

**RESPONSES TO REGULATORY AGENCY COMMENTS ON THE
DRAFT REMEDIAL INVESTIGATION REPORT
INSTALLATION RESTORATION SITE 30, DAYCARE CENTER
NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA**

This document presents the U.S. Department of the Navy's (Navy) responses to comments from regulatory agencies on the "Draft Remedial Investigation [RI] Report, Installation Restoration Site 30, Daycare Center, Former Naval Station Treasure Island [NAVSTA TI], San Francisco, California," dated May, 2005. The comments addressed below were received from the U.S. Environmental Protection Agency (EPA) on July 29, 2005 and the California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC) on July 18, 2005. The San Francisco Bay Regional Water Quality Control Board (Water Board) indicated that they had reviewed the Draft Remedial Investigation Report but had no comments.

RESPONSES TO COMMENTS FROM EPA

General Comments

The evaluation of risk for the areas of the higher concentrations (T094: 50-1, 29-2, 29-1, 53-1, 48-1, 48-2) and the uncertainty of the concentration levels under the slab of the building is not complete in the draft document. The principles and issues described below may be pertinent to other areas of the parcel, but the comments focus on the area under the concrete pad and building slab.

- 1. Comment:** While the concrete pad and slab of the building may serve as a present barrier to exposure, they do not constitute a remedy under CERCLA [Comprehensive Environmental Response, Compensation, and Liability Act]. They should be referred to, in terms of the physical description: concrete pad and building slab. The term 'cap' implies a remedy, which they are not.

Response: All references to the 'concrete cap' or 'Site 30 cap' will be revised to "concrete pad" as necessary.

- 2. Comment:** The CERCLA process deals with releases, not conditions. The nature of exposure and the evaluation of risk are based on the release. The current conditions may affect the amount of current exposure, but do not change the need to evaluate the risk posed by exposure to the material.

After the characterization of risk, and if and when the concrete pad and building slab are evaluated and accepted as a remedy that is protective against that risk, do the elements of the current conditions become a remedy. Prior to that occurring, the concrete pad and

building slab are temporary measures that provide a temporary barrier, while the evaluation is done.

Response: The Navy concurs with the comment and has evaluated risk to releases at the site under multiple exposure conditions, including complete exposure to the material (soil) underneath the concrete pad. For the evaluation of current conditions, the concrete pad was considered protective and exposure was considered incomplete to the underlying material. Under alternative conditions, it was assumed that the concrete pad was removed and exposure was considered complete to the underlying material. As a result, the human health risk assessment (HHRA) provides risk managers with risk estimates for each possible condition. (As indicated in Navy's response to EPA General Comment 4 below, an additional set of reasonable maximum exposure [RME] potential cancer risks and noncancer hazard quotients will be estimated for hypothetical exposure to soil underneath the concrete pad as a hot spot.) The text will be updated further as necessary to indicate the concrete pad and building slab are temporary barriers.

3. **Comment:** **Once the risk of exposure to that material, for receptors under the current land use designations, is determined and is out of the acceptable risk range, it moves to the FS [feasibility study] as part of the RAOs [remedial action objectives]. The FS would include at a minimum the no action alternative, which shows the maximum risk (based on the risk assessment), the full mitigation alternative, which might be full demolition and excavation to show the maximum reduction of risk, and one or more alternative that fall in between, such as a barrier. If the barrier alternative is chosen, after considering public comment, then the engineering of the barrier and the long term monitoring and maintenance of the barrier is part of the Record of Decision. The fact that the concrete pad and building slab may, in the end of the process, be acceptable as a barrier, when accompanied by appropriate monitoring and maintenance, can not be used or confused to side-step the process of determining the risk of exposure to the material.**

Response: Comment noted.

4. **Comment:** **Given the high levels at the sample locations under the concrete pad and the uncertainty of the amount and concentrations of material under the building slab, it is important to develop the exposure area units and the associated exposure point concentrations [EPC] with the following in mind:**

- (a) **The exposure area unit could be as small of [sic] the area of the concrete pad itself, should it be breached or removed. A child**

could play or a backyard of a townhouse could be situated directly over the area of highest concentration.

- (b) Since the exposure unit could be small, it is important to use an exposure point concentration that is not diluted by adding in other samples from other areas of the parcel. Thus, the area of these high concentrations and the building slab should be evaluated as a unit, like a hot-spot, for the appropriately conservative risk evaluation.

Response: The Navy concurs that the area under the concrete pad should be considered a hot spot for dioxins. RME potential cancer risks and noncancer hazard quotients associated with hypothetical exposure to dioxins in the hot spot will be estimated using an EPC calculated using only samples from the concrete pad area. The resulting cancer risks and noncancer hazard quotients will be presented in Section 6.2 of the main text and Section I.11.0 of Appendix I in the final RI report.

Given the concentrations of dioxins adjacent to the building (under the concrete pad), it is possible that elevated concentrations exist under the daycare center building. The FS report would evaluate remedial alternatives that would ensure protection of human health in the event that Building 502 is demolished and the area is redeveloped for residential or commercial/industrial use.

5. **Comment:** The presentation of the final results of the RI risk assessment are most easily read and understood when there is a table that states first, the land use designation. Then the table lists the receptor, media, exposure pathway and risk determination. There can be two sections, one for current conditions and one for changed conditions, which need to be described. Once the RI risk assessment goes final, the same table moves to the FS and ROD [record of decision]. This provides for a clear understanding by all readers of the process and risk issues to be dealt with. The tables on 9-6 and 9-7 could serve as the input to the final table. The final table accompanies the conclusions for review, in the draft document, and the approved conclusions in the final document.

Response: The table provided in Section 9.5 on pages 9-6 and 9-7 presents the final results of the HHRA for both current and potentially changed conditions at Site 30. An additional table will be added to Section 6.4 listing any chemicals of potential concern (COPC) that contributed chemical-specific cancer risks greater than 1×10^{-6} (identified as "risk drivers") or chemical-specific hazard quotients greater than 1 for the receptor scenarios evaluated in the HHRA. The new table will also list any exceedances of lead exposure thresholds. This table is the basis for a final table listing any COPCs that become proposed chemicals of concern

(COC). However, no COCs have been identified for Site 30 that would trigger an FS. As stated in the conclusions of the draft document (see Section 9.7), "...further evaluation of dioxins at locations under the daycare center building may be warranted prior to any such future reuse." As a result, the FS report will evaluate remedial alternatives that would ensure protection of human health in the event that Building 502 is demolished and the area redeveloped for residential or commercial/industrial use.

