TRV-high, for each vertebrate species evaluated should be prepared and included in this RI report.

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- Response:** The Revised Final RI Report will include a summary table of hazard quotients based on the TRV-low and TRV-high. The conclusions presented in the Revised Final RI Report will incorporate the results of the evaluation of additional TRVs. Please see response to DTSC HERD specific comment 15.
18. **Comment:** A number of sediment COPECs exceeded ER-L, but only zinc exceeded ER-M in sediments (Section 3.6.2.1, page 3-40). However, the lack of concurrence between elevated sediment concentrations and adverse effects in sediment bioassays would indicate that COPECs which are elevated do not pose an adverse effects for the toxic effects observed in benthic bioassays. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.
- Response:** Comment noted.
19. **Comment:** HERD would agree, as stated, that it may be difficult to link body burdens of fish collected offshore of IA A2 to COPECs released from MINSY operations (Section 3.6.2.1, page 3-40). However, as storm water outfalls have been, and are continuing to be sampled and in-place contaminated sediment is the more likely reservoir for bioaccumulative COPECs than is groundwater this problem would appear to be better addressed as a global ecological issue rather than IA A2 issue. The fish, shellfish and soft-bodied invertebrate tissue analysis planned as part of the IA K sampling should help address any potential global bioaccumulation issue in Mare Island Strait. HERD recommends that evaluation of the Mare Island Strait bioaccumulations hazard not be included in the IA A2 ERA but rather be reserved for consideration once the results of the IA K sampling are submitted. This should address the statement that the conclusion of the lack of risk of fishes is still being discussed with regulators (Section 3.6.2.1, page 3-41).
- Response:** The Navy agrees that the evaluation of bioaccumulation hazard from Mare Island Strait should be included in the baseline ecological risk assessment for IA K, rather than the SLERA for the Former North Building Ways Area. The Revised Final RI Report will clarify that the offshore area adjacent to IA A2 is within IA K and will be addressed in the RI for IA K.
20. **Comment:** PCB releases from IA A2 were raised as an issue by regulatory agencies and resource trustees (Section 3.6.3, page 3-43). Building 643 PCB contaminated soil was removed and concrete encapsulated in 1999. Only two sediment samples exceeded the ER-L or ER-M in IA A2 in two different locations at two different depths. Offshore

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sediment sampling at piers showed no PCBs above evaluation criteria. Cleanup of Building 643 showed no PCBs in the cableway leading from the vault. However, the PCB investigation is not yet completed for IA A2. The possibility that PCBs are present in the Building 643 vaults is being investigated as part of additional sampling that will be evaluated for ecological concerns. The Navy plans to investigate the vaults and determine whether PCBs have migrated through the vault and provide recommendations. The Building 643 PCB situation will be addressed in the next revision of the base-wide PCB report (Section 4.1, page 4-3). Additional PCB activities involve on-going investigation and abatement activities in the Fleet Reserve Area (Section 4.1, page 4-3). The ERA for IA A2 may need to be revised pending the results of the PCB investigation.

Response: The Revised Final RI Report will include an updated status of the PCB program investigation for the Former North Building Ways Area; the PCB program is managed separately from CERCLA. As discussed during the March 4, 2008 meeting between the Navy and regulatory agencies, soil data collected in 2006 near Building 643 had two detections of PCBs exceeding the TSCA screening level of 1 mg/kg (1.8 and 2.1 mg/kg). The Navy is planning to remove PCBs detected above the TSCA screening level at the Former North Building Ways Area under a newly awarded contract under the PCB program; PCB sampling and abatement activities are planned for September 2008 through January 2009. Because the soil ultimately will be removed, the Navy feels the supplemental ecological evaluation in the Revised Final RI Report would not be representative of the residual risk at the Former North Building Ways Area. Thus, the Navy will continue to use the soil data set previously provided in the Final RI Report as the data set for the supplemental ecological evaluation in the Revised Final RI Report.

21. **Comment:** Lead was the only inorganic element detected above the ecological evaluation criteria in both soil and sediment (Section 4.1, page 4-3) in more than one sample. Four of 36 sediment samples exceeded comparison criteria and the elevated area was delineated. However the location of elevated lead concentrations in sediment is described as not appearing coincident with a point release. Other potential sources for elevated sediment lead should be investigated (e.g. Munitions and Explosives of Concern [MEC]).

Response: The Navy does not concur that potential sources of lead in sediment at the Former North Building Ways Area require further investigation. Only 4 of the 36 sediment samples contained concentrations of lead that exceeded the comparison criteria, the elevated concentrations of lead in sediment were distributed sporadically, and all but 1 of the 4 results exceeding criteria were from samples collected near the surface (1 foot

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bgs). As stated in the RI Report, the Navy believes that the distribution of lead in sediment is not associated with an identifiable point source. The Preliminary Assessment (PA) Report for ordnance sites (PRC Environmental Management, Inc. 1995) did not identify the Former North Building Ways Area as a Munitions Response Program site. Furthermore, the existing investigations for this site do not indicate that munitions and explosives of concern are a potential source of lead at the Former North Building Ways Area. The Former North Building Ways Area was used primarily for shipbuilding; as a result, it is likely that the elevated lead is related to historical uses that may have resulted in small metal debris being discarded at the site.

