

**RESPONSE TO AGENCY COMMENTS ON THE
DRAFT VALIDATION STUDY FOR SITES 8, 11, 28, AND 29
FOR NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA**

This document presents the Navy's response to comments on the "Draft Validation Study (DVS) for Sites 8, 11, 28, and 29 for Naval Station Treasure Island, San Francisco, California," dated March 29, 2001. The comments were received from Mr. David Rist of the California Environmental Protection Agency (CalEPA), Department of Toxic Substances Control (DTSC); Mr. James M. Polisini of DTSC's Human and Ecological Risk Division (HERD); and Charlie Hong of the California Department of Fish and Game (DFG), Office of Spill Prevention and Response (OSPR). The Navy received comments from DTSC on May 10, 2001, and from DFG on June 19, 2001.

RESPONSE TO DTSC – DAVID RIST

General Comments DTSC's review of the DVS has determined that steps were not completed in the validation study process, despite past DTSC recommendations, that are necessary to ensure an accurate assessment of the risk posed by Contaminants of Potential Ecological Concern (COPECs) to the Peregrine Falcons at NSTI. Specifically, only a subset of the inorganic elements recommended for analysis by Inductively Coupled Plasma Atomic Absorption (ICP) were reported. As a result, DTSC believes that the DVS is incomplete and is therefore unable to concur with the conclusions reached in the DVS.

Response: A summary of the bird tissue data for all inorganic chemicals analyzed will be included in the final validation study.

Specific Comments

1. **Comment:** Page 10, Bird Survey Methods. Please depict on a figure in this document the specific locations of the bird survey plots.

Response: A figure that shows the locations of bird survey plots will be included in the final validation study report.

2. **Comment:** Page 13, Conceptual Site Model. This section states that the study is focused on terrestrial habitat at Sites 11, 28, and 29 and does not include potential exposure to sediments or surface water as neither of these media occur within the boundaries of the sites. Is this true? The Site 11 boundary currently reaches the bay and sediments may be found at the shoreline. Please clarify.

Response: This validation study is focused solely on terrestrial habitats at Yerba Buena Island (YBI); risk to the peregrine falcon associated with offshore areas, including the shoreline of Site 11, was evaluated as part of the offshore remedial investigation (RI) (Tetra Tech EM Inc. [TtEMI] 1999). In the offshore RI, the peregrine falcon was assumed to consume willets. The willet is a representative shorebird that forages along the shoreline of YBI.

3. **Comment:** Page 17, Section 5.5, Field Variances. Was the attempt by sharpshooters to collect species only conducted on one day? If so, why was there not an attempt to collect species on multiple days that may have resulted in the collection of more than one species that would in turn have resulted in greater understanding of the risks posed by COPECs to the peregrine falcons on NSTI?

Response: Field tissue collection was a 1-week-long effort. Bird tissue samples were collected over the course of 5 days. As explained in Section 5.5, no American robins or red-winged blackbirds were seen or heard on the sites during the field investigation. European starlings and house finches were heard calling in or near the sites, but were never observed. The most abundant bird species during the time of the tissue collection were black- and white-crowned sparrows.

RESPONSE TO DTSC HERD— JAMES M. POLISINI

The comments from Mr. Polisini and corresponding responses are relevant to peregrine falcon exposure via food web transfer at Sites 8, 11, 28, and 29.

General Comments **Inorganic elements which were identified as Contaminants of Potential Ecological Concern (COPECs) were not included in the assessment of the ecological risk in the Draft Validation Study. Despite HERD direction, over the last 5 years, that all inorganic elements reported by Inductively Coupled Plasma Atomic Absorption (ICP) be included, only a subset of elements are reported. This Validation Study for Peregrine Falcons at TI is unacceptable in the current form.**

Response: See response to DTSC general comment 1. This validation study evaluated all COPECs for Sites 8, 11, 28, and 29, as proposed in the work plan (TtEMI 1998).