RESPONSES TO COMMENTS FROM DTSC

General Comments

- Comment:** **RISK ASSESSMENT METHODS.** The document uses two different risk assessment approaches. Method 1 (Section 6.1.2; Appendix I, Section 7.0) eliminates chemicals of potential concern (COPCs) based on: (a) essentiality as a nutrient, (b) comparison to background concentrations of inorganic chemicals, and (c) comparison to screening concentrations. Method 1 also uses only U.S. EPA toxicity criteria (Section 6.1.4; Appendix I, Section 9.0). Method 2 eliminates chemicals of potential concern (COPCs) based on: (a) essentiality as a nutrient, and (b) comparison to background concentrations of inorganic chemicals. Method 2 uses CalEPA and U.S. EPA toxicity criteria.

An additional evaluation was done to assess the total risks and hazards for all detected chemicals, with the exception of essential nutrients (Section 6.1; Appendix I, Section 3.2). An additional assessment was done for inorganic chemicals which were identified as consistent with background concentrations. These results were summed with the Method 2 results to provide estimates of total risks and hazards.

These methods have been discussed at length in meetings and through document reviews. We have accepted these approaches. However, we have pointed out that screening chemicals with generic risk-based numbers can result in apparent inconsistencies between the different methods. In this risk assessment, the cancer risk estimates for the daycare center child from Method 1 are three orders of magnitude lower than the cancer risk estimates from Method 2 (Sections 6.2.1.1 and 9.5; Appendix I, Section 11.1). Similarly, the hazard indices from Method 1 are two or three orders of magnitude lower than the hazard indices from Method 2.

Response: The Navy acknowledges that the different COPC selection and toxicity assessment methodologies employed in Method 1 (risk estimate satisfying federal requirements) and Method 2 (risk estimate satisfying state requirements) have resulted in different risk estimates for the two methods. As noted in previous Base Realignment and Closure Cleanup Team meetings, these two risk assessment methods were developed to address varying DTSC, EPA, and Navy risk assessment requirements.

The significant differences between the Method 1 and Method 2 cancer risk estimates and hazard indices for the daycare center child are the result of the risk-based screening step in the COPC selection process for Method 1, which was not implemented in the COPC selection process for

Method 2. As presented in Section I.7.1.3 of Appendix I, no COPCs were selected under Method 1 from the two surface soil data subsets evaluated for direct contact exposures for daycare center receptors because the maximum detected concentrations in these data subsets were less than EPA Region IX preliminary remediation goals (PRG) for residential soil. As risk-based screening was not implemented in the COPC selection process for Method 2, the additional COPCs selected from the data subsets for daycare center children contributed to the resulting difference in the cumulative cancer risks and hazard indices (see Tables I-10.9 and I-10.10). Although the different COPC selection and toxicity assessment methodologies resulted in Method 2 cancer risks and hazard indices for daycare center children that were two to three orders of magnitude greater than the corresponding Method 1 values, the differences had no impact on the risk assessment conclusions. Both sets of cancer risk estimates were less than the risk management range and both sets of hazard indices were less than 1. Section 6.3 of the main text and Section I.12.3.4 of Appendix I will be revised to discuss the differences between Method 1 and Method 2 cancer risk estimates and hazard indices for the daycare center child.

2. **Comment:** **SITE CONCEPTUAL MODEL.** The Site Conceptual Model is discussed in Section 1.4 and illustrated in Figure I-2 of Appendix I.

The Release Mechanism is shown as “*Spills/Leaks*” (Figure I-2 of Appendix I). The primary source of contamination at Site 30 appears to have been the burial of debris. Please expand the description of Release Mechanisms.

Response: The site conceptual model will be revised to indicate buried debris and burnt material as the primary sources of contamination at Site 30. References to “site conceptual model” in Section 1.4 will be revised to “conceptual site model” for consistency with the remainder of the RI report.

3. **Comment:** **SOIL DEPTHS.** Surface soil is defined as zero to two feet below ground surface (Section 6.1.1.1 and Sections 6.1; Appendix I, 8.3.1). Although this goes beyond what is reasonably surface [soil], we accept the definition for this risk assessment.

Two surface soil data sets were evaluated (Section 6.1.1.1; Appendix I, Section 6.1). The data for current exposures excluded soil samples from locations which are currently beneath the Site 30 cap. The data for future exposures included seven additional samples from those locations. This approach is reasonable though it does add to the complexity (General Comment 1).

Subsurface soil is defined as zero to seven feet below ground surface (Section 6.1.1.1; Appendix I, Sections 6.1 and 8.3.2), with the

explanation that *“The Groundwater table is present at approximately 7 feet bgs throughout this area at NAVSTA TI.”* Any soil samples from depths greater than seven feet, but above the ground water, should be included with the subsurface soil samples. However, the document states that the greatest sample depth was 6.5 feet (Sections 6.1; Appendix I, 8.3.2).

Response: The Navy concurs that soil samples from the surface to the water table should be included in the HHRA. At Site 30, the deepest sample depth was 6.5 feet below ground surface (bgs), and no soil samples were collected below 7 feet bgs that were above groundwater. Therefore, defining the combined surface and subsurface soil interval as “0 to 7 feet bgs” was inclusive of all samples collected above the water table. However, for clarification, “0 to 7 feet bgs” will be revised to “0 foot bgs to groundwater” throughout the final RI report.

4. **Comment:** **CHEMICALS OF POTENTIAL CONCERN.** Method 1 has screened chemicals by comparison to U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) in the selection of chemicals of potential concern (Section 6.1.2.1). However, volatile organic compounds [VOC] were retained in order to evaluate the vapor intrusion pathway into indoor air. We note that PRGs should not be used without consideration of exposure pathways which are not included in their derivation. The indoor air pathway is such a pathway. There are other such pathways (Department of Toxic Substances Control [DTSC], 1994).

Response: The Navy acknowledges that PRGs do not account for all potential pathways of exposure to chemicals in soil, including inhalation of vapors in indoor air and ingestion of homegrown produce. However, except for vapor intrusion into indoor air, all pathways considered potentially complete and significant at Site 30 are accounted for in the derivation of PRGs. VOCs detected in soil were retained in Method 1 to assess their potential contributions to cumulative risk through inhalation of vapors in indoor air.

5. **Comment:** **EXPOSURE AREAS.** The document states (Section 4.0 of Appendix I) that based on the Site 30 area, *“Its small size allowed for reasonable evaluation of exposures across the IR site without further subdividing the IR site into smaller exposure areas.”* This needs further explanation, because the risk assessment does in fact subdivide Site 30.