22. **Comment:** **The potential ecological hazard for the offshore habitats identified in Mare Island Strait will be addressed on a habitat-basis in the IA K sampling planned for Spring of 2008. Sampling the North Building Ways Area sediments is not planned in the Draft IA K Workplan. HERD recommends that several deep cores be collected in the IA A2 offshore sediment to characterize the sediments which would have been deposited during Navy shipbuilding activities during and immediately after World War II.**

Response: Sediment sampling within IA K will be addressed as part of the RI for IA K. However, sampling of the Former North Building Ways Area sediment is not planned as part of the offshore sediment investigation for IA K because it was determined these cells do not pose an unacceptable risk to ecological receptors and do not require additional investigation in the baseline ERA. This conclusion was presented in the Data Gaps Technical Memorandum (Sullivan and Tetra Tech 2004), and agreed to by the meeting participants at a March 4, 2004 meeting with the regulatory agencies (DTSC, DTSC HERD, DFG-OSPR, EPA, Water Board) (Tetra Tech 2004). In addition, DTSC HERD's specific comment 1 on the draft DQO document states that "The offshore sediment cells which do not require additional ecological investigation are correctly identified as North Building Ways cells 11 through 16..." This agreement has been carried through the development of the data quality objectives (DQO) for IA K, which involved a series of technical workgroup meetings with the regulatory agencies and a DQO document (SulTech 2006) prior to development of the work plan for IA K.

There are no outfalls located within Former North Building Ways cells 11 through 16. According to the conceptual site model (CSM) for IA K (SulTech 2005), the general stormwater flow direction from the Former North Building Ways Area is through subcatchments 3 and 4 and into outfalls 3 and 4, which are located in the area of the Fleet Reserves Pier (see Figure 10 of the CSM [SulTech 2005]). Step-out sampling of the sediment surrounding outfall 4 at the Fleet Reserves Pier, which is

RESPONSES TO COMMENTS FROM DTSC HERD, DATED JANUARY 30, 2008 (CONTINUED)

adjacent to IA A2, was conducted in January 2007 as part of a pilot study for the offshore sediment investigation at IA K (Tetra Tech 2007a). A total of 10 sediment cores was collected from offshore cells 2 and 10, and a total of 26 samples was analyzed for metals, semivolatile organic compounds, pesticides, PCBs, and organotins. Based on the evaluation of the sedimentation rates in this area, samples from these cores should be representative of sediment deposited immediately after World War II.

DTSC HERD CONCLUSIONS

While sheet flow may not be a significant transport pathway into Mare Island Strait surface waters were observed transiting the IA A2 mudflat into Mare Island Strait. This transport pathway should be further investigated.

The vertebrate receptor species evaluated as part of the IA H1 upland and non-tidal wetland ERA should also be evaluated for IA A2 upland and tidal wetland areas. The presence of the California Clapper Rail and Black Rail should be investigated to determine whether they should also be added to the evaluation.

The IA A2 ERA is incomplete pending conclusion of the PCB investigations and should be revised as necessary to include updated PCB-related ecological hazard.

Several deep cores should be collected in the IA A2 shoreline area as part of the IA K sample collection planned for the Spring of 2008.

Response: Section 3.4.4.2 of the Revised Final RI Report will include sheet flow as a potential transport pathway; however, the Navy does not anticipate that this revision will significantly alter the fate and transport model for the IA A2 RI.

Additional ecological receptors will be added in a supplemental ecological evaluation appendix, as described in responses to DTSC HERD specific comments 13 and 14.

The Revised Final RI Report will include an updated status of the PCB investigation for the Former North Building Ways Area, as indicated in response to DTSC HERD specific comment 20. However, the Navy will continue to manage PCBs under a separate program for PCBs. Please see the response to DTSC HERD specific comment 20.

Sediment sampling within IA K will be addressed as part of the RI for IA K. Please see response to specific comment 22.

General Comments

1. **Comment:** Currently, Section 3.6 provides summaries of the Draft Onshore and Offshore ecological risk assessment (ERAs), but the specific text, tables, and figures for the full ERAs are not provided. The Onshore and Offshore ERAs were not finalized or approved by the regulatory agencies or the resource Trustees as stand-alone documents, but could be used as an initial source to provide site-specific ERA that could then be updated, reviewed, and/or revised as necessary. Please include a complete, site-specific ERA for IA A2 in this document.

Response: The Revised Final RI Report will include the entire onshore ERA report (Tetra Tech 2002a), in which a site-specific SLERA for IA A2 is included in Section 9.0 (Tetra Tech 2002a). In addition, the Revised Final RI Report will include a supplemental ecological evaluation that includes additional ecological receptors and TRVs, as described in responses to DTSC HERD specific comments 13, 14, and 15.

2. **Comment:** We recommend the ERA for the upland and tidal wetland habitats be revised to be consistent with the ERA for IA H1 including ecological receptors and their exposure factors and updated toxicity reference values and benchmarks. If available, more recent information since the IA H1 RI should also be considered. For example, the Onshore ERA evaluated salt marsh harvest mouse (SMHM) for the tidal wetland and the gray fox and the Northern Harrier for the upland area. The ERA for IA H1 included a more comprehensive evaluation of foraging guilds with Western Meadowlark, California vole, ornate shrew, gray fox, and Northern Harrier for the upland habitats, and SMHM, Killdeer, breeding and non-breeding Mallard, Great Blue Heron, gray fox, and Northern Harrier for the non-tidal wetland. Section 8.2 of Appendix F confirms that waterfowl, shorebirds, and the Great Blue Heron utilize the tidal wetland habitats of IA A2 as well. Furthermore, since both California Clapper Rail and Black Rail have been observed at Mare Island (Table F-2), these species should be considered as additional receptors as well, unless recent surveys suggest they are not present at IA A2.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes additional ecological receptors and TRVs, as described in responses to DTSC HERD specific comments 13, 14, and 15.

RESPONSES TO COMMENTS FROM DFG-OSPR, DATED JANUARY 30, 2008 (CONTINUED)

3. **Comment:** **Habitat and wildlife reconnaissance surveys were previously done in May 1998. Please verify or redo surveys to ensure current condition and wildlife usage are described and addressed in this report.**

Response: No significant changes to the habitat at the Former North Building Ways Area have occurred since 1998 (such as no major removal actions, revegetation efforts, and so forth); therefore, the Navy believes that the existing ecological surveys are adequate to characterize the ecological condition of the site. No change to the Revised Final RI Report is proposed.

