

**RESPONSES TO REGULATORY AGENCY COMMENTS ON THE
DRAFT FORMER NORTH BUILDING WAYS AREA REMEDIAL INVESTIGATION
INVESTIGATION AREA A2
MARE ISLAND, VALLEJO, CALIFORNIA**

This document presents the U.S. Department of the Navy (Navy) responses to comments from the regulatory agencies on the "Draft Former North Building Ways Area Remedial Investigation for Mare Island," dated November 12, 1999 (hereinafter referred to as the "RI report"). The comments addressed in the following text were received from the U.S. Environmental Protection Agency (EPA) on January 25, 2000, and the California Department of Toxic Substances Control (DTSC) on June 12, 2001. Comments are presented in boldface type.

RESPONSES TO EPA COMMENTS

ATTACHMENT A

Major Comments

- 1. Comment:** **Table 2-3; 1 mg/kg is not an acceptable screening value for all PCB sample locations. 1 mg/kg is only approved for use at small, stand-alone transformer-type sites (as part of the PCB abatement program). Therefore, the criteria for selecting the appropriate PCB screening number should be based on whether the samples taken were part of the PCB abatement or the CERCLA PA/SI/RI programs. The use of 1 mg/kg is only acceptable for the PCB abatement programs. The EPA Region 9 PRGs should be used for the CERCLA PA/SI/RI programs.**

Response: The value of 1 milligram per kilogram (mg/kg) was presented as the polychlorinated biphenyl (PCB) comparison criterion in the Group II/III field sampling and analysis plan (FSAP) (PRC Environmental Management, Inc. [PRC] 1997). The criterion was to be used to determine the need for step-out sampling and to focus the characterization discussion, not to quantitatively evaluate health risks. This comparison criterion value represents an applicable or relevant and appropriate requirement (ARAR) for a PCB cleanup level at a residential site that was derived from the U.S. Environmental Protection Agency (EPA) Toxic Substances Control Program (TSCA) PCB spill policy (Title 40 of the *Code of Federal Regulations* 761). This ARAR was selected for this purpose because the EPA has recommended that it be used as a cleanup goal for PCBs at Superfund sites (EPA 1990). The Navy believes, therefore, that the application of the 1 mg/kg comparison criterion in the Group II/III accelerated study is appropriate.

The Navy acknowledges that this value is higher than the EPA Region 9 preliminary remediation goal (PRG); however, the ARAR was not used to exclude sites or data from the human health risk assessment (HHRA) or to characterize health risks. All PCB data for the site were included in the HHRA. The HHRA results indicate that total PCB-related estimated excess cancer risk estimates under a reasonable maximum exposure evaluation were 3×10^{-7} for a residential receptor (child and adult) and 1×10^{-7} for a commercial/industrial worker receptor, which are well below levels considered protective of human health. The Navy also believes that the use of the selected comparison criterion, combined with site history information, has resulted in the adequate characterization of the nature and extent of PCB contamination at the site.

2. **Comment:** Page 3-30, Appendix J (page J-2), Page J-10; The text states that a “recreational visitor is also not considered part of the exposed population under future land use because of the future light industry land use.” However, the “site” covered in this RI includes the area extending into the strait which is covered by the potential recreational scenario. The following options should be included in the risk assessment: a) incidental ingestion of sediment, b) dermal contact of sediment, and c) inhalation of particulates released from sediment.

Response: A separate exposure scenario quantitatively evaluating potential recreational use of the area extending into the strait was not presented because of low exposure rates associated with such land use and because of the absence of elevated contaminant concentrations in that area. Although there is a potential for exposure of recreational visitors to noninundated sediments along the shoreline of the Mare Island Strait, such potential exposures are expected to be substantially lower than those quantified in the HHRA using the commercial/industrial worker exposure scenario. The exposure duration and exposure frequency of recreational visitors are expected to be substantially less than those assumed for the commercial/industrial worker and residential receptors.

Additionally, chemical of potential concern (COPC) concentrations in the area sediment are low and similar to concentrations in the rest of Investigation Area (IA) A2. Reasonable maximum exposure (RME) concentrations would be less than the corresponding residential soil EPA Region 9 Preliminary Remediation Goals (PRG), and the maximum COPC concentrations in sediment are less than the Region 9 industrial soil PRG (EPA 1999). The soil PRGs were developed by EPA based upon residential and industrial use exposure scenarios, as applicable, and address potential exposure via incidental ingestion of soil, dermal contact with soil, inhalation of vapors for volatile chemicals, and inhalation of airborne soil particles for nonvolatile chemicals.

Because of this information, the exposures and associated risks to a recreational visitor are expected to be low. The discussion of potential receptors will be revised to discuss these issues, but the quantitative exposure and risk assessments will not be revised to incorporate a recreator receptor.

3. **Comment:** Pages ES-2, 3-10, 3-32, 4-2, 4-4, Table 2-2 (Column 3), J-4, J-26, J-33; As stated in EPA's 8/31/98 letter, EPA does not agree with the use of basewide ambient PAH values due to the low frequency of PAH detections found in the Mare Island, basewide soil database. Therefore, any mention of the Navy's "ambient PAH levels" should be deleted or at a minimum, prefaced with "Navy proposed". As stated in our 8/31/98 letter, we recommend that the site characterization data be used for a site-by-site analysis of PAH levels to evaluate whether the presence of PAHs is site related or due possibly to fill materials.

Response: On pages ES-2, 3-10, 3-32, 4-2, and Table 2-2 (Column 3), references to "ambient PAH levels" or other equivalent terminology will be prefaced with the term "Navy-proposed." It should be noted that polynuclear aromatic hydrocarbon (PAH) levels were evaluated on a site-specific basis for the site, based on the conceptual site model. As noted in this RI report, benzo(a)pyrene is commonly detected in samples that also contain TPH-motor oil range (TPH-mr); however, the highest concentrations of benzo(a)pyrene and other PAHs do not correlate well with the highest concentrations of TPH-mr. The distribution indicates that the presence of benzo(a)pyrene and other PAHs at the site may not be related to the release of motor oil or other fuels at the site and was not caused by activities at the site.