The descriptions of chemicals of potential concern (Section 6.1.2.1; Appendix I Section 7.1.3) refer to *“each of the four data sets.”* This was confusing to this reader, based on the previous statement that the

site was not subdivided. As shown in Tables I-2.8 through I-2.11 and described in Sections 6.1 and 8.3 of Appendix I, daycare center children were assumed to be exposed only to soil within the fence around Building 502. This soil was evaluated with and without the soil samples under the Site 30 cap.

Additional receptors (residents {children and adults}, construction workers, commercial/industrial workers) were assumed to be exposed to all soil within the Site 30 boundary (“*Site-wide Data*”). These data were subdivided into two depths (General Comment 3).

We agree with this approach, but we think that more explanation is needed.

Response: The statement “*Its small size allowed for reasonable evaluation of exposures across the IR site without further subdividing the IR site into smaller exposure areas*” will be removed from the text of Section I.4.0 of Appendix I. Additional explanation of the “four data sets” will also be provided in Section 6.1, but it is anticipated that the source of confusion will be eliminated with the removal of the aforementioned statement.

6. **Comment:** **HOT SPOT ANALYSIS.** The document states (Section 8.3 of Appendix I) that the data do not indicate any hot spots. Please add an explanation of why the elevated concentrations of dioxins under the Site 30 cap (Section 6.2.1.1) do not constitute a hot spot. Also please address the finding of 762 mg/kg [milligrams per kilogram] of lead (Section 6.2.3) with respect to hot spots.

Response: As indicated in Navy’s response to EPA General Comment 4, the Navy concurs that the elevated concentrations of dioxins under the Site 30 concrete pad may constitute a hot spot. Section I.8.3 of Appendix I will be revised to acknowledge this area of localized contamination. Furthermore, RME potential cancer risks and noncancer hazard quotients associated with hypothetical exposure to dioxins in this hot spot will be presented in Section 6.2 of the main text and Section I.11.0 of Appendix I.

The elevated detection of lead (762 mg/kg [J-qualified]) in a soil sample from location T094-45-1 at 2.0 feet bgs is not indicative of a potential hot spot, rather it is considered anomalous. Two additional samples were collected at different depths at the same trench location, one at 0.5 foot bgs with a concentration of 4.8 mg/kg (J-qualified), and another at 2.5 feet bgs with a concentration of 28.4 mg/kg (J-qualified). Based on this elevated lead concentration, and a dioxin toxic equivalent concentration of 10 nanograms per kilogram at 2.3 feet bgs, step-out sampling was performed around this trench. Four step-out locations were advanced approximately 3 feet beyond each of the four sides of the trench and sampled twice (once from 0.6 or 0.7 foot bgs and another from 2 feet bgs).

The lead concentrations for these eight samples ranged from 3.2 to 178 mg/kg. Finally, a lead concentration of 25.6 mg/kg (J-qualified) was detected in a sample from location T094-45-2, collected at 0.5 foot bgs directly adjacent to location T094-45-1. Combining the finding of 762 mg/kg with other findings of lead in the near vicinity, the average concentration of lead for the 12 samples collected from locations T094-45-1 and T094-45-2, and the T094-45-1 step-out locations is 105 mg/kg. As a result, this area is not considered a lead hot spot. This explanation will be provided in Section I.8.3 of Appendix I.

7. **Comment:** **POLYCYCLIC AROMATIC HYDROCARBONS.** The document repeatedly (Sections 6.2.1.2, 6.4, and 9.5; Appendix I, Section 12.4.1) refers to the concentration of 0.62 mg/kg as “*the PAH action level*” and an “*acceptable limit criterion*”. The fact that this concentration has been agreed to as a remediation goal for another Treasure Island site does not mean that it is a de facto, generic concentration, applicable to all sites. The risk assessment should be limited to reporting the risks and hazards. It is the responsibility of the risk managers to determine acceptable remediation goals for the daycare center.

Response: The Navy concurs that the benzo(a)pyrene-equivalent concentration of 0.62 mg/kg and any comparisons to this concentration as an “acceptable limit criterion” is outside the scope of the risk assessment and should be reserved for risk management decisions. All references to this benchmark concentration will be removed from the risk assessment sections of the RI report (Sections 6.2.1.2, 6.4, and 9.5, and Section I.12.4.1 of Appendix I).

8. **Comment:** **ASSUMPTIONS AND CALCULATIONS.** Because of time limitations, we did not review all exposure assumptions and exposure and risk characterization calculations. Instead, we performed spot checks.

Response: Comment noted.

9. **Comment:** **UNCERTAINTY.** Uncertainty is discussed in the body of the document (Uncertainty Analysis in Section 6.3) and at length in Appendix I (Uncertainty Evaluation in Section 12.0). The discussion of uncertainty in the Uncertainty Analysis is general. The Uncertainty Evaluation addresses uncertainties specific to this risk assessment. It is also balanced in presenting uncertainties that may have underestimated risks and hazards as well as those that may have led to overestimations.

The source of contamination at Site 30 is buried debris. Site 12 at Treasure Island illustrates the extreme heterogeneity of

contamination in buried debris. This is an important source of uncertainty and should be acknowledged in the Uncertainty Analysis and the Uncertainty Evaluation.

Confirmation samples associated with the removal action at Site 30 were included in the soil data for risk assessment (Section 6.1 of Appendix I). According to the text, there were 38 sidewall samples plus 6 floor samples for a total of 44 soil samples. Sixteen of those will be evaluated as part of Site 31 and therefore were presumably excluded from the Site 30 analysis (Section 6.1 of Appendix I). We assume that 28 confirmation samples were included in the Site 30 risk assessment ($44 - 16 = 28$). This is 16% of the total 171 samples. The Uncertainty Evaluation (Section 12.2.3) discusses the possible impacts of judgmental sampling. It should also address the impact that inclusion of confirmation samples may have had on the exposure point concentrations [EPCs].

The Uncertainty Evaluation (Section 12.1.1 of Appendix I) states that “It is entirely likely that daycare center children only frequent a portion of these unpaved areas and that potential risks estimated for this scenario are overestimated, as the EPC is biased towards the inclusion of samples from all unpaved areas.” We agree that children are likely to use the outside space nonrandomly and may concentrate in a particular area or areas. We fail to see the logic of the conclusion that this overestimates risk. The area or areas selected by children might be less contaminated than the average, in which case risks have been overestimated. The area or areas selected by children might just as well be more contaminated than the average, in which case risks have been underestimated.