4. **Comment:** **Although the future reuse is described as light industrial, no additional development has apparently occurred at the site since 2002 and no implementation of future development plans, potentially for a higher education campus, is scheduled to my knowledge. Please update and revise the text to address the extended period of limited human use, the current condition, and the status of future reuse plans.**

Response: The Revised Final RI Report will continue to evaluate the current site conditions since no significant changes to the habitat at the Former North Building Ways Area have occurred since 1998. The Navy prepared the RI report in accordance with the current Mare Island Final Reuse Plan (City of Vallejo 1994), which specified light industrial use for the upland portion of the site and open space for the wetland portion of the site. In addition, the RI Report presented human health risk results for an unrestricted use scenario (future hypothetical resident). Please see response to EPA comment 2 on the human health risk assessment.

Specific Comments

1. **Comment:** **Page 3-17, Section 3.3.5 and Page 3-22, Section 3.4.4.3. The grab groundwater samples collected in the tidal wetland were not analyzed for inorganics. The absence of inorganic concentration data for groundwater in the tidal wetland appears to be a data gap. Please address how potential impacts from inorganics, particularly the dissolved fractions, in groundwater discharged into Mare Island Strait will be addressed in the absence of groundwater data.**

Response: The grab groundwater sample collected in the tidal wetland was not analyzed for inorganic chemicals because the results of sediment sampling in the tidal area did not indicate a potential source for inorganic groundwater contamination. Lead and nickel were the only inorganic chemicals that exceeded the residential soil PRGs and background

RESPONSES TO COMMENTS FROM DFG-OSPR, DATED JANUARY 30, 2008 (CONTINUED)

concentrations in sediment, and all but one of the results exceeding PRGs were detected in samples collected near the sediment surface (1 foot bgs). Lead was only detected above comparison criteria in 4 of the 36 sediment samples, and nickel was only detected above comparison criteria in 1 of the 36 sediment samples. Furthermore, the distribution of metals in sediment does not suggest these metals originated from point sources. As a result, groundwater concentrations are not expected to be elevated due to infiltration from sediment. The Navy does not believe the absence of inorganic data for groundwater is a significant data gap.

2. **Comment:** Pages 3-34 to 3-35, Section 3.6.1.1. A conclusion of insignificant surface water pathway was justified based on a lack of erosion features and limited surface water connection from the uplands to tidal wetlands out into Mare Island Strait. During the brief January 2008 site visit, a small area of ponded water was apparent in the tidal wetland directly adjacent to the upland area. In addition, an area of channelized surface water flow under and adjacent to the concrete structure out to the mudflat was readily apparent even though precipitations was minimal over the previous five days (www.weather.com).

Response: The Revised Final RI Report will list sheet flow as a potential transport pathway. Please also see response to DTSC HERD specific comment 5.

3. **Comment:** Pages 3-35 to 3-39, Section 3.6.1.2.
- a. The use of a ten percent frequency of exceedance threshold when comparing to ambient fill values or the Effects Range-Low (ER-L) for sediment should be removed. Please identify all metals for which site concentrations exceed their corresponding ambient fill value or ER-L.
 - b. The text states, "First, a high fraction of these metals is not likely to be bioavailable... Further more the bioavailability of copper and lead in tissue is likely limited." Please incorporate updated information from the literature on bioavailability or semi-quantitative evaluations rather than qualitative statements regarding relative bioavailability. Site-specific measures of metal speciation, bioavailability, and/or bioaccessibility would also be useful in quantitatively refining the risk assessment.
 - c. Please include a "risk refinement step" that incorporates site use factors into the ERA risk calculations rather than a qualitative discussion in the risk summary.

RESPONSES TO COMMENTS FROM DFG-OSPR, DATED JANUARY 30, 2008 (CONTINUED)

- d. The text states that because pickleweed forms only a small part of the wetlands at IA A2, exposure to the SMHM would be limited by its habitat preference for pickleweed. SMHM utilize pickleweed predominately, but not exclusively, and use areas dominated by other marsh vegetation particularly during high tides (Bias, Morrison, 2006; <http://eco.confex.com/eco/2007/techprogram/P7220.HTM>). An updated vegetation map would also be useful in identifying current distribution of marsh vegetation, including pickleweed.

- Response:**
- a. As requested, Section 3.6.1.2 of the Revised Final RI Report will identify all metals exceeding ambient or effects range-low concentrations.
- b. Section 3.6.1.2 of the Revised Final RI Report will incorporate updated bioavailability information from EPA's Eco-SSL documents. However, the Navy does not plan to collect additional site-specific data (measures of metal speciation, bioavailability, or bioaccessibility) for the SLERA for the Former North Building Ways Area.
- c. Section 3.6.1.2 of the Revised Final RI Report will be revised to include the results of the supplemental ecological evaluation using realistic site use factors.
- d. Section 3.6.1.2 of the Revised Final RI Report will state that the SMHM utilizes pickleweed predominately, but not exclusively; the SMHM also uses areas dominated by other marsh vegetation, particularly during high tides (Bias and Morrison 2006). Pickleweed forms only a small part of the wetlands at the Former North Building Ways Area. Exposure to the SMHM would be limited by its habitat preference for pickleweed, except during periods of high tide. The Navy does not concur that it is necessary to collect vegetation data in order to create an updated vegetation map. There have been no significant changes to the habitat at the Former North Building Ways Area since 1998 (such as no major removal actions, revegetation efforts, and so forth); therefore, the Navy believes that the existing surveys are adequate to characterize the ecological condition of the site. No change to the Revised Final RI Report is proposed.