To illustrate the spatial distribution of PAHs at the site, the Navy will provide a figure showing PAH detections, concentrations exceeding "Navy-proposed" ambient values, and concentrations exceeding PRGs.

4. **Comment:** Page ES-3, Table 2-2 (Column 3); Action may still be warranted to ensure health or environmental protectiveness even if the calculated cancer risk is within the risk range of 10^{-4} to 10^{-6} . Any cleanup decision is based on a review of the calculated carcinogenic and non-cancer risk levels and an assessment of the site specific conditions such as future use. Thus, the target cancer risk range is 10^{-4} to 10^{-6} , with 10^{-6} as the point of departure.

Response: The Navy acknowledges the EPA position of 10^{-6} as the point of departure. A risk management evaluation will be performed when the risks are within the risk management range of 10^{-6} to 10^{-4} .

5. **Comment:** Page 3-21, Section 3.4.4.1; The text states that “transport of contaminants along this pathway [dust in the air] is considered to be inactive because of the surface cover at the site. Most of the upland portion of the site is either covered with asphalt pavement (of varying condition) or well-established grassy vegetation. Although some areas of the western part of the upland area are not as well vegetated as a result of occasional vehicular traffic, surface soil in these areas is largely bound together with dried clay, limiting dust generation.” EPA would like to confirm these conclusions with a site visit.

Response: If EPA would like to schedule a site visit, the Navy will comply. The dust/particulate inhalation pathway was evaluated as part of the HHRA, and the contribution to risk from this pathway was small compared to the soil ingestion pathway.

6. **Comment:** Table 2-3; Under the heading, “for other metals,” the criteria selected should be the lower of the list, not the higher.

Response: The ambient metal concentration is compared to the PRG, and the higher of the two is used as the selected criteria. A higher ambient concentration is selected because the characterization of a site to concentrations below naturally occurring levels is not warranted. A higher PRG is selected because a site cannot be characterized to concentrations below health-based levels, even though metal concentrations above naturally occurring levels may be detected. No change will be made to the table.

7. **Comment:** Page J-6; As discussed in prior comments, please also include a calculation of total site risk (risk levels contributed by site-specific ambient metals plus site activity related risk levels).

Response: An analysis of total risk will be added to the HHRA. The approach and presentation will be consistent with that used in the final HHRA for IR08. That approach was developed based on discussions with EPA and DTSC toxicologists.

Minor Comments

1. **Comment:** Page ES-1, Figure 1-2; According to the text on pages ES-1 and 4-1 the “site” includes the area extending into the Mare Island Strait. It is difficult to determine from Figure 1-2 which area is included in this “site” definition. The text refers to the North Building Ways Area as consisting of the upland and tidal wetland areas.

Response: The intent of Figure 1-2 is to show the locations of “investigation areas” as well as Group I, II, and III sites at Mare Island. Because of the small scale of the figure, it is difficult to show site features in detail. Site

features for the Former North Building Ways Area (the “site”), including ecological habitats (for example, tidal wetlands and open water), are shown in detail on Plate 2-1.

2. **Comment:** Page 3-12, Section 3.3.2; The 2nd paragraph includes a description of soil residue in the former sump. Please include an update regarding the deposition of the soil.

Response: The Navy removed the residue on April 27, 2000. The structure was not a sump, but a valve pit that most likely contained a steam system that ran between the two buildings. This information will be added to the text.

3. **Comment:** Page 3-16, Section 3.3.5; This section should reference back to Table 3-1 so the reader can follow which analyses were completed.

Response: Comment acknowledged. The text will be revised to reference Table 3-1.

4. **Comment:** Page 3-28; As the text states, grab groundwater samples were the only groundwater samples collected and this data was used in the risk assessment. Is this discussed in the uncertainty section?

Response: Additional information will be added to Table J-122 to address the HHRA uncertainty associated with the use of grab groundwater data. This discussion will also be added to the text.

5. **Comment:** Table 2-3, Footnote #2; The last sentence may be more clear if stated as follows: “As a result, this report compares sediment data from the tidal wetland area to human health soil screening criteria.”

Response: Comment acknowledged. The text will be revised to incorporate this recommendation.

6. **Comment:** Please include a table comparing sediment values against NOAA’s ER-Ls and ER-Ms. One of the tables from the offshore ecological risk assessment may be useful.

Response: To identify chemicals of potential ecological concern (COPEC), sediment samples from the tidal wetland area and the offshore area were compared to effects range-low (ER-L) and effects range-median (ER-M) concentrations from Long and Morgan (1991) and Long and others (1995). IA A2 sediment concentrations from the tidal wetland were compared to ER-Ls in Section 9.0 of the draft onshore ecological risk assessment (ERA), dated January 27, 1999 (Tetra Tech EM, Inc. [TtEMI] 1999a). Likewise, the table of IA A2 offshore sediments compared to ER-Ls was provided in Appendix E of the final offshore areas ERA, dated March 13, 2000 (TtEMI 2000). Sediment samples from locations in IA

A2 begin with "NB," which stands for "North Building Ways." Any chemicals that exceeded the ER-L concentrations were identified as COPECs and further evaluated in the onshore and offshore ERAs. The sediment comparison tables are not presented in the RI report because they are only one component of a weight-of-evidence approach used to identify risk to ecological receptors in the risk assessments. Potential risk from sediments at IA A2 was discussed with the regulatory agencies during a series of meetings and conference calls on May 11, July 14, and September 1, 1999. As a result of these discussions, the regulatory agencies agreed that the level of risk in IA A2 did not warrant any additional sampling. To address the potential risk from lead, the Navy incorporated Mare Island-specific data on the bioavailability of lead in the draft final onshore ERA (TtEMI 2001).

ATTACHMENT B – SOPHIA SERDA, PH.D., REGIONAL TOXICOLOGIST

General Comment

1. **Comment:** I have reviewed the above referenced document with a focus on the risk assessment. All risk management discussion must be removed from the risk assessment. In addition the risk assessment fails to identify total risk. Also, the discussion of ambient polyaromatic hydrocarbon detracts from the risk assessment.