The Uncertainty Evaluation should address the great differences in the results for the daycare center child from between Method 1 and Method 2 (General Comment 1).

Response: The Navy concurs that the heterogeneity of contamination in buried debris at Site 30 is an important source of uncertainty. As a result, the uncertainty analysis of the main text and of Appendix I will be revised to discuss heterogeneity of contamination in buried debris.

Section I.12.2.3 of Appendix I will be revised to address the impact that inclusion of confirmation samples may have had on the EPCs. The primary objective of the Site 30 sampling effort, including confirmation samples associated with the Site 30 removal action (also referred to as the “southern excavation”), was to define the nature and extent of contamination. As described in Section 2.2.3, the sidewall samples of the southern excavation were actually biased towards burnt debris or to where burnt debris was found nearby. These samples were analyzed exclusively for lead and copper. As a result, only EPCs for these two chemicals were

affected by the inclusion of these samples. The concentrations of lead from the confirmation samples included in the Site 30 HHRA ranged from 1.0 to 230 mg/kg, compared to the range of lead concentrations from the other Site 30 samples, 1.7 to 472 mg/kg (excluding the 762 mg/kg maximum detected concentration, determined to be anomalous as indicated in the Navy's response to DTSC General Comment 6). The concentrations of copper from the confirmation samples ranged from 3.5 to 89 mg/kg, versus concentrations ranging from 1.8 to 117 mg/kg in the other samples. Regardless of the potential EPC bias, data from these sampling locations are considered representative of site-wide conditions and appropriate for the evaluations.

The Navy acknowledges that the use of an EPC calculated from samples from all unpaved areas does not necessarily bias potential risks and hazards to daycare center children frequenting these areas high because children may use the unpaved areas nonrandomly and concentrate in areas less or more contaminated than average. The sentence "It is entirely likely that daycare center children only frequent a portion of these unpaved areas and that potential risks estimated for this scenario are overestimated, as the EPC is biased towards the inclusion of samples from all unpaved areas." in Section I.12.1.1 of Appendix I will be revised as follows:

"It is entirely likely that daycare center children only frequent a portion of these unpaved areas. The specific area or areas frequented by children might be more or less contaminated than all unpaved areas combined, in which case risks could have been under- or overestimated."

As indicated in the Navy's response to DTSC General Comment 1, a discussion of the significant differences between the Method 1 and Method 2 cancer risk estimates and hazard indices for daycare center children will be provided in Section 6.3 of the main text and Section I.12.3.4 of Appendix I.

- 10. Comment:** **ECOLOGICAL RISK ASSESSMENT.** A brief discussion of ecological risk assessment is found in Section 7.0. We concur that terrestrial receptors are currently not relevant at Site 30 because the habitat is of poor quality. Section 7.0 dismisses transport of contaminants to San Francisco Bay as a concern. One argument supporting this conclusion is the distance between Site 30 and the shore. Based on Figure 1-2, we estimate the shortest distance to be about 1200 feet. Please revise the text to report the distance and address the possible transport of contaminants from Site 30 to San Francisco Bay. This discussion should include information about tidal flux.

Response: The text will be revised to further clarify that, due to the distance from the shoreline, the nature of chemicals detected in soil, and the lack of detections in groundwater, transport of contaminants from Site 30 to San

Francisco Bay is not a concern. As discussed in Section 3.3.3, results from the 1995 tidal mixing zone study indicated that tidal mixing was not observed at wells farther than 250 feet from the shoreline (PRC 1995).

11. **Comment:** **DOCUMENT RECOMMENDATIONS.** The document concludes (Section 9.7) that risks and hazards are de minimis under the current use as a daycare center. The document recommends that “*An FS should be conducted to evaluate remedial alternatives that would ensure protection of human health in the event that Building 502 is demolished and the area developed for residential or commercial/industrial use.*” We concur that the risk managers need to consider the risk assessment results that the potential cancer risk for commercial/industrial workers is slightly above 1×10^{-6} and the potential cancer risk for residents is as high as 1×10^{-5} . Furthermore, soil under Building 502 is uncharacterized and could be contaminated. Finally, the Site 30 cap is only a temporary resolution to elevated concentrations of dioxins (e.g., Section 9.5).

Response: Comment noted.

Specific Comments

1. **Comment:** Page ES-4. The text states that “*Aroclor-1260 was the only PCB [polychlorinated biphenyl] detected at Site 30.*” Aroclor is not a PCB. It is a mixture of PCB congeners.

Response: The text will be revised to state, “Aroclor-1260 was the only Aroclor detected at Site 30. No other PCBs or mixtures of PCB congeners (Aroclors) were detected.”

2. **Comment:** Page ES-6, paragraph 3. The text states that sample location T094-29-1 is “*...beneath the Site 30 cap.*” Since this is the Executive Summary, a brief explanation is needed to say that “*the Site 30 cap*” is the concrete cap described in the previous paragraph.

Response: A sentence will be added at the end of the previous paragraph that states, “This concrete and asphalt pad will be collectively referred to as the Site 30 concrete pad.”

3. **Comment:** Page ES-9. We have pointed out in previous reviews that references to the “*target cancer risk management range*” and the “*target noncancer HI threshold of 1*” seem to suggest that there are targets or goals for cancer risk levels and noncancer hazard indices, and that it might be desirable to add more contamination to achieve these levels.

Response: All references to the cancer risk management range and the noncancer HI threshold of 1 as “targets” will be removed.

4. **Comment:** Page ES-9, paragraph 2. The text makes two references to “*the Site 30 cap*.” The cap is discussed within the document, but the reader of [sic] needs some explanation in the Executive Summary.

Response: A sentence will be added at the end of the second paragraph of the “Polychlorinated Dioxins and Furans in Soil” subsection of the Executive Summary that states, “This concrete and asphalt pad will be collectively referred to as the Site 30 concrete pad.”

5. **Comment:** Sections 1.2.3 and 6.1.3; Appendix I, Section 4.0. Section 1.2.3 states that Site 30 is “*approximately 63,641 square feet (1.5 acres)*” while Section 6.1.3 and Section 4.0 of Appendix I report the size as “*approximately 65,535 square feet (1.5 acres)*”. It seems odd to describe a number with five significant figures as “*approximate*”, but since the two numbers differ by almost 2000 square feet, evidently they are approximate.

