From: Sullivan, James B CIV NAVFACHQ, BRAC PMO
To: Janda, Danielle L CIV NAVFAC SW
Cc: Clark, David J CIV NAVFAC SW
Subject: FW: Comments on Draft Site 21 Human Health Risk Assessment Addendum, Treasure Island, San Francisco
Date: Monday, August 27, 2012 14:51:21
Attachments: Site 21 HHRA Addendum CommentsToxStrat2012.pdf

FYI

-----Original Message-----
From: Warner, Scott [mailto:Scott.Warner@amec.com]
Sent: Monday, August 27, 2012 14:48
To: Sullivan, James B CIV NAVFACHQ, BRAC PMO
Cc: Sunga, Remedios@DTSC; Zech, Myriam@Waterboards; william.carson@terraphase.com; Beck, Jessica; Michael.Tymoff@sfgov.org; Kate.Austin@sfgov.org; Greg Brorby
Subject: Comments on Draft Site 21 Human Health Risk Assessment Addendum, Treasure Island, San Francisco

Dear Jim.

AMEC Environment & Infrastructure, on behalf of the Treasure Island Development Authority (TIDA), has reviewed the Draft Human Health Risk Assessment Addendum, Installation Restoration Site 21, Naval Station Treasure Island, San Francisco, California. Our primary comments are included in the attached letter prepared by Mr. Greg Brorby, DABT, of ToxStrategies, Inc. subcontracted to AMEC on behalf of TIDA for this work. Please note that we are not providing comments on sections of the subject document related to the history of TI nor directly related to the summaries of previous investigations, studies and remediation measurers not specifically related to the human health risk evaluation.

A primary comment, consistent with Mr. Brorby's, is for the Navy to clarify why no changes to the Draft Record of Decision is necessary, even though calculated Hazard Index values have changed.

Also, when describing the potential for risk evaluations to performed in the future after final development plans are developed, we request that the Navy provide clarification as to the process by which those reviews or reevaluations would take place (e.g., as described in Section 8.2.3).

Thank you again for the opportunity to review and comment on the subject document.

Regards, Scott Warner

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Scott D. Warner, CHG, CEG
Principal and Global Practice Area Leader/Environmental Remediation AMEC Environment & Infrastructure
2101 Webster Street, 12th Floor, Oakland, CA 94612 USA Tel +1 (510) 663-4100, fax +1(510) 663-4141 Direct +1 (510) 663-4269, mobile/cell +1(415) 328-0955 scott.warner@amec.com amec.com <http://www.amec.com/>

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August 27, 2012

Scott Warner
AMEC Environmental and Infrastructure
2101 Webster Street, 12th Floor
Oakland, CA 94612

RE: COMMENTS ON SITE 21 HUMAN HEALTH RISK ASSESSMENT ADDENDUM REPORT

Dear Scott:

This letter presents the results of my review of the draft "Human Health Risk Assessment [HHRA] Addendum Report for Installation Restoration [IR] Site 21, Naval Station Treasure Island [NAVSTA TI], San Francisco, California," dated July 2012. This report was prepared on behalf of the U.S. Navy (the Navy) by Shaw Environmental, Inc. It should be noted that this review did not include a rigorous assessment of the information presented in the figures, tables, and appendix attachments or any verification of the risk assessment calculations. To the extent that I noticed discrepancies between information presented in the text versus information presented in the figures or tables during my review, these discrepancies are indicated below.

General Comment

1. As noted by the Navy, the total estimated cancer risks and noncancer hazard indexes (HIs) presented in the HHRA Addendum are not significantly different from those presented in the original HHRA.[1] For example, the maximum total estimated cancer risk for a current commercial/industrial (C/I) worker was the same (3×10^{-5}) in both assessments. However, for noncancer effects, the maximum estimated HI went from a value slightly below the generally acceptable level of 1 (0.4) to a value slightly above 1 (3). Thus, the Navy's conclusion in the original HHRA that the noncancer HIs for this scenario are below the generally acceptable level of 1 no longer holds true and additional explanation is needed as to why no changes in the Draft Record of Decision-Remedial Action Plan (ROD-RAP) are required. This comment also applies to the future C/I scenario. It is acknowledged that some of this information is provided in the uncertainty assessment of the HHRA Addendum; however, this information should be summarized and/or reiterated in the Section 8.0 (Results) and Section 10.0 (Conclusions and Recommendations) for clarity.

[1] Sullivan Consulting Group and Tetra Tech EM, Inc. (SulTech). 2007. Final Site 21 Remedial Investigation Report, NAVSTA Treasure Island, San Francisco, California. February.

Specific Comments

1. Section 5.0, p. 5-2 – The inhalation unit risk (IUR) value for trichloroethene (TCE) listed in Table 8 is 4.1×10^{-6} $(\mu g/m^3)^{-1}$. As noted in the summary presented on the U.S. Environmental Protection Agency's (EPA's) Integrated Risk Information System (IRIS) website,[2] this value does not incorporate age-dependent adjustment factors (ADAFs) to account for a mutagenic mode of action for kidney tumors. As also noted on the IRIS website, assuming "full lifetime" exposure (i.e., from birth to age 70 years), the ADAF-adjusted IUR is 4.8×10^{-6} $(\mu g/m^3)^{-1}$. The value for a 30-year exposure as evaluated in the HHRA addendum would be in between these values (see Specific Comment #3 below).