Response: The HHRA will be revised to include total risk estimates. The risk management discussions in Section 7.3 and the discussions of the contributions of ambient PAHs to risk estimates will be removed. These points are also discussed in the following responses to specific comments.

Specific Comments

1. **Comment:** Appendix J, Section 7.3 Risk Management Considerations, Page J-33. Risk management discussion are not appropriate as part of the risk assessment. Delete section.

Response: As noted in Attachment B, Comment 1, the HHRA and RI report have been revised to so that the risk management discussions will be incorporated into the recommendations section of the RI report rather than the HHRA.

2. **Comment:** Appendix J, Section 7.2 Human Health Risk Assessment Result, Page J-32. Include a table with the information found in Table J-123. Provide total risk results.

Response: The risk assessment will be revised to present total, ambient, and site risks using the combined table and figure format agreed upon for Installation Restoration Site 08.

3. **Comment:** Appendix J, Table J-8 Selection of Exposure Pathways, Page 2 of 4 and Page 4 of 4. The rationale given for exclusion of the homegrown produce pathway for a community resident is not acceptable. Provide risk calculations for this pathway.
- Response:** The risk assessment will be revised to include an assessment of health risks associated with the hypothetical consumption of homegrown produce from IA A2. The analysis will be presented as an attachment to the HHRA because of the magnitude of the uncertainties associated with the exposure estimation for the pathway.
4. **Comment:** Appendix J, Table J-122 Summary of Uncertainties, Page 1 of 3. Inclusion of polyaromatic hydrocarbon information in the risk assessment provides for a complete characterization of risk at the site. Revise text.
- Response:** Table J-122 was revised to indicate that PAHs were included in the risk assessment. Site-related risks may be moderately overestimated because the PAH concentrations detected at the site can reasonably be interpreted to represent ambient conditions typical of all urban environments.
5. **Comment:** Appendix J, Table J-123 Summary of Human Health Risks. Include total risk numbers.
- Response:** Please see the response to Specific Comment 2.
6. **Comment:** Appendix J, Section 2.2 Selection of Chemicals of Concern. Identify in the text which chemicals were detected but not selected as chemicals of concern.
- Response:** Appendix J, Section 2.2 will be revised to identify the chemicals detected but not selected as chemicals of potential concern.

ATTACHMENT C – ECOLOGICAL RISK ASSESSMENT COMMENTS

General Comments

1. **Comment:** Page 34, second paragraph; EPA has provided comments in the past (7/6/98 letter) stating that we do not agree with the use of the ranking scale from 1) little to no risk, 2) potential risk, 3) probable risk, or 4) immediate or significant risk which was offered by TtEMI and cited from a paper by Menzic. These levels relate to 1) $HQ < 1$; 2) $HQ > 1$, but < 10 ; 3) $HQ > 10$, but < 100 ; and 4) $HQ > 100$, respectively. Our letter stated that if the HQ was greater than 1, there was a potential problem and the Navy should examine the site specific exposure. This scale is used in the discussion for all of the receptors and is inappropriate. The Navy needs to compare the low TRVs to the

exposure dose calculated as the median or typical factors of each receptor.

Response: The hazard quotients (HQ) presented on page 3-34 were not interpreted using the ranking scale cited by the reviewer. The results of the food-chain modeling identified any doses greater than 1.0 as posing a potential risk, as presented in Section 4.7 of the draft onshore ERA (TtEMI 1999a). The food-chain modeling approach was revised to incorporate new regulatory guidance, and the results were presented in the draft final onshore ERA (TtEMI 2001). The revised approach includes an average or typical dose calculated using average life history parameters for adult receptors compared with both high and low toxicity reference values (TRV). The TRVs were presented in the "Interim Final Tech Memo: Development of Toxicity Reference Values for Conducting Ecological Risk Assessments at Naval Facilities in California" (Naval Facilities Engineering Command, Engineering Field Activity West 1998). For the salt marsh harvest mouse, a threatened and endangered species, the maximum sediment and tissue concentrations were used in the food-chain modeling to be protective of individual mice.

In the revised HQ approach, presented in Section 4.5.4.6 of the draft final onshore ERA, the hazard quotient-low (HQ_{low}) is equal to the average dose divided by the low TRV and the hazard quotient-high (HQ_{high}) is equal to the average dose divided by the high TRV. For the salt marsh harvest mouse, the maximum dose divided by either the low or high TRV is used to calculate HQ_{low} and HQ_{high} . When the dose exceeds the high TRV (HQ_{high} greater than 1.0), significant or immediate risk may be present, and a remedial action may be warranted. When the dose is lower than the low TRV (HQ_{low} less than 1.0), no action is recommended as little or no risk is expected. When the dose falls between the low and high TRVs (HQ_{low} greater than 1.0, but HQ_{high} less than 1.0), potential risk exists. In addition, information on the bioavailability of metals in soil, sediment, and tissue samples from Mare Island are incorporated into the HQ approach in the draft final onshore ERA to calculate more realistic HQs.

2. **Comment:** Pages 3-34, 3-35; Please provide more information regarding the decision making for the determinations made at the end of each paragraph. Are these summarized in the data analysis, discussed at the bottom of page 3-35, and due to be submitted in the draft final onshore ecological risk assessment?

Response: The conclusions presented at the end of each paragraph on pages 3-34 and 3-35 are discussed further in Section 9.0 of the draft final onshore ERA (TtEMI 2001). Conclusions of the risk assessment were determined using a weight of evidence approach, which incorporates consideration of all lines of evidence and data available for IA A2. Additional statistical

methods, data analysis, and interpretation conducted at the request of the regulatory agencies (TtEMI 1999b) are also summarized in the draft final onshore ERA. An evaluation of the potential migration of chemicals from the upland areas to the intertidal mudflats and wetland areas was also conducted and is presented in Section 9.2.1.3 of the draft final onshore ERA. Additional information on the bioavailability of metals in soil and sediment samples from Mare Island is incorporated into the HQ approach to facilitate the calculation of more realistic HQs. The assumptions made in the food-chain modeling presented in the draft onshore ERA (TtEMI 1999a) were conservative. HQs calculated using doses based on more realistic life history parameters in the draft final ERA were lower than the HQs presented in the draft ERA and do not indicate that unacceptable risk exists at the site.