Response: Sections 1.2.3 and 6.1.3 of the main text and Section I.4.0 of Appendix I will be revised to state, “approximately 1.5 acres.”

6. **Comment:** Section 6.1.2.2, paragraph 2. The reference “*Navy, 2002*” is not listed in References (Pages R-1 to R-10).

Response: The document “Guidance for Environmental Background Analysis, Volume I: Soil, NFESC User’s Guide” (Navy 2002) will be added to the References section.

7. **Comment:** Section 6.1.3. Since the reuse designation for Site 30 is reported as “*Residential/Open Space/Publicly Oriented Uses*”, we do not understand why homes and commercial buildings are characterized as an “*unlikely possibility*”.

Response: More information on the reuse of Site 30 as suggested in the draft NAVSTA TI reuse plan will be provided in the various sections of the main text (including Section 6.1.3) and Appendix I that discuss future land

use. Although Figure 17 of the draft NAVSTA TI reuse plan indicates Site 30 is in an area designated for “Residential/Open Space/Publicly Oriented Uses,” Table 7 of the reuse plan specifically identifies the daycare center as part of “Institutional Use” plans for the island (City and County of San Francisco [CCSF] 1996). Furthermore, at a property transfer meeting held on June 7, 2004, CCSF further reiterated their plans to continue operating the site as a daycare center (Navy 2004). For this reason, homes and commercial buildings have been characterized as an unlikely possibility in the HHRA.

8. **Comment:** References (Pages R-1 to R-10). Names of California government agencies are unnecessarily confusing in the reference list. Most Department of Toxic Substances Control references are listed as “DTSC”, but two are listed under “Cal/EPA” [California Environmental Protection Agency]. Similarly, two Office of Environmental Health Hazard Assessment [OEHHA] references are listed as “OEHHA” and two are listed under “Cal/EPA”.

Response: References to documents and other resources authored by DTSC or OEHHA, respectively a department and agency under the umbrella of the Cal/EPA, will be identified as DTSC or OEHHA references, as appropriate.

9. **Comment:** Section 3.1 of Appendix I. The document states that “*All agencies (EPA 1989; DTSC 1992; Navy 2004a) do recommend using an ambient screening approach to select COPCs that compares site concentrations of inorganic chemicals against ambient concentrations.*” This is incorrect. It is true that the [sic] in 1989, U.S. EPA Risk Assessment Guidance for Superfund recommended eliminating inorganic chemicals as chemicals for potential concern (COPCs) based on comparisons to background concentrations. However, current guidance (U.S. EPA, 2002) recommends inclusion of all inorganic chemicals to provide an estimate of total risks and hazards.

Response: The Navy concurs with the provided comment, although the 2002 EPA guidance has since been updated (EPA 2003). The last four sentences of the first paragraph of Section I3.1 of Appendix I will be revised as follows:

“In the federal guidance approach, the COPC list may be reduced in number by using risk-based screening criteria, such as EPA Region IX preliminary remediation goals (PRG) (EPA 2004d; Navy 2001d). However, DTSC does not recommend using screening criteria in order to fully evaluate risk from all detected chemicals (DTSC 1992). To characterize “site-related” risks and hazards, all regulatory agencies recommend using an ambient screening approach to select COPCs that

compares site concentrations of inorganic chemicals to ambient concentrations (EPA 1989; DTSC 1992; Navy 2004a). Current EPA guidance (2003a) recommends inclusion of all inorganic chemicals to provide an assessment of “total” risks and hazards.”

10. **Comment:** Figure I-2 of Appendix I. Footnote b references Section 8.5. There is no Section 8.5 in the main body of the document. The correct reference is Section 8.5 of Appendix I. This illustrates a general source of confusion in the numbering system.

Response: The numbering system of the RI will be updated globally to reduce confusion. All sections of an appendix will start with the appendix letter as a prefix. For example, once revised, the sections of Appendix I will be Section I.1.0, Section I.1.1, and so forth. Following this system, footnote “b” in Figure I-2 will be corrected to state “see Section I.8.5”).

11. **Comment:** Section 12.2.4 document suggests that 200 mg/day is the incidental soil ingestion rate for the pica child, and references the DTSC LeadSpread model. This is incorrect. For most exposure parameters, LeadSpread applies average, rather than upper bound, values. LeadSpread achieves Reasonable Maximum Exposure estimations by targeting blood lead levels at the 99th percentile. Pica children may ingest gram quantities of soil.

Response: The Navy concurs with the comment and will revise the text in Section I.12.2.4 of Appendix I.

12. **Comment:** Figure I-1 of Appendix I. The footnote references Section 4.3.2 for toxicity values. This appears to be an incorrect reference.

Response: Footnote “a” in Figure I-1 will be revised to state “...based on the prioritization discussed in Section I.9.0.”

RESPONSES TO TREASURE ISLAND DEVELOPMENT AUTHORITY AND RESTORATION ADVISORY BOARD COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION REPORT INSTALLATION RESTORATION SITE 30, DAYCARE CENTER NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA

The following presents the U.S. Department of the Navy's responses to comments from the Treasure Island Development Authority (TIDA) and the Naval Station Treasure Island Restoration Advisory Board (RAB) on the "Draft Remedial Investigation [RI] Report, Installation Restoration Site 30, Daycare Center, Former Naval Station Treasure Island San Francisco, California," dated May, 2005. The comments addressed below were received on behalf of TIDA from Geomatrix and Exponent on July 11, 2005. RAB member Ms. Dale Smith of the Treasure Island RAB presented her comments at the June 15, 2005 RAB meeting.

RESPONSES TO COMMENTS FROM GEOMATRIX

General Comments

- 1. Comment:** *Groundwater Monitoring Wells Considered in this RI.* The document indicates that two monitoring wells were installed as part of the Site 30 RI (Executive Summary, subsection Groundwater Results; Sections 3.4, 4.1.2, 4.3, and 7.0; and Figure 2-1). The two wells are 30/31MW06 (located outside the site boundary in 11th Street) and 30/31MW08 (located within the site boundary). It is unclear why well 30/31MW07 would not be included and discussed in this report. It is also located in 11th Street (similar to 30/31MW06) and is immediately downgradient of the area where debris was removed at Site 30. I recommend that results from well 30/31MW07 be discussed in Sections 4.3 and 7.0 of the Report and the well location shown on Figure 2-1.