2. Section 6.1.2, p. 6-2 – This section contains the first reference to "whole-life adult" exposure, which apparently is intended to represent a 30-year exposure period entirely as an adult, as opposed to the more traditional 30-year exposure period from birth to age 30 years for a residential scenario. This terminology is confusing because "whole-life" could be interpreted to mean an entire lifetime. This is especially true for the Johnson & Ettinger (J&E) model input and output sheets included in Attachments 5 and 6 of Appendix B, which are labeled "Future Resident (Whole Life)." The appropriateness of assessing a future resident entirely as an adult is discussed further below.

3. Section 6.3, p. 6-5 – This section attempts to make the point that evaluating an exposure period of 30 years for a future resident entirely as an adult is conservative relative to evaluating the same 30-year exposure period including 6 years as a child and 24 years as an adult. First, even if the "pathway exposure factors" were the same, neither approach would be more or less conservative than the other. More importantly, however, as noted in Specific Comment #1, TCE is assumed to cause kidney cancer by a mutagenic mode of action, which means that ADAFs need to taken into account if exposure occurs during childhood. Therefore, for TCE, assuming that the 30-year exposure period occurs entirely as an adult is actually less conservative. The calculations for TCE should be updated to reflect the additional risk associated with early life exposure for the residential scenario. As noted on the IRIS website, Section 5.2.3.3.1 of the *Toxicological Review of Trichloroethylene*[3] provides further guidance for incorporating ADAFs depending on the specific exposure scenario.

4. Section 8.1, p. 8-2 – The text states, "For a 10 year exposure duration, the estimated maximum total risk and hazard would be two and a half fold less (1E-5 and 1, respectively), within the range of acceptable risk and hazard per the NCP (EPA 1990)." This is not a true statement for the noncancer HI, which is not dependent on exposure duration.

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[2] http://www.epa.gov/iris/subst/0199.htm.

[3] U.S. Environmental Protection Agency (EPA). 2011. Toxicological Review of Trichloroethylene (CAS No. 79-01-6) in support of summary information on the Integrated Risk Information System (IRIS). September. EPA/635/R-09/011F.

5. Section 8.2.3, p. 8-4 – The text states, "Because the future development/ redevelopment plans of Site 21 have not been finalized, reevaluation of the soil gas delineation would be appropriate at that time." Who is responsible for undertaking this reevaluation?

6. Section 10.0, p. 10-1 – It is true that, "… the cumulative risks/hazards estimated in this Addendum do not differ significantly from those estimated in the baseline HHRA…" However, the noncancer HI for the current and future C/I worker is now slightly greater than the generally acceptable level of 1. The Navy makes several points in the previous section as to the conservativeness of the estimated risks/hazards, especially with regard to the estimation of indoor air concentrations. The Navy should reiterate the most important sources of conservatism in the estimated HI values in this section as justification for why no change is required to the draft ROD-RAP.

Miscellaneous Comments

1. Section 2.6, p. 2-7 – The source of the preliminary comparison limits for tetrachlorothene (PCE) and TCE of 180 micrograms per cubic meter ($\mu g/m^3$) and 257 $\mu g/m^3$, respectively, is cited as "Shaw, 2011b," which is the soil gas investigation work plan for IR Sites 21 and 24. A review of this document indicates that the preliminary comparison limits for these chemicals are the California Human Health Screening Levels (CHHSLs) of 180 $\mu g/m^3$ and 528 $\mu g/m^3$, respectively. The difference between the two values for TCE appears to be that the value of 257 $\mu g/m^3$ reflects an adjustment of the CHHSL based on the recent EPA toxicity criteria for TCE. The basis for the preliminary comparison limit for TCE should be clarified in this section, and well as for other values, if any, that differ from those presented in the soil gas investigation work plan

2. Section 5.0, p. 5-2 – It appears that all exposure scenarios were evaluated using the California IUR and reference concentration (RfC) for PCE, not just vapor intrusion in a construction trench. Please clarify.

3. Section 6.3, p. 6-4 – The acronym "PEF" used for "pathway exposure factor" may cause confusion for some readers because "PEF" is more commonly used for "particulate emission factor."

4. Section 9.0, p. 9-1 – What is the basis for the statement "…the standard of care demanded by society, one-in-one million to one-in-ten thousand…"? As noted elsewhere in the HHRA Addendum, this risk range is from EPA's National Contingency Plan,[4] which is not necessarily reflective of "society" as a whole.

5. Section 9.1, p. 9-1 – The text states, "The use of maximum concentrations was used to ensure that there has not been an underestimate of the mean concentration

[4] U.S. Environmental Protection Agency (EPA). 1990. National Oil and Hazardous Substances Pollution Contingency Plan. 40 CFR Part 300; Federal Register, Volume 55, No. 45, pp. 8666-8865, March 8.

representing the site. The overestimate may be as much as an order of magnitude." What is the basis of the latter statement?

6. Section 9.2, p. 9-2 – Who "acknowledges" that the critical receptor for inhalation health effects in the adult? In addition, what is the relevance of the example regarding ingestion of groundwater given that this pathway is not included in the HHRA?

If you have any questions about these comments, please fee free to contact me at (510) 455-4679 or by email at gbrorby@toxstrategies.com.

Sincerely,

Gregory P. Brorby, DABT
Senior Managing Scientist