4. **Comment:** Page 3-39, Section 3.6.1.3. Although the future reuse is described as light industrial, no additional development has apparently occurred at the site since 2002 and no implementation of future development plans, potentially for a higher education campus, is scheduled to my knowledge. Therefore, the statement that "ecological risks appear

RESPONSES TO COMMENTS FROM DFG-OSPR, DATED JANUARY 30, 2008 (CONTINUED)

low, and exposure pathways in the upland habitat area will likely remain muted by the continued use of the site for light industry” should be removed. Although the upland habitat is disturbed, potentially by the presence of residual pavement, ongoing human activities at the site are limited and wildlife usage was apparent during the brief January 2008 site visit.

Response: The referenced statement, “exposure pathways in the upland habitat area will likely remain muted by the continued use of the site for light industry” will be deleted from the Revised Final RI Report.

5. **Comment:** Page 3-44, Section 3.7. The text states that applicable or relevant and appropriate requirements (ARARs) are not required for ecological receptors based on the conclusion for no action required based on the Onshore ERA. Please refer to comments above regarding recommended revisions to the ERA that might alter this conclusion. In addition, actions proposed for the protection of human health or groundwater could potentially affect ecological receptors. Therefore, and further action on-site should trigger the need for ARARs to protect biota, even if the action itself is not driven by ecological impacts from contamination. For these reasons, ARARs should be requested by DFG-OSPR before or as part of a feasibility study.

Response: The Navy currently requests State ARARs be submitted for use in the feasibility study process.

DFG-OSPR CONCLUSION

We appreciate the opportunity to comment on the Draft Final RI and look forward to a revised version that provides a complete and updated ERA consistent with the agreed upon inputs to the IA H1 ERA.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes additional ecological receptors and TRVs, as described in responses to DTSC HERD specific comments 13, 14, and 15.

RESPONSES TO COMMENTS FROM EPA, DATED JANUARY 31, 2008

Comments on the Human Health Risk Assessment

- 1. Comment:** It is unclear whether the vapor intrusion pathway has been adequately characterized or discussed to comply with the new requirements of California Assembly Bill 422 which mandate *“that the exposure assessment of any health or ecological risk assessment prepared in conjunction with a response action taken or approved pursuant to the California Superfund Act include the development of reasonable maximum estimates of exposure to volatile organic compounds that may enter structures that are on the site or that are proposed to be constructed on the site and may cause exposure due to accumulation of those volatile organic compounds in the indoor air of those structures.”* AB 422 (attached) went into affect on January 1, 2008.

Response: The Navy has met the requirements of Assembly Bill 422 such that a vapor intrusion evaluation was conducted for the Former North Building Ways Area and is presented in Appendix J of the RI Report (Tetra Tech 2002b). The HHRA evaluated the effects of reasonable maximum exposure (RME) to volatile chemicals that could potentially migrate from soil and groundwater into indoor air. The evaluation was conducted for both a future commercial/industrial worker receptor and a future hypothetical residential receptor (adult and child) under the RME scenario (Tetra Tech 2002b).

The cancer risk results for the soil vapor intrusion evaluation could not be calculated for either the future commercial/industrial worker or the future hypothetical resident because no carcinogenic volatile chemicals were detected in soil. The corresponding noncancer hazard results for the soil vapor intrusion evaluation was less than 1.0 for the future commercial/industrial worker. The noncancer hazard results for the future hypothetical resident were essentially equal to or slightly greater than the noncancer threshold of 1.0 (1.2 for the unchanged [0 to 3 feet bgs] site configuration and 1.5 for the modified [0 to 10 feet bgs] site configuration). However, there were no individual or segregated HI values greater than 1.0 for the future hypothetical resident.

The cancer risk results of the groundwater vapor intrusion evaluation for both the future commercial/industrial worker and future hypothetical resident were below the risk management range of 1E-06 to 1E-04 for both the unchanged and modified site configurations. The corresponding noncancer hazards for the groundwater vapor intrusion evaluation were less than the noncancer hazard threshold of 1.0 for both the future commercial/industrial worker and future hypothetical resident.

RESPONSES TO COMMENTS FROM EPA, DATED JANUARY 31, 2008 (CONTINUED)

In addition, the EPA identified an additional vapor intrusion concern regarding the migration of vapors through preferential pathways such as utility corridors during a March 4, 2008, meeting between the Navy and regulatory agencies. In response to the vapor migration concern, the Navy has provided a figure as part of these responses to comments to show the utilities located within and surrounding the Former North Building Ways Area (see attached Figure 1). Based on the location of utilities extending from adjacent Installation Restoration Site 17 (IR17), the Navy does not consider potential vapor intrusion migration pathways along utility corridors between IR17 and the Former North Building Ways Area to be complete.

2. **Comment:** The HHRA makes statements that future residential or sensitive uses of the property are unlikely, however the most recent early transfer negotiations have indicated that the property may be redeveloped as residential, classrooms, dormitories and a hospital. The HHRA needs to take these potential exposure scenarios into account. Statements that residential or sensitive future land use are not likely should be removed from the risk assessment.

Response: The Revised Final RI Report will exclude statements that residential or sensitive uses of the property are unlikely based on reuse development plans. The HHRA is based on the current reuse plan for Mare Island (City of Vallejo 1994), which specifies that Former North Building Ways Area will be used for light industry and wetlands/open space. Nonetheless, a hypothetical future resident was evaluated in the RI Report to provide a risk estimate for an unrestricted reuse scenario. Risk results for the hypothetical future resident were determined for both an unchanged (0 to 3 feet bgs) and modified (0 to 10 feet bgs) site configuration. Cancer risk results for the unchanged site configuration evaluation was 1E-05 for the adult and child resident, which is within the risk management range of 1E-06 to 1E-04. The corresponding noncancer hazard was 1, which is equal to the noncarcinogenic threshold of 1.0. Cancer risk results for the modified site configuration evaluation was 1E-05 for the adult and child resident, which is within the risk management range. The corresponding noncancer hazard was 2, which is slightly greater than the noncancer threshold of 1.0. However, no individual HI or segregated HI values were greater than 1.0 for the unchanged or modified site configuration scenarios.