RESPONSES TO DTSC COMMENTS

General Comments

1. **Comment:** Remedial Investigation documents, and all revisions submitted to DTSC for approval or concurrence should be signed and stamped by any appropriately registered professional geologist or engineer. Additionally, the document should be complete (i.e. contain all results required for DTSC determination of NFA, as opposed to stating they will be included in the final document) prior to submittal to DTSC for concurrence.

Response: The Navy will ensure that future submittals of the RI document will include a signed cover page with the appropriate stamp of a registered professional geologist or engineer. Applicable results will also be included.

2. **Comment:** The remedial investigation methodology and results represent a significant deviation from the DTSC approved sampling and analysis plan. Specifically, step-out sampling was not conducted in accordance with the previously approved sampling and analysis plan, and as a result, there appear to be significant areas with elevated concentrations of potential chemicals of concern (COPC) that require further evaluation prior to the determination that no further action is required at the IA-A2 portion of MINS.

Response: The sampling methodology for IA A2 was based on the conceptual site model developed for the site. The model was based on a thorough investigation of prior activities. With the exception of PCBs and radioactivity, research of past Navy activities has identified no contaminant point sources at the site. PCBs have been investigated in the

base-wide PCB Study and contamination is being addressed with on-going removal activities. Potential radioactive contamination has been addressed as part of the General Radioactive Material (GRAM) Study.

Previous site activities at the FNBW included ship assembly and maintenance. Parts had been pre-fabricated and pre-painted when they arrived at the site. No USTs, disposal areas, paint shops, or metal cleaning facilities were ever located within the area. According to the conceptual site model, potential non-point sources at the site were limited to possible surface leaks or spills of metals or oils. These contaminants might have been released during the welding, grinding, bolting, and greasing of parts during ship assembly.

Because of the unique nature of the site, the need for a sampling approach that would characterize the nature and extent of possible widespread non-point source contaminants was recognized. A grid sampling approach was proposed in the agency-approved FSAP to address the identified data gaps at the site. Section 5.19.4.1 of the FSAP describes the grid sampling for the FNBW as follows, "...the grid will divide the area into square parcels of land with 100-foot sides. A discrete surface soil sample will be collected at each grid node." The grid covered the area that was used during World War II for ship assembly. The proposed grid sampling was implemented at the site in accordance with the FSAP. Deviations, which were not significant, but did include a change in step-out protocol, are summarized in Section 3.1.3 of the RI.

As noted in that section, the step-out sampling proposed in the FSAP was adapted to site-specific conditions. If concentrations exceeded comparison criteria at sample locations within the grid, they were presumed to be delineated by the samples at adjacent grid nodes and no further sampling was proposed. Contingency sampling step-outs, therefore, were conducted only where contaminant concentrations exceeding comparison criteria were present around the perimeter of the grid area. Because the objective of the step-out sampling at FNBW was to characterize widespread, dispersed contamination, a spacing of 100 feet, matching that used in the original grid, was adopted, rather than the 20-foot step-out spacing used at sites where point sources had been identified.

The results of the initial sampling round, along with the additional data added by the three step-out sampling rounds, indicate that the extent of detected contaminants has been delineated at the site to concentrations below or slightly above the comparison criteria.

Several of the scoping meetings held at the San Francisco Offices of TtEMI included discussions about IA A2 and the domestic pump station within IA A2 (DOM-2). The objectives of these meetings were: to

present the analytical results from prior sampling rounds, to discuss proposed sampling for each subsequent sampling round (including a presentation of specific locations, numbers of samples, depths of samples, and proposed analyses), and to obtain agency feedback on the proposed sampling. Along with representatives from the Navy and the Navy subcontractors, representatives from EPA (Bonnie Arthur), RWQCB (Michael Rochette), as well as DTSC (Chip Gribble) were in attendance at the scoping meetings. The results of Round 1 (the original round, as presented in the FSAP) and proposed sampling for Round 2 were presented to the regulatory agencies on January 27, 1998 and summarized in the meeting minutes submitted to the agencies on February 24, 1998. After incorporating agency recommendations, Round 2 sampling was conducted in April and May 1998. In an iterative process, Round 3 sampling was conducted in September and October 1998. Based on the results of these sampling rounds, Round 4 was conducted in early December 1998. No additional soil or groundwater sampling was proposed at the Former North Building Ways Area after Round 4. Scoping meetings were held on January 26, 1999 and on February 9, 1999. In the final scoping meeting, the Navy presented their position that the area had been adequately delineated.

Specific Comments

- 1. Comment:** **ES-2: The proposed ambient levels for polycyclic aromatic hydrocarbons (PAH) are considerably higher than the PRGs, are higher than background PAH levels being proposed for several other sites within the Bay Area, and are considerably higher than sediment values being reported in the regional monitoring plan for sediment monitoring being performed relatively close to MINS. DTSC has not concurred with the proposed PAH levels and believes that a more accurate assessment of actual background PAH levels should be performed. Many former power plants are known to be sites where PAH contamination of soil has occurred. A power plant was formerly located within IA-A2 and was not adequately investigated or evaluated as a potential source of the elevated concentrations of PAHs occurring within IA-A2.**

Response: References to "ambient PAH levels" or other equivalent terminology will be prefaced with the term "Navy-proposed." It should be noted that the ambient PAH levels proposed by the Navy were evaluated on a site-specific basis. The distribution of benzo(a)pyrene and other PAHs at the site indicates that the presence of these contaminants may not be related to the release of motor oil or other fuels at the site.

In addition, the Navy has investigated the prior presence of an on-site power plant and does not feel that the short duration and limited usage of

the mobile power plant could be the source of widespread PAHs in soil. Regional crop burning and the imported fill material itself are more likely sources.