Response: Although wells 30/31MW06 and 30/31MW07 are both located in 11th Street, 30/31MW07 was not included in the Site 30 RI report because it is specifically located within the remaining debris below 11th Street. Because groundwater flows approximately in a northwest direction, debris below 11th Street is considered a potential source of chemical contamination affecting the adjacent Site 31; therefore, well 30/31MW07 is included in the Site 31 RI report. However, well 30/31MW06 is outside the 11th Street debris area, thus it was included in the Site 30 RI as a downgradient well to 30/31MW08. Clarification will be made in the Final RI.

Specific Comments

1. **Comment:** *Executive Summary (p. ES-1) and Section 1.2.2 (p. 1-6).* The text indicates that documentation regarding the “old trash dump” was discovered during the environmental baseline survey to support the Finding of Suitability to Lease (FOSL). This does not appear to be correct. The FOSL for the parcel was completed in July 1997 and I believe the documentation was discovered several years later (2001 or 2002).

Response: The first sentence of the third paragraph of the “Site History” subsection of the Executive Summary will be revised to state, “In April 2002, a 1989 as-built drawing was discovered indicating that the Navy Public Works Center installed an 8-inch water line down the middle of 11th Street.”

2. **Comment:** *Executive Summary, subsection Pesticides and Polychlorinated Biphenyls in Soil (p. ES-4).* The discussion of the chlordane detections should include a comparison to the screening criteria (consistent with discussions for DDT, DDD, DDE and PCBs).

Response: A sentence will be added to the paragraph discussing chlordane detections in the “Pesticides and Polychlorinated Biphenyls in Soil” subsection of the Executive Summary that states, “None of the results for alpha-chlordane or gamma-chlordane exceeded EPA’s PRG for residential soil of 1.6 mg/kg for technical chlordane.”

3. **Comment:** *Executive Summary, subsection Geology and Hydrogeology (p. ES-3).* The last sentence states that groundwater at Site 30 flows in an approximately westerly direction. This is inconsistent with the text in Section 3.4.2 and Figure 3-6, which indicates that groundwater flows in a north-northwesterly direction.

Response: The last sentence of the last paragraph of the “Geology and Hydrogeology” subsection of the Executive Summary will be revised to state, “Based on general NAVSTA TI hydrogeology and basewide groundwater monitoring data, groundwater at Site 30 flows in an approximately northwest direction toward the shoreline.”

4. **Comment:** *Section 1.2.4.* The bulleted list of future activities that may be undertaken at Site 30 per the 1996 Draft Reuse Plan should include residential uses.

Response: Section 1.2.4 will be revised to include an additional bullet for residential use. However, Section 1.2.4 will also be revised to state how one portion

(Figure 17) of the draft NAVSTA TI reuse plan suggests that Site 30 is in an area designated for “Residential/Open Space/Publicly Oriented Uses,” but another portion (Table 7) specifically identifies the daycare center as part of “Institutional Use” plans for the island.

5. **Comment:** *Section 2.5 Monitoring Well Installation.* The first paragraph provides the general rationale for temporary wells installed during Site 30/31 investigations (“...based on previous soil analytical results and the anticipated groundwater flow direction.” It would be helpful to document the explicit rationale for each well specifically installed to assess groundwater impacts associated with Site 30 (wells 30/31MW06 through 30/31MW08).

Response: Section 2.5 will be revised to include the rationale for selection of monitoring well locations at Site 30.

6. **Comment:** *Section 2.6 Groundwater Sampling.* The last sentence of the first paragraph says that the sections below describe procedures for “an alternative sampling method.” I do not see such a discussion.

Response: The last sentence in the first paragraph of Section 2.6 will be revised to state, “The sections below describe the procedures for water level measurements and low-flow-rate purging.”

7. **Comment:** *Section 2.7 Decontamination Procedures.* This section discusses decontamination procedures for drilling activities. It should also include a discussion of decontamination procedures for trenching or excavation activities.

Response: Decontamination procedures from the “Final Field Activity Report, Exploratory Trenching and Soil Excavation Time-Critical Removal Action, Parcel TO94, Treasure Island, San Francisco, California,” (Shaw Environmental & Infrastructure, Inc. 2003) will be added to Section 2.7, as required.

8. **Comment:** *Figures 3-4 and 3-5, Cross Sections.* The cross sections only present sources of lithologic information that provide data to a depth of 10 feet below ground surface (bgs; i.e., temporary wells, trenches). What were the sources of information used to provide the lithologic interpretation between 10 and 40 feet bgs on the cross sections? Figure 3-4 (Cross Section A-A’) incorrectly shows the area beneath 11th Street as an “area where debris has been removed and backfilled with clean fill material.” The Navy conducted no removal beneath 11th Street.

Response: Figure 3-4 will be revised to remove the “area where debris has been removed and backfilled with clean fill material” beneath 11th Street. Additionally, Figures 3-4 and 3-5 will be revised to indicate that depths below groundwater were extrapolated based on known geologic conditions in this area.

9. **Comment:** *Section 4.1 Sample History.* The discussion about which trenches were excavated during different phases of investigation is difficult to follow without a figure showing all trench locations. I suggest adding a figure that shows the locations of all trenches discussed in this section and color-coding the locations according to the phase of investigation during which they were excavated.

Response: The Navy concurs and will provide a figure illustrating the suggested chronology.

10. **Comment:** *Section 5.2 Contaminant Fate and Transport Processes.* This section provides a lengthy generic discussion about contaminant fate and transport processes without explicitly addressing the six chemicals exceeding screening criteria. It would be helpful if the text discussed the relevance of these processes with respect to the chemicals of interest at Site 30.

Response: Section 5.2 as well as the relevant subsections will be revised to include more specific information concerning the six COPCs for Site 30.

RESPONSES TO COMMENTS FROM EXPONENT

Specific Comments

- Comment:** Section 8.2, p. I-14 – There is no mention of ingestion of homegrown produce as a potential exposure pathway for the future residential receptor. This issue has been discussed many times for other IR sites at Treasure Island. Given that “The draft NAVSTA TI reuse plan designates Site 30 for ‘Residential/Open Space/Publicly Oriented Uses,’” ingestion of homegrown produce is clearly a potentially complete pathway at some time in the future. This pathway should be acknowledged, even if it is not evaluated quantitatively in the HHRA. This comment also applies to Figure I-2 and Section 1.4 of the main text.