RESPONSES TO COMMENTS FROM EPA, DATED JANUARY 31, 2008 (CONTINUED)

Comments on the Ecological Risk Assessment

General Comment

1. **Comment:** The 2002 draft final Remedial Investigation for Area A2 North Building Ways is no longer adequate to describe the ecological risk at the Area. The investigation of Area H1 has provided a more comprehensive description of the risk present in this type of area and must now become the template for Area A2.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes additional ecological receptors and TRVs, as described in responses to DTSC HERD specific comments 13, 14, and 15.

Specific Comments

1. **Comment:** The ERAs for the upland and wetland habitats must be revised to include a broader selection of ecological receptors and their exposure factors. The current draft includes risk calculated only for the salt marsh harvest mouse for the tidal wetland and the gray fox and Northern Harrier for the upland area. This should be expanded to include trophic levels represented by the Western meadowlark, California vole, and ornate shrew for the upland area and the killdeer, breeding and non-breeding mallard, and great blue heron for the tidal wetland. If recent surveys confirm that the California clapper rail and black rail are still present, they should be included as well for the tidal wetlands.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes additional ecological receptors. Additional ecological surveys are not planned as part of the SLERA. Please see responses to DTSC HERD specific comments 13 and 14.

2. **Comment:** Updated toxicity reference values (TRVs) and benchmarks should be used.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes updated TRVs. Please see responses to DTSC HERD specific comments 15 and 16.

RESPONSES TO COMMENTS FROM EPA, DATED JANUARY 31, 2008 (CONTINUED)

3. **Comment:** The issue of a connection between surface water on the Area A2 and the Strait needs to be reviewed. Based on a recent site visit by the State, it appears there is a direct connection which should be assessed for eco risk in the new draft.

Response: The Revised Final RI Report will list sheet flow as a potential transport pathway. Please also see response to DTSC HERD specific comment 5.

4. **Comment:** In addition, in response to the Navy Response to Comments provided by EPA on this draft, we reiterate again that this document should include all relevant materials for review rather than referencing the draft Onshore and Offshore ERAs which were not accepted by the State. This document must be a stand alone document.

Response: The Revised Final RI Report will include the entire onshore ERA report (Tetra Tech 2002a), in which a site-specific SLERA for IA A2 was included in Section 9.0 (Tetra Tech 2002a). The Revised Final RI Report will also be revised to include a supplemental ecological evaluation that includes additional ecological receptors and TRVs, as described in responses to DTSC HERD specific comments 13, 14, and 15.

RESPONSES TO ADDITIONAL COMMENTS FROM EPA, DATED APRIL 14, 2008

1. **Comment:** The diagram of utility lines Navy provided in response to our comments is not sufficient to determine whether or not a vapor intrusion risk exists in the Investigation Area A2 parcel.

Response: Based on past Navy uses and subsequent soil and groundwater investigations conducted at the Former North Building Ways Area, volatile chemicals in soil and groundwater are not identified as contaminants of concern. The risk assessment conducted as part of the RI Report for the Former North Building Ways Area did not indicate an unacceptable risk from potential migration of volatile chemicals to indoor air. Furthermore, based on the location of utilities extending from adjacent IR17 (see attached Figure 1), the Navy does not consider any exposure pathways to be complete for potential vapor intrusion migration along utility corridors between IR17 and the Former North Building Ways Area. Please see responses to EPA human health risk assessment comment 1 and Water Board specific comment 3.

2. **Comment:** EPA is concerned that Navy seems to have expressed intent to comply only with TSCA PCB regulations at their PCB sites and ignore CERCLA requirements. The TSCA regulations do not supersede other environmental statutes. Please note that the TSCA PCB regulations in 40 CFR 761.61(ii) explicitly state:

“The self-implementing cleanup provisions shall not be binding upon cleanups conducted under other authorities, including but not limited to actions conducted under section 104 or 106 of CERCLA, or section 3004(u) and (v) or section 3008(h) of RCRA.”

Response: The Navy is responding to PCB spills on Mare Island pursuant to TSCA authority and not under the authority of Section 104 or 106 of CERCLA, or Section 3004(u) and (v) or Section 3008(h) of the Resource Conservation and Recovery Act (RCRA). The fact that Navy is responding to these sites pursuant to TSCA requirements and regulations at Mare Island is reinforced in a letter dated July 17, 2007 from EPA to the Navy (EPA 2007); outlined in the Site Management Plan (SMP) update for 2008 (SulTech 2007); discussed during recent meetings between the Navy and agencies on January 22, February 5, and March 4, 2008; and detailed in an April 7, 2008, e-mail from the Navy to the Mare Island Base Realignment and Closure Cleanup Team. The Navy intends to follow the TSCA self-implementing requirements as outlined in Title 40 Code of Federal Regulations (CFR) Part 761.61 for PCB cleanup. The Navy is currently developing site-specific plans to remove all PCBs detected above 1 mg/kg at the Former North Building Ways Area. The status of the PCB removal will be included in the Revised Final RI Report. Please see responses to DTSC comment 14 and DTSC HERD specific comment 20.

RESPONSES TO COMMENTS FROM THE WATER BOARD, DATED FEBRUARY 4, 2008

General Comments

1. **Comment:** In general, we encourage the Navy to address the few remaining data gaps to enable a complete evaluation of human health and ecological impacts, as requested by agencies in both written and verbal comments.

Response: The Navy will continue to work with the regulatory agencies to resolve outstanding concerns regarding the evaluation of human health and ecological risks. As requested by the regulatory agencies, the Navy will update the SLERA to evaluate additional receptors and TRVs.