To illustrate the spatial distribution of PAHs at the site, the Navy will provide a figure showing the PAH detections, concentrations exceeding "Navy-proposed" ambient values, and concentrations exceeding PRGs.

2. **Comment:** **ES-2: A review of the PCB work conducted by SSPORTS and confirmation sampling and analysis conducted by TTEMI indicates that insufficient sampling and analysis has been performed at sites of known PCB releases. Specifically, at Building 643 the vault and soil beneath the former transformer locations have not been adequately characterized, and significant levels of PCBs still exist within the building. Potential contamination associated with the transformers at the former fire station (Building 641) may not have been adequately evaluated. Also, the Fleet Reserve Pier requires additional PCB investigation to determine if the sediments are being impacted from former PCB sites. As discussed during our June 6, 2001 RPM meeting, the Navy will conduct additional investigation work on the pier.**

Response: In July 1999, Supervisor of Shipbuilding, Conversion, and Repair, Portsmouth, Virginia, Environmental Detachment, Vallejo (SSPORTS) collected four soil samples around the perimeter of Building 643. PCBs were detected at concentrations exceeding the target cleanup level of 1 mg/kg in one of the four samples. In August 1999, the portion of the concrete foundation within Building 643 that exhibited PCB concentrations exceeding the target cleanup level was encapsulated. SSPORTS also excavated soil outside Building 643, where PCB concentrations exceeded the target cleanup level, and disposed of the soil off site. Confirmation soil sampling indicated that the soil excavation activities successfully removed soil with PCB concentrations to below 1 mg/kg. Because the confirmation sampling results were not received in time for incorporation into the report, the complete results will be included in the draft final version.

In June and July 1997, two concrete confirmation samples were collected near an electrical transformer outside Building 641, where staining had been observed. In addition, three soil confirmation samples were collected adjacent to the former railroad tracks across the site. PCBs were detected in one of the concrete samples and each of the soil samples at concentrations below 1 mg/kg. In May 1998, two concrete samples were collected from the concrete foundation at or adjacent to the locations at which former abatement activities took place. PCBs were detected at concentrations of 2 and 8 mg/kg, respectively, which were both below the

target cleanup level 10 mg/kg established for the PCB base-wide study removal actions for industrial areas. The planned reuse for this site is light industrial.

The Navy conducted additional visual inspections of the PCB sites at the Fleet Reserves Pier, as agreed to during the June 6, 2001, remedial project manager (RPM) meeting. The structure beneath the former transformer location on the pier is a concrete cast-in-place vault, approximately 4 to 5 feet deep. During site visits on June 8 and 28, 2001, the bottom of the vault was about 1 foot above the tide. The likelihood of PCBs as a potential source of contamination leaking from the vault and former transformer locations into the water and sediments of Mare Island Strait is unlikely. The possibility that PCBs are present within the concrete vault requires further investigation. The Navy will perform that investigation under the PCB program. The sediments near the pier were sampled as part of the offshore areas ERA, and no concentrations of PCBs above comparison criteria were detected.

3. **Comment:** **ES-4: DTSC's environmental toxicologist, Jim Polisini, has previously submitted comments regarding the ecological risk assessment and the tidal areas of IA-A2. These comments must be adequately addressed prior to any determination that "No further action" is required within IA-A2. Sampling and analysis of the intertidal mudflats and the sediments within the open water areas of IA-A2 (Mare Island Strait) have not adequately characterized specific locations of known potential sources of contamination.**

Response: The draft onshore ERA document (TtEMI 1999a) recommended performing a baseline risk assessment. During meetings on February 18, May 1, July 6, and September 1, 1999, the Navy, DTSC, EPA, U.S. Fish and Wildlife Service, California Department of Fish and Game, and Regional Water Quality Control Board decided not to collect ecological samples at IA A2 to address potential ecological risk (TtEMI 1999b). The decision not to conduct a baseline ERA was based on additional statistical methods, data analysis, and interpretation performed in the draft final onshore ERA (TtEMI 2001). The potential migration of chemicals from the upland areas to the intertidal mudflats and wetland areas was also evaluated. Results and discussion of these analyses are included in the draft final onshore ERA. Based on the analyses, results of the screening-level ERA for IA A2 indicate the site does not pose unacceptable risk to ecological receptors.

4. **Comment:** **Section 2.3.2 – Only two concrete samples were collected within Building 643 during confirmation sampling conducted in 1998. Both of these samples were above the 1 mg/kg level, which is not an acceptable screening value for all PCB sample locations. The**

appropriate PCB screening number should be based on an approved PCB abatement or the CERCLA cleanup program. In 1999, the PCBs within the concrete were encapsulated, and soil at one location outside the building was excavated and disposed offsite. The confirmation sampling results for the soil remediation are not contained in the subject report and are necessary to support any proposal by the Navy that NFA is appropriate for the site. Additionally, land use controls are required for all areas where contaminants exceed appropriate cleanup levels.

Response: Confirmation soil sampling indicated that the soil excavation activities successfully removed soil with PCB concentrations to below 1 mg/kg. Because the confirmation sampling results were not received in time for incorporation into the report, the complete results will be included in the draft final version.

Land-use restrictions required for certain areas (that is, where contaminants exceed appropriate cleanup levels) will be recommended in property transfer documents.

5. **Comment:** Section 2.3.2 – Visual inspection of Building 643 indicates that if leaks of PCBs had occurred they would likely migrate to the subsurface vault which has not been adequately characterized. During visual inspections, the vault appeared to be full of water indicating the potential that the integrity of the vault has been compromised. Although SSPTS conducted PCB soil abatement of surface soils surrounding the building, the soils beneath the vault have not been adequately characterized to determine if the vault is a source of PCB contamination to the area.

Response: The Navy conducted additional sampling for PCBs within the vault at Building 643 as part of the basewide PCB program. Sludge samples collected from the bottom of the vault and wipe samples from wiring and conduit leading from the floor of Building 643 into the underlying vault contained elevated concentrations of PCBs. The Navy will inspect the vault to determine if PCBs have migrated through the vault floor and will determine (after regulatory approval) if additional sampling and/or removal is necessary.