Response: As stated in Section 6.1.3 of the main text and Sections I.4.0 and I.8.1.2 of Appendix I, the CCSF plans to continue operating the site as a daycare center (Navy 2004). Upon further review of the draft NAVSTA TI reuse plan, the CCSF’s current plans are consistent with the identification of the daycare center as part of “Institutional Use” plans for the island (CCSF 1996); see also Navy’s response to DTSC Specific Comment 7. More information on the reuse of Site 30, as suggested in the draft NAVSTA TI reuse plan, will be provided in the main text and Appendix I, the HHRA. Despite the unlikely possibility of residential reuse, future residents were evaluated in the HHRA, and the ingestion of homegrown produce will be acknowledged as a potential exposure pathway for these receptors. The following paragraph will be added to Section I.8.2 of Appendix I to specifically address this topic.

“Ingestion of homegrown produce was considered a potentially complete, but unlikely, exposure pathway for hypothetical residents at Site 30. As suggested in the reuse plan (CCSF 1996), residential redevelopment on TI is likely to be limited to multifamily units or high-density housing. In such areas, the growing of produce in meaningful amounts is considered unlikely (DTSC 1992).”

The ingestion of homegrown produce pathway will not be added to Figure I-2. Rather, Figure I-2 will be revised to only show complete pathways that are quantified in the HHRA. Section 1.4 of the main text will not be revised to account for the ingestion of homegrown produce pathway because this section only discusses complete exposure pathways that were quantitatively evaluated in the HHRA.

2. **Comment:** Section 8.3.4, p. I-17 – It is unclear why the use of a particulate emission factor (PEF) of 1.316×10^9 cubic meters per kilogram (m^3/kg) is “conservative” for evaluating future residents or commercial/industrial workers. Further, the PEF of $6.581 \times 10^8 \text{ m}^3/\text{kg}$ to be used for the construction worker scenario is not provided in the cited EPA Region IX guidance. The derivation of this factor should be documented in the HHRA. Further, it should also be documented who considers this factor “relevant for construction workers engaged in redevelopment activities at Site 30, including excavation.”

Response: The use of “conservative” to describe the PEF of $1.316 \times 10^9 \text{ m}^3/\text{kg}$ for residents and commercial/industrial workers will be revised. The proposed PEF of $6.581 \times 10^8 \text{ m}^3/\text{kg}$ for the construction worker was estimated using Equation 4-11 provided by EPA Region IX in its memorandum on the derivation of PRGs (EPA 2004), which is based on earlier EPA soil screening guidance (EPA 1996). All default values in Equation 4-11 were used in the derivation except for the default fraction of vegetated cover (0.5), which was replaced with a value of 0. This PEF was considered relevant to construction workers because they would be expected to be exposed to unvegetated soils while engaged in redevelopment activities, including excavation, at Site 30. Section I.8.3.4 of Appendix I will be revised to provide this detailed information describing the basis for this PEF.

3. **Comment:** Section 8.3.4, p. I-17, 2nd paragraph – The output from the vapor intrusion model should be provided in Attachment I2 so that the results can be evaluated independently. Similarly, the calculations for the air-in-trench exposure-point concentration (EPC) should be provided in the HHRA.

Response: The requested output from the vapor intrusion model will be provided as additional tables in Attachment I2. Section I.8.3.4 of Appendix I will be revised to provide the calculations for the air-in-trench EPCs.

4. **Comment:** Section 8.4.2, pp. I-23 to I-28 – The exposure pathways, equations, and input parameters used to evaluate the future residential child are different from those used to evaluate the current day-care center child, because general EPA/DTSC guidance was used in the former case and specific OEHHA guidance was used in the latter case. Because these differences do not necessarily make sense from a technical perspective (e.g., a future residential child is as likely to be exposed to indoor dust as a day-care center child), some type of discussion of these discrepancies is warranted, perhaps in the uncertainty section. This comment also applies to Section 1.4 of the main text.

Response: The sections of the main text and Appendix I that present uncertainties in the HHRA will be revised to comment on discrepancies in risk estimates resulting from using specific OEHHA guidance for school site receptors versus general EPA and DTSC guidance for residents. Discussion will be provided that specifically identifies how exposure to indoor dust through migration of chemicals from outdoor soil might also be expected for hypothetical residents or other receptors spending a portion of time indoors. Although potential risks were not estimated for these receptors from exposure to indoor dust through migration of chemicals from outdoor soil, the exposure pathways and parameters used to evaluate exposure to outdoor soil are expected to err on the conservative side, rather than underpredict unforeseen human health risks.

5. **Comment:** Section 11.2, p. I-41, last paragraph – A value of “1.0” represents two significant figures, not one significant figure as indicated in the text. This comment also applies to Section 11.3, where the total hazard reported for the child resident of 1.3 should be rounded to 1, and to the corresponding sections of the main text (i.e., Section 6.2.1.2 and 6.2.2, respectively). Finally, the total hazard indexes (and cancer risks) are not mentioned in the Executive Summary of the main text. This information should be added to the Executive Summary for completeness.

Response: The total hazard indices (and cancer risks) will be provided in the Executive Summary. Cancer risks and hazard indices presented in the text to more than one significant figure will be adjusted to one significant figure. Additional significant figures will be presented in the tables as necessary to enable checks for mathematical accuracy and to distinguish results that may appear to be the same due to rounding to one significant figure but are actually different.

6. **Comment:** Section 12.2.4, p. I-48 – The incidental soil ingestion rate of 200 mg/day used for the pica child in the LeadSpread model is given as an example of exposure variables representing “standard upperbound estimates.” While there are many other examples that could be provided to support this statement, the input parameters to the LeadSpread model represent central tendency values, not upper-bound values.

Response: As indicated in the Navy’s response to DTSC Specific Comment 11, the Navy concurs with the comment and will revise the text in Section I.12.2.4 of Appendix I.

7. **Comment:** Section 12.3.2, p. I-50 – It is unclear what is meant by the following statement: “The magnitude of the uncertainties in the TPH

assessment was assumed to be a function of spatial distribution of TPH as gasoline contamination, relative to the distribution of the samples analyzed for PAHs.” This sentence needs to be rewritten to clearly convey the intended meaning.

Response: The statement will be removed.

8. **Comment:** Section 12.3.4, p. I-51, 2nd paragraph – While it is stated that the estimated risks based on Methods 1 and 2 are within an order of magnitude for the residents and commercial/industrial workers, thereby implying that there is no significant difference between the risks estimated by the two methods, no mention is made that the estimated risks for the day-care center child are two to three orders of magnitude different, depending on which method was used.

Response: As indicated in Navy’s response to DTSC General Comment 1, a discussion of the significant differences between Method 1 and Method 2 cancer risk estimates and hazard indices for the daycare center child will be provided in Section 6.3 of the main text and Section I.12.3.4 of Appendix I.