Specific Comments

1. **Comment:** We are concerned about elevated concentrations of total petroleum hydrocarbons (TPH) in soil at selected sampling locations and a lack of groundwater data at the location of boring FNBWGB009. We expressed these concerns during a teleconference call between the Navy and regulatory agencies on February 5, 2008, and Navy staff stated that TPH issues would be addressed under a parallel TPH program, as listed in the Site Management Plan. We understand that a "hot spot" removal plan for TPH within Investigation Area A2 is being prepared for regulatory review.

Response: The TPH hot spots are being resolved under the petroleum corrective action program. Under the petroleum program, the Navy plans to remove TPH-impacted soil from approximately 10 discrete locations (including location FNBWGB009), where previous soil sampling results indicated TPH was detected at concentrations above Tier 2 cleanup levels. It is anticipated that approximately 3,000 cubic feet of TPH-impacted soil will be removed to gain closure for TPH issues at the Former North Building Ways Area. TPH removal field work is planned for October through November 2008. Results of the TPH work will be presented in the Petroleum Correction Action Plan.

2. **Comment:** Domestic Use of Groundwater, Sec 3.2.4, pg. 5-12. Groundwater at Mare Island is designated as a potential source of drinking water in the San Francisco Bay Basin Plan. However, the shallow groundwater and high total dissolved solids (TDS) reported at Mare Island imply that the area does not meet the definition of a source of drinking water as defined in State Resolution 88-63. Although State Resolution 88-63 does not specifically use the term "exclusion" in it's language, it

RESPONSES TO COMMENTS FROM THE WATER BOARD, DATED FEBRUARY 4, 2008
(CONTINUED)

does indicate that as the result of TDS concentrations in the shallow groundwater in this area exceeding 3,000 mg/l, and where it is not reasonably expected to supply a public water system, the groundwater meets the exception criteria to the State's policy that all surface and groundwaters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply.

Response: Comment noted.

3. **Comment:** Human Health Risk Assessment (HHRA). Recent property transfer discussions have suggested that the property may be redeveloped for residential and commercial use (i.e. schools, hospitals), supporting an evaluation of exposure pathways for vapor intrusion. We concur with US EPA's comments dated 1/31/2008, requesting clarity and further site characterization for potential vapor intrusion pathways on IA-A2.

Response: A soil and groundwater vapor intrusion evaluation was conducted at the Former North Building Ways Area for the future commercial/industrial worker and future hypothetical residential exposure scenarios for both unchanged (0 to 3 feet bgs) and modified (0 to 10 feet bgs) site configurations. The evaluation is included in Appendix J of the RI Report. In addition, the EPA identified an additional vapor intrusion concern regarding the migration of vapors through preferential pathways such as utility corridors during a March 4, 2008, meeting between the Navy and regulatory agencies. In response to the vapor migration concern, the Navy has provided a figure as part of these responses to comments to show the utilities located within and surrounding the Former North Building Ways Area (see attached Figure 1). Please also see the response to EPA comment 1 under Human Health Risk Assessment.

4. **Comment:** Ecological Risk Assessment. We concur with assertions that the Ecological Risk Assessment for the upland and tidal wetland habitats be revised to be consistent with the ERA for IA-H1 including ecological receptors and their exposure factors and updated toxicity reference values and benchmarks.

Response: The Revised Final RI Report will include a supplemental ecological evaluation that includes additional ecological receptors and TRVs, as described in responses to DTSC HERD specific comments 13, 14, and 15.

RESPONSES TO COMMENTS FROM THE WATER BOARD, DATED FEBRUARY 4, 2008
(CONTINUED)

5. **Comment:** Surface water connection from FNBW to Mare Island Strait. The Navy's conclusion (pg. 3-34 to 3-39, Section 3.6.1., pg. 3-22) that surface water communication with Mare Island Strait [sic] is insignificant from this area appears contradictory to information provided in the Conceptual Site Model for offshore AI-K [sic] Specifically, Figure 10 (Subcatchment Flows and Offshore Cells. CMS [sic]: TM for Offshore Sediments) shows two distinct drainage flows from FNBW to two offshore cells. Please revisit this conclusion based on this information. Of additional note, in linking and prioritizing stormwater subcatchment zones and offshore cell sampling based on contamination, both the FNBW and it's adjacent offshore cells received high rankings for having the "most potential for contamination" (Figure 11. Ranking of stormwater subcatchments and offshore cells: CMS [sic]: TM for Offshore Sediments). This information suggests significant surface water pathways from FNBWs to Mare Island Strait.