Following sampling activities within the vault, the Navy also collected sediment samples from within the cableway leading from the Building 643 vault to Mare Island Strait. Previous visual inspection (via a manhole and vault within the cableway) of the cableway showed that water from Mare Island Strait could flow through the conduit holes into the Building 643 vault at high tide, which is why the Building 643 vault contains water. To determine if water flowing in the reverse direction (from the Building 643 vault back toward Mare Island Strait) was carrying PCB-containing

sediment, the Navy collected sediment samples from the cableway vault closest to Building 643. None of the sediment samples contained PCBs. The RI report will be updated with the latest data available from the PCB program at the time of submittal.

6. **Comment:** Section 2.4.1 – It appears that inadequate information was assessed in developing the conceptual model for the site. Specific records regarding underground tank installations, locations, and contents were not sufficiently assessed to determine specific locations of potential of potential contamination sources. Subsequently, a grid approach was established which could have easily missed contamination associated with known potential sources. Several TTEMI models and reports have indicated that groundwater as well as contaminant migration at MINS is very slow, providing further indication that areas of significant contamination could have been missed because contaminants may not have migrated to the sampling locations indicated in the widely spaced grid.

Response: As discussed in General Comment 2, the conceptual site model developed for the site was based on a thorough investigation of prior activities. Research into the site history has identified no contaminant point sources at the site; no USTs, disposal areas, paint shops, or metal cleaning facilities were ever located within the area and no other potential point sources have been found. The selected sampling approach was intended to characterize the nature and extent of possible widespread non-point source contaminants. A grid sampling approach was deemed the most appropriate sampling approach for this particular site and was proposed in the agency-approved FSAP. The Navy has no evidence that areas of significant contamination could have been missed since no point sources have been identified.

7. **Comment:** Section 2.4.2 – Minor comment – It appears that the DQOs presented in these sections were not developed in accordance with federal guidelines. The text in this section does not match the information presented in associated Table 2-2.

Response: The text and table will be reconciled.

8. **Comment:** Section 2.4.2.7 and 2.4.3 – The design for sampling and obtaining data should have included targeting those areas where potential sources of contamination were known to have existed. A 100-foot grid pattern is insufficient for evaluating these areas where potential sources of contamination could have been released to the environment. Contaminant migration has been demonstrated to be relatively slow at MINS (except along utility corridors), and areas of significant contamination could have easily been missed by the grid sampling

conducted in the area. Although the information provided by the grid sampling is very good, additional characterization of areas where know potential sources previously existed is required in order to support the proposed decision of No further action.

Response: As discussed in more detail in the response to General Comment 2, no contaminant point sources were identified at the site. A grid pattern was deemed the appropriate sampling approach based on the site history and conceptual site model. Results of the RI sampling indicate shallow soil contaminants associated with scattered non-point source leaks and spills, which supports the conceptual site model. Additional characterization of source areas is not required because no specific source areas were found.

9. Comment: **Section 2.4.3 – Only 15 percent of the samples collected were analyzed for VOCs and SVOCs. Additionally, step-out sampling for these compounds only occurred if they exceeded screening criteria, and the screening criteria for PAHs (subset of SVOCs) were set inappropriately high. Therefore, areas of significant PAH contamination may not have been adequately characterized. Page 2-9 indicates that to determine the lateral extent, a sample was collected 100 feet from the initial sample. This step-out sampling appears to match the original grid – please explain.**

Response: During the initial round of sampling at IA A2, 100 percent of the suspected constituents of concern were analyzed; these analyses included PCBs, metals, and TPH. During previous sampling conducted on the eastern side of Building of 593, soil samples were analyzed for VOCs and SVOCs. No VOCs aside from common laboratory contaminants were detected in these soil samples and SVOCs were detected at estimated concentrations only. Because there was no reason to suspect (i.e., no history of contamination) that VOCs and SVOCs would be found at the Former North Building Ways area, 15 percent of the samples collected during the initial sampling round were analyzed for these constituents as a conservative measure.

The process for assessing whether or not step-out sampling was required was based on contaminant concentrations above comparison criteria. The comparison criteria used for PAHs were the residential soil preliminary remediation goals (PRG), not the ambient values. These criteria were the same applied to all Group II/III sites and were proposed in the agency-approved FSAP. The PAH ambient values were used as comparison criteria in the RI to assist in delineating areas of contamination at the site. Therefore, it is unlikely that areas of significant contamination have not been characterized, based on contaminant concentrations above comparison criteria (since residential soil PRGs were used).

Please see response to General Comment 2 for additional information related to step-out sampling at FNBW.

10. **Comment:** Section 2.4.3 – Page 2-10 – It appears that the Navy has inappropriately represented discussions during scoping meetings to constitute decisions being made by regulatory agencies – prior to completing the legal requirements of the NCP. This type of reference is entirely inappropriate in light of the requirements of codified law. Written concurrence on letterhead from DTSC is the only documentation that is appropriate for documenting site decisions. By issue of this comment letter, DTSC does NOT concur that no further investigation is required at the site.

Response: The RI text will be revised to remove any implication that DTSC made decisions based on information presented during scoping meetings and/or concurred with the information presented in such meetings. While the Navy recognizes that verbal statements made during scoping meeting do not substitute for written compliance, the Navy feels that every effort was made to inform the agencies of the results of each sampling round; the agencies were given the opportunity to review, comment, and provide recommendations on proposed step-out sampling prior to each iterative phase of sampling. (The response to General Comment 2 provides additional detail regarding the scoping meeting process.)

11. **Comment:** Section 3.1.3 – The deviations from the field sampling and analysis plan were very significant and significantly impaired the ability of the investigation program to detect areas of significant contamination, and impaired the ability to make that determination that NFA is required. Given the conceptual site model, the presence of asphalt or debris does not provide justification for not collecting samples at 25 locations. Additionally, the change from 20-foot step-outs to 100-foot step-outs for characterization of contaminated areas is entirely inappropriate, especially if the regulatory agencies are expected to believe TtEMI's groundwater and contaminant migration modeling data for the site.