9. **Comment:** Section 12.4.1, p. I-52 – The bulk of this section has nothing to do with the potential uncertainty associated with risk estimates for benzo(a)pyrene or other polycyclic aromatic hydrocarbons.

Response: The Navy concurs with the comment. As indicated in the Navy’s response to DTSC General Comment 7, the Navy acknowledges that the discussion presented in Section I.12.4.1 of Appendix I is outside the scope of the risk assessment and is best reserved for risk management decisions. Section I.12.4.1 of Appendix I will be removed from the HHRA, and any references to the benzo(a)pyrene-equivalent concentration of 0.62 mg/kg as a benchmark criterion will be removed in the risk assessment sections of the main text (Sections 6.2.1.2, 6.4, and 9.5).

Miscellaneous Comments

1. **Comment:** Section 3.1, p. I-3 – I suggest re-wording the first sentence as follows: “To satisfy federal (Navy and EPA) and state (DTSC) requirements, *risk estimates will be prepared by two different methods*, which will be referred to as Method 1 and Method 2.” This comment also applies to the Executive Summary and Section 6.1 of the main text.

Response: The Navy concurs with this comment. The text will be modified as suggested.

2. **Comment:** Section 7.0, p. I-8, 1st subbullet – The use of the term “similar” in the second sentence is confusing, because metals were evaluated in exactly the same way in both Methods 1 and 2. I recommend rewording this sentence as follows, “As in Method 1,...” (i.e., rather than “Similar to...”). This comment also applies to Section 6.1.2.1 of the main text.

Response: The Navy concurs with this comment. The text will be modified as suggested.

3. **Comment:** Section 7.1.1, p. I-9, 1st paragraph – Children are not necessarily more “sensitive” to chemical exposure than adults. I believe the point is that, at a given concentration, children may be exposed to a higher degree than adults on a per-body-weight basis.

Response: The Navy concurs with this comment. The last sentence of the first paragraph of Section I.7.1.1 of Appendix I will be modified to state, “The residential PRG is about seven times more conservative than the industrial PRG, in part because it accounts for exposures to children (who may be exposed to chemicals to a higher degree than adults based on their smaller body weight relative to their exposed dose) and because it accounts for a 30-year exposure period rather than a 25-year exposure period.”

4. **Comment:** Section 7.2, p. I-11 – The second “e” is missing from “o-Xylene” toward the bottom of this page

Response: The spelling of “o-Xylene” will be corrected.

5. **Comment:** Section 8.3.2 – p. I-16 – This section states that no samples were collected below 6.5 feet below ground surface (bgs), but does not say why that is the case. I believe that no samples were collected below this depth, because depth to groundwater is approximately 7 feet bgs and samples were not collected below the groundwater table. If this is true, then I suggest providing this explanation as justification for why samples were not collected below 6.5 feet bgs. In addition, the last paragraph of this section seems repetitive and unnecessary.

Response: Comment noted. No samples were collected below 6.5 feet bgs because the approximate depth to groundwater is 7 feet bgs and samples were not collected below the groundwater table. Section I.8.3.2 of Appendix I will be revised to provide this explanation. In addition, as indicated in Navy’s response to DTSC General Comment 3, references to the combined surface and subsurface soil interval as “0 to 7 feet bgs” will be replaced with “0 foot bgs to groundwater” throughout the Final RI report for

simplification and clarification. Finally, the last paragraph of Section I.8.3.2 of Appendix I will be removed.

6. Comment: Section 12.3, p. I-49 – OEHHA, not DTSC, is the primary group within Cal-EPA that develops toxicity criteria.

Response: The Navy concurs with this comment. The text will be modified as suggested.

7. Comment: Section 12.3.4, p. I-51, 2nd paragraph – I believe the first sentence should be reworded as follows: “Estimates of potential cancer risks were uniformly within or below the EPA risk management range...” (i.e., rather than “outside of,” which could imply above or below the range).

Response: The Navy concurs with this comment. The text will be revised as suggested.

RESPONSES TO COMMENTS FROM Ms. DALE SMITH, TREASURE ISLAND RAB MEMEBER

General Comments

1. Comment: Vanadium was detected in numerous samples, is there any idea what the source of the vanadium would be on the site?

Response: Vanadium is a naturally occurring element and the majority of the detections at Site 30 were below the NAVSTA TI ambient concentration. Other known sources of vanadium in the environment, though not likely at Site 30 include steel manufacturing and fuel oils.

2. Comment: On Page 4-5 it stated that there is one chemical that is only one time less carcinogenic than Benzo(a)pyrene, but that chemical is not identified.

Response: It was not the intention of the text in Section 4.2 (Page 4-5) to identify PAHs that were one time less carcinogenic than benzo(a)pyrene, rather to describe the genesis of the B(a)P EQ screening criterion. This screening criterion was developed based on the principle of relative carcinogenicity of benzo(a)pyrene to the other six PAHs classified by EPA as probable human carcinogens. The action level was developed for comparison to aggregate concentrations of these PAHs expressed in terms of B(a)P EQ. The action level was set to 0.62 mg/kg benzo(a)pyrene equivalents, corresponding to a residential cancer risk of 4.2×10^{-6} using site-specific exposure parameters, or a cancer risk of 1×10^{-5} using the default exposure parameters used to derive the EPA Region IX PRG for residential soil.

The following table presents the six PAHs classified by EPA as probable human carcinogens as well as their toxicity equivalency factors (TEF). The TEF accounts for the compounds relative toxicity to benzo(a)pyrene.

Compound	TEF
Benz (a) anthracene	0.1
Benzo (a) pyrene	1
Benzo (b) fluoranthene	0.1
Benzo (k) fluoranthene	0.1
Chrysene	0.01
Dibenz (a,h) anthracene	0.34
Indeno (1,2,3-cd) pyrene	0.1

3. Comment: Why are soil depths greater than 7-feet not considered in the HHRA?

Response: Only soil samples from the surface to the water table are included in the HHRA. At Site 30, the deepest sample depth was 6.5 feet below ground surface (bgs), the depth at which groundwater was encountered. For clarification, "0 to 7 feet bgs" will be revised to "0 foot bgs to groundwater" throughout the RI report.

4. Comment: The acronym "EQ," as it appears on page 9-3 does not appear in the acronym list.

Response: The acronym "EQ" on page 9-3 was orphaned from "B(a)P EQ" at a line break. The Navy will update the text to ensure that acronyms remain intact.

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