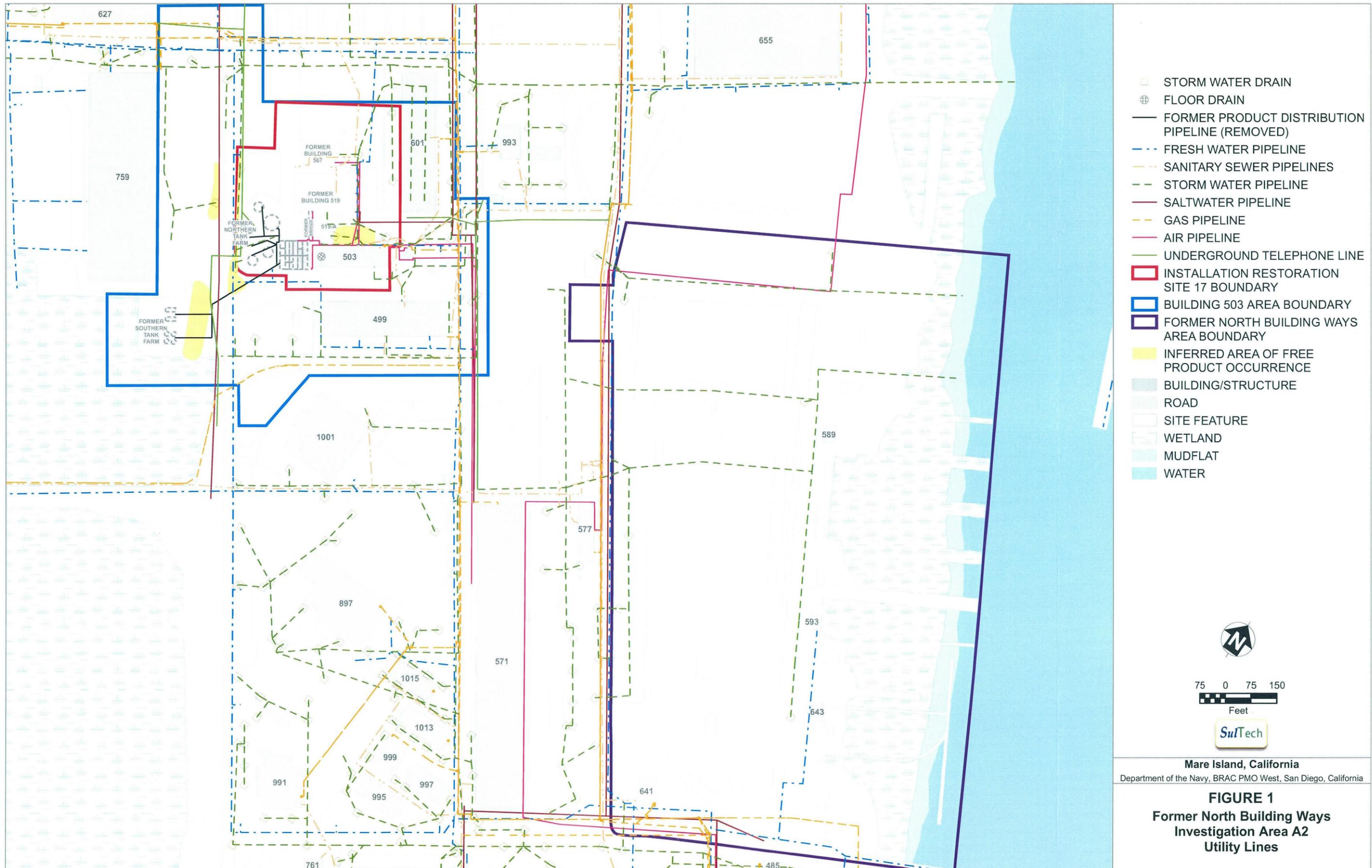
Response: The Revised Final RI Report will state that the CSM for IA K (SulTech 2005) indicates that the general stormwater flow direction from the Former North Building Ways Area is through subcatchments 3 and 4 and into outfalls 3 and 4, which are located in the area of the Fleet Reserves Pier (see Figure 10 of the CSM [SulTech 2005]). Investigation of the sediments surrounding outfall 3 is planned as part of the sediment investigation for IA K (Tetra Tech 2007b), and investigation of the sediments surrounding outfall 4 was conducted as part of the pilot study for IA K (Tetra Tech 2007a). The CSM also indicates the potential for overland flow through subcatchments 302 and 303 and into offshore cells 12, 14, and 16 (SulTech 2005). As a result of this potential overland flow and the fact that a large portion of subcatchments 302 and 303 are occupied by a CERCLA site (the Former North Building Ways Area), cells 12, 14, and 16 received a high ranking for possible contamination. However, the surface water runoff pathway is not considered to be a major pathway because the topography of the Former North Building Ways Area is relatively flat. In addition, due to the presence of partially paved and clay-rich soils, surface water tends to pond and either evaporate or infiltrate slowly into the subsurface, rather than draining into the adjacent wetland. Furthermore, it was previously determined that the Former North Building Ways cells (11 through 16) do not pose an unacceptable risk to ecological receptors and do not require additional investigation for the IA K baseline ERA. This conclusion was presented in the Data Gaps Technical Memorandum (Sullivan and Tetra Tech 2004), and agreed to by the meeting participants at a March 4, 2004 meeting with the regulatory agencies (Tetra Tech 2004).

REFERENCES

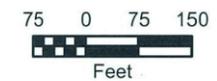
- Bias, Michael A., and Michael L. Morrison. 2006. "Habitat Selection of the Salt Marsh Harvest Mouse and Sympatric Rodent Species." *Journal of Wildlife Management*. Volume 70, Issue 3. Pages 732-742.
- California Air Resources Board (CARB) and Office of Environmental Health Hazard Assessment (OEHHA). 1994. "Benzo(a)pyrene as a Toxic Air Contaminant." July.
- City of Vallejo. 1994. "Mare Island Final Reuse Plan." July.
- Department of the Navy. 1996. "General Radioactive Material Program (G-RAM) Final Radiological Site Inspection Report for the Decommissioning of Mare Island Naval Shipyard, Individual Site Characterization Summaries, Volume II, Book 12." April.
- PRC Environmental Management, Inc. 1995. "Preliminary Assessment Final Summary Report Ordnance Sites, Mare Island Naval Shipyard, Vallejo, California." September.
- Sample, B.E., D.M. Opresko, and G.W. Suter, II. 1996. "Toxicological Benchmarks for Wildlife: 1996 Revision." ES/ER/TM-86/R3. Oak Ridge National Laboratory. Oak Ridge, Tennessee. June.
- Sullivan Consulting Group, Inc. (Sullivan) and Tetra Tech EM Inc. (Tetra Tech). 2003. "Draft Former North Building Ways Additional Sampling Summary Report, Mare Island, Vallejo, California." December.
- Sullivan and Tetra Tech. 2004. "Draft Final Technical Memorandum Evaluation of Offshore Data Gaps, Mare Island, Vallejo, California." July
- SulTech. 2005. "Draft Conceptual Site Model Technical Memorandum for Investigation Area K, Mare Island, Vallejo, California." February.
- SulTech. 2006. "Draft Data Quality Objectives to Support the Baseline Ecological Risk Assessment and Outfall Sediment Investigation at Investigation Area K, Mare Island, Vallejo, California." April.
- SulTech. 2007. "Draft Final Site Management Plan, Attachment C to the Federal Facility Site Remediation Agreement (FFSRA), Mare Island, California, Fiscal Year 2008." October.
- Tetra Tech EM Inc. (Tetra Tech) and Uribe & Associates. 2002. "Draft Final Investigation Area A2 Former North Building Ways Area Remedial Investigation, Mare Island, Vallejo, California." March 18.
- Tetra Tech. 2002a. "Final Onshore Ecological Risk Assessment, Mare Island, Vallejo, California." July.