Response: The Navy acknowledges that there were deviations from the FSAP but feels that the deviations were appropriate and justified. The deviations have been documented in Section 3.1.3 of the RI. As noted in that section and discussed in the response to General Comment 2, the step-out sampling originally proposed in the FSAP was adapted to site-specific conditions at IA A2. In accordance with the conceptual site model, the objective of the step-out sampling at the site was to characterize widespread, dispersed contamination. Thus, a spacing of 100 feet, matching that used in the original grid, was implemented, rather than the

20-foot step-out spacing used at sites where point sources had been identified.

12. **Comment:** Section 3.2.3 – It is inappropriate to use data from nearby sites when making groundwater determinations. The Navy should make use of data from groundwater samples collected onsite as opposed to “nearby”. The presence of the Napa river along the entire eastern side of the site could significantly affect both the groundwater quality (TDS, chlorides, etc.) and the yield (could be greater than 150 gpd). The Navy is requested to evaluate “onsite” conditions in order to estimate yield and make the determination that the water is not potable.

Response: Although no wells were installed at the Former North Building Ways Area, groundwater samples were collected from nearby shallow water-bearing wells, inland from the site. Total dissolved solid (TDS) values in the samples from half the wells are greater than 10,000 milligrams per liter (mg/L). In addition, TDS values in groundwater samples collected adjacent to and inland from the site are also near or greater than 10,000 mg/L. Groundwater at the site is expected to have TDS values exceeding 10,000 mg/L because the site is adjacent to Mare Island Strait and was originally reclaimed from the Strait. No additional evaluation of on-site conditions is proposed.

13. **Comment:** Section 3.3 – Some of the screening criteria used to determine if significant levels of contamination exist are inappropriately high and significantly exceed commonly applied criteria such as the EPA-PRGs. Please revise the screening to the more appropriate and more conservative values prior to screening contaminants from further consideration.

Response: As stated in the response to Specific Comment 9, the comparison criteria used in the RI for FNBW are the same applied to all Group II/III sites and were proposed in the agency-approved FSAP. The purpose and use of the comparison criteria in the RI was to focus the characterization discussion. Very few contaminants have comparison criteria that are significantly higher than the PRGs and samples containing concentrations above these criteria were not necessarily screened from further consideration. In particular, the criteria were not used to exclude sites or data from the HHRA.

Appendix A of the RI details the comparison criteria used to evaluate potential contamination at FNBW. The following criteria were used to assess nature and extent of contamination:

Soil: Residential soil PRGs (1998) except for PCBs, TPH, lead, chromium, and thallium and Mare-Island specific 95th percentile ambient values for metals. The criterion used for PCBs was the PCB cleanup criterion of 1 milligram per kilogram (mg/kg). This value was used to assess extent of contamination, but PCB concentrations below this value were included in the human health risk assessment. Because there are no PRGs for TPH, the criteria used for TPH was based on existing underground storage tank (UST) guidance, comparable work at other naval installations, and professional judgment. The criterion used for lead was calculated from the DTSC Leadsread model that was available at the time this report was prepared. The criterion for chromium was calculated for the trivalent state of this metal; since, at the time this report was prepared, no PRG for trivalent chromium existed, a value was calculated. Similarly, because no PRG for thallium metal was available at the time this report was prepared, a value was calculated.

Groundwater: Ecological comparison criteria (federal and state, as available) and 1.4 milligrams per liter for TPH based on UST guidance.

The Navy does not believe that the comparison criteria used in this report are “inappropriately high” and does not intend to modify the criteria at this time. Note that most of the criteria used to evaluate contamination at FNBW were residential soil PRGs.

14. **Comment:** **Section 3.3.1.1 – The conclusions drawn in this section are inappropriate and do not represent many potential and likely scenarios for the distribution of petroleum hydrocarbons at IA-A2. There are numerous areas where the TPH concentrations exceed screening and cleanup criteria by over an order-of-magnitude. These areas require additional characterization and potentially remediation pending the results of additional sampling and analysis. A figure for TPH-dr was not included in the report, and would facilitate determining areas where TPH-dr concentrations above cleanup levels co-exist with TPH-mr and PAH concentrations above their respective cleanup levels. As presented in the report, TPH-mr concentrations at 12,000 mg/kg and TPH-dr concentrations at 7,800 mg/kg (different locations) require additional characterization and potentially remediation prior to determining that NFA is appropriate for the site.**

Response: The Navy does not believe that additional TPH characterization is necessary because the distribution of TPH-mr and other identified contaminants in soil does not suggest identifiable point sources. Primary nonpoint sources appear to be isolated cases of minor spills from heavy

equipment and incidental leakage from trucks during past activities. TPH-mr, detected most frequently, exceeded the comparison criteria in 43 of 160 locations samples. Furthermore, analytical data indicate that most TPH soil contamination is limited to the upper 3 feet across the site, consistent with nonpoint source contamination.

TPH-diesel range (TPH-dr) was detected above comparison criterion in 4 of 160 soil samples collected from shallow soil (upper 4 feet) at four borings below former or existing, asphalt-paved surfaces at the Former North Building Ways Area. Concentrations of TPH-dr above the comparison criterion were detected in the same samples with the highest TPH-mr concentrations, indicating that the TPH-dr sources are the same as those for TPH-mr. The lateral extent of TPH-dr contamination has been fully delineated to concentrations below the comparison criterion.

Additionally, benzo(a)pyrene, detected above comparison criteria in 12 out of 50 locations sampled, is commonly present in samples that also contain TPH-mr. No such relationship was exhibited in samples containing TPH-dr. The highest concentrations of benzo(a)pyrene and other PAHs do not correlate well with the highest concentrations of TPH-mr. Figure 3-1 of the RI illustrates the correlation between benzo(a)pyrene and TPH-mr concentrations in samples. This figure shows that there is no linear relationship between TPH-mr and benzo(a)pyrene.

15. **Comment:** **Section 3.3.2 – The residue sampled from within the sump/vault exceeds cleanup criteria, and hazardous waste criteria for lead. The residue should be removed and disposed of in accordance with applicable State and Federal regulations. Characterization of potential TPH contamination surrounding the vault appears to be insufficient to determine the source (or lack of) high detections in the area.**

Response: TPH-mr was not detected above the criterion in soil collected below the bottom of the vault, indicating that TPH-mr in nearby soil was not likely released from the vault. Contaminants are likely related to nonpoint source sources associated with former ship assembling activities at the site. Maintenance action will be taken to remove the residue from this sump/vault.

16. **Comment:** **Section 3.3.4.1 – The characterization of sediments deviated significantly from the approved sampling and analysis plan and was insufficient for characterizing the nature and extent of potential areas of contamination above cleanup levels. Step-out sampling as specified in the approved sampling and analysis plan should be conducted at all locations where COPCs were detected above screening criteria.**

Response: Although the Navy acknowledges that there were deviations from the FSAP, the deviations were appropriate and well documented. (See General Comment 2 and Specific Comment 11 for more detailed information regarding the Step-out sampling protocol.) In addition, the Navy does not feel that additional step-out sampling is warranted. Sampling results reported in the RI support the conceptual site model that widespread, dispersed spills and leaks were the only sources of contamination at the site and that specific point sources do not exist.

17. **Comment:** Sections 3.4 through 3.6 – Comments regarding the “Fate and Transport Analysis”, “Human Health Risk Assessment”, and “Ecological Risk Assessment” to be provided by Mike Wade, and Jim Polisini.

Response: Comment acknowledged.

18. **Comment:** Section 4.0 – The conclusions and recommendations of this report are not supported by the results of the sampling and analysis. The report concludes that sufficient data was collected to meet DQOs. Because of the significant deviations from the approved sampling and analysis plan, and the significant number of exceedances of screening and cleanup criteria, DTSC believes that additional characterization is required to determine the lateral and vertical extent of COPCs at the site.

Response: The Navy disagrees with DTSC’s comment and believes that the conclusions and recommendations of this report are supported by the results of the sampling and analysis. Sampling and analysis for the original round of sampling were conducted according to the approved FSAP and additional rounds were further reviewed and discussed during iterative scoping meetings (see response to General Comment 2). Deviations from the FSAP are documented in Section 3.1.3 of the RI and do not constitute significant deviations. Based on the conceptual site model, grid sampling was conducted to evaluate potential widespread non-point source contamination. The results did not indicate that significant number of contaminant concentrations exceeded comparison criteria as presented in the following excerpt summarizing soil and groundwater results:

TPH-dr, TPH-mr, and the PAHs benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene were the only organic compounds detected above comparison criteria in soil, primarily in the upper 3 feet of soil, with the exception of PCB-containing soil that was removed by SSPORTS. TPH-mr was detected above its comparison criterion in 54 of 160 samples, while TPH-dr was detected above its comparison criterion in only

4 of 160 samples. Benzo(a)pyrene was detected in soil above its comparison criterion in 14 of 31 samples. Benzo(b)fluoranthene and dibenz(a,h)anthracene were each detected once above their comparison criterion. The extent of TPH and PAHs have been delineated to concentrations below or only slightly above the comparison criteria. Although benzo(a)pyrene is commonly present in samples that also contain TPH-mr, the highest concentrations of benzo(a)pyrene and other PAHs do not correlate well with the highest concentrations of TPH-mr. The distribution of TPH at the site suggests that it is present primarily from past activities at the site and is not associated with an identifiable point source.

Lead was the only metal detected in soil at the site more than once above the comparison criterion. Lead was detected above its comparison criterion in 6 of 95 samples. As with organic contaminants, the distribution of metals in soil does not suggest that they originated from identifiable point sources.

The only constituent detected in grab groundwater samples at the Former North Building Ways Area above the criteria was TPH-dr/mr, which was detected in 1 of 18 samples at concentrations just slightly above the comparison criterion. No TPH point source was identified.

Based on the conceptual site model and the results of the grid sampling and associated risk assessments, the Navy does not believe that additional characterization (either lateral or vertical) is warranted. There are no known sources of contamination and the results of the grid sampling support this conclusion.

19. **Comment:** **Table 2-3. The summary of screening criteria indicates a concentration of 77,000 mg/kg for total chromium. This level is exceedingly high when compared to PRGs and other background concentrations found throughout the area. Please develop more appropriate screening criteria for chromium. A separate value for CrIII and CrVI is considered more appropriate in determining if anthropogenic sources exist at MINS.**

Response: As stated in the responses to Specific Comments 9 and 13, the comparison criteria used in the RI for FNBW are the same applied to all Group II/III sites and were proposed in the agency-approved FSAP. Separate comparison values were used for trivalent and hexavalent chromium. The value of 77,000 mg/kg was used for trivalent chromium. EPA Region 9 PRGs were used as comparison criteria for this site (EPA 1998). Since there was no PRG for trivalent chromium in 1998, a PRG was calculated using the same equations employed by EPA and a reference dose of 1.0

mg/kg per day. The resultant PRG trivalent chromium was 77,000 mg/kg. The 1999 EPA Region 9 PRG for trivalent chromium was 100,000 mg/kg (EPA 1999). A concentration of 0.2 mg/kg was used as comparison criterion for hexavalent chromium, which is the EPA PRG for this compound. The discussion of the comparison criteria the Navy is using to evaluate the site is included in Appendix A of the draft RI report.

Soil samples were analyzed for total chromium, which accounts for the presence of both trivalent chromium and hexavalent chromium. Trivalent chromium is known to occur naturally in the environment and is relatively nontoxic even in high concentrations. The presence of hexavalent chromium at a site is solely the result of human activities and is a known human carcinogen. Based on this information and the conceptual site model, some areas were sampled not only for total chromium but also specifically for hexavalent chromium. Eighteen soil samples were also analyzed for hexavalent chromium, and no concentrations were detected. The results of the total chromium analyses were assumed to reflect only the presence of trivalent chromium. The Navy does not intend to modify the comparison criteria at this time.

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