- Tetra Tech. 2002b. "Final Investigation Area A2 Former North Building Ways Area Remedial Investigation, Mare Island, Vallejo, California." August 8.
- Tetra Tech. 2004. "Final Meeting Minutes, Meeting to Discuss the Draft Data Quality Objectives for the Sediment Investigation at Investigation Area K, Mare Island, Vallejo, California. Technical Workgroup Meeting. March 7.
- Tetra Tech. 2007a. "Draft Technical Memorandum Pilot Study for the Offshore Sediment Investigation at Investigation Area K, Former Mare Island Naval Shipyard, Vallejo, California." May 24.
- Tetra Tech. 2007b. "Work Plan for the Remedial Investigation at Investigation Area K, Former Mare Island Naval Shipyard, Vallejo, California." November 8.
- U.S Environmental Protection Agency (EPA). 1990. "Guidance on Remedial Actions for Superfund Sites with PCBs." EPA/540/G-90/007. Office of Emergency and Remedial Response. Washington, DC.
- EPA. 1991. "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions." Office of Solid Waste and Emergency Response. Directive 9355.0-30. Washington, D.C. Available Online at: <<http://www.epa.gov/oswer/riskassessment/pdf/baseline.pdf>>.
- EPA. 2007. Letter Regarding Proposed Final Early Transfer Parcels, Mare Island Naval Shipyard, Vallejo, California; Applicability of Toxic Substances Control Act (TSCA). From Kathleen Johnson, Federal Facility and Site Cleanup Branch. To Michael Bloom, Department of the Navy, Base Realignment and Closure, Program Management Office. July 17.

FIGURE



- STORM WATER DRAIN
- FLOOR DRAIN
- FORMER PRODUCT DISTRIBUTION PIPELINE (REMOVED)
- FRESH WATER PIPELINE
- SANITARY SEWER PIPELINES
- STORM WATER PIPELINE
- SALTWATER PIPELINE
- GAS PIPELINE
- AIR PIPELINE
- UNDERGROUND TELEPHONE LINE
- INSTALLATION RESTORATION SITE 17 BOUNDARY
- BUILDING 503 AREA BOUNDARY
- FORMER NORTH BUILDING WAYS AREA BOUNDARY
- INFERRED AREA OF FREE PRODUCT OCCURRENCE
- BUILDING/STRUCTURE
- ROAD
- SITE FEATURE
- WETLAND
- MUDFLAT
- WATER



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

FIGURE 1
Former North Building Ways
Investigation Area A2
Utility Lines

**ATTACHMENT A
BENZO(A)PYRENE EQUIVALENT TABLE FOR THE FORMER NORTH BUILDING
WAYS AREA**

ATTACHMENT A: BENZO(A)PYRENE EQUIVALENT TABLE FOR THE FORMER NORTH BUILDING WAYS AREA

Responses to Additional Agency Comments on the Final Investigation Area A2 Remedial Investigation Report, Mare Island, Vallejo, California

Carcinogenic PAHs	PEF ^a	Detected Concentrations and Associated BaP Equivalents (mg/kg)									
		Surface Soil (0 to 3 feet bgs)					Subsurface Soil (0 to 10 feet bgs)				
		Maximum	BaP Equivalent	DF	Average	BaP Equivalent	Maximum	BaP Equivalent	DF	Average	BaP Equivalent
Benzo(a)anthracene	0.1	0.34	0.034	5 / 33	0.21	0.021	0.34	0.034	18 / 88	0.22	0.022
Benzo(a)pyrene	1	0.29	0.29	4 / 27	0.20	0.20	0.29	0.29	25 / 82	0.20	0.20
Benzo(b)fluoranthene	0.1	0.62	0.062	7 / 27	0.22	0.022	0.62	0.062	24 / 82	0.22	0.022
Benzo(k)fluoranthene	0.1	0.55	0.055	2 / 27	0.22	0.022	0.55	0.055	8 / 82	0.23	0.023
Chrysene	0.01	0.78	0.0078	15 / 34	0.19	0.0019	0.78	0.0078	36 / 90	0.20	0.0020
Dibenz(a,h)anthracene ^b	1.05	0.06	0.063	2 / 27	0.06	0.063	0.06	0.063	4 / 82	0.06	0.063
Indeno(1,2,3-cd)pyrene	0.1	0.14	0.014	1 / 27	0.14	0.014	0.14	0.014	13 / 82	0.14	0.014
Total BaP Equivalents			0.53			0.35		0.53			0.35

Notes:

- a PEFs shown are presented in CARB and OEHHA (1994).
- b The PEF for dibenz(a,h)anthracene is the ratio of its cancer slope factor relative to BaP.

- BaP Benzo(a)pyrene
- bgs Below ground surface
- CARB California Air Resources Board
- DF Detection frequency
- mg/kg Milligram per kilogram
- OEHHA Office of Environmental Health Hazard Assessment
- PAH Polycyclic aromatic hydrocarbon
- PEF Potency equivalent factor

Reference:

California Air Resources Board (CARB) and Office of Environmental Health Hazard Assessment (OEHHA). 1994. "Benzo(a)pyrene as a Toxic Air Contaminant." July.