In the screening level ecological risk assessment (SLERA) of the draft RI report, food-chain modeling techniques were used to evaluate potential risk from chemicals of potential concern (COPC) (PRC Environmental Management, Inc. [PRC] 1997). Any chemicals that exceeded background levels in surface soil (0 to 2 feet below ground surface) more than 10 percent of the time were considered COPCs. The modeled doses were then divided by the appropriate toxicity reference values (TRV) to calculate hazard quotients (HQ). For chemicals with no TRVs, COPCs were evaluated in reference to toxicological literature (PRC 1997). All COPCs for which HQs exceeded 1.0 in the draft RI report were recommended for further evaluation in a validation study.

In the validation study, all chemicals that were recommended for further study in the SLERA were considered COPECs and were evaluated using food-chain modeling techniques.

In accordance with DTSC's request, bird tissues were analyzed for a full suite of metals. As explained in Section 5.4 of the draft validation study, "metals other than mercury were analyzed using inductively coupled plasma spectroscopy. Mercury was analyzed by the cold vapor atomic adsorption method."

For the final validation study, all chemicals that exceed background concentrations in more than 10 percent of the samples will be evaluated using food-chain modeling. Those chemicals with no TRVs will be evaluated qualitatively in reference to toxicological literature. This includes the following COPECs:

Site 8: Barium, beryllium, cobalt, copper, lead, mercury, nickel, silver, polynuclear aromatic hydrocarbons (PAH), chlordane, and dichlorodiphenyltrichloroethane (DDT)

Site 11: Barium, beryllium, cadmium, cobalt, copper, lead, silver, thallium, PAH, and DDT

Site 28: Lead, thallium, and zinc

Site 29: Barium, beryllium, copper, lead, mercury, nickel, and zinc.

No bird tissue was analyzed for PAHs or chlordane. Therefore, literature-derived bioaccumulation factors will be used to estimate the site bird tissue burden for these chemicals.

Specific Comments

1. Comment: This Validation Study does not address all the contaminants previously recommended and is therefore deficient.

Response: See response to DTSC HERD general comment 1.

2. Comment: This Validation Study misrepresents the HERD conclusions regarding previous reports as indicating 'no significant risk to populations of small mammals' (Section 1.1, page 1). The actual language regarding small mammal hazard at Sites 8, 11, 28, and 29 is contained in the HERD memorandum of January 23, 1998:

The Treasure Island predictive assessment indicated a potential threat to small mammals at Sites 11, 28 and 29. HERD recommended in a November 4, 1997 memorandum to Mary Rose Cassa and in the November 4, 1997 conference call, that the validation studies include validation of the food and other media concentrations to which the

representative small mammal is exposed at Sites 11, 28 and 29. HERD agreed that future commercial or residential use of Site 8 would make small mammal studies at Site 8 unnecessary. The Navy concluded that small mammal populations at Sites 11, 28 and 29 would be supported by recruitment from surrounding populations even if there were site-related impacts. This conclusion was unsupported by any population studies. The Navy has responded in the minutes of the conference call that neither validation studies nor small mammal population studies will be done for Sites 11, 28 and 29. After further evaluation of the characteristics of Sites 11, 28 and 29 HERD is willing to withdraw the recommendation for small mammal validation studies at these sites. This decision is based on the disturbed nature of these sites, the continued disturbance of Sites 28 and 29 due to bridge maintenance, the likelihood of a cap being placed on Site 11 and the small size of all three sites, not on the Navy's contention that potential recruitment obviates the need for small mammal validation studies. HERD will recommend small mammal validation studies for Yerba Buena Island (YBI) sites with similar results in the predictive assessment if those sites are larger and have less disturbed habitat.

Please amend the text to accurately reflect this HERD decision and the basis for the decision not to pursue population dynamics studies for small mammals for Sites 8, 11, 28 and 29.

Response: The third paragraph in Section 1.1, page 1 will be revised to read as follows:

“The food-chain modeling performed for the SLERA indicated a possibility of some adverse impact to small mammals from the levels of certain chemicals at the sites; however, the Navy and regulatory agencies have agreed that a small mammal validation study is not necessary. This decision was based on the small size of the sites (that total about 29 acres), the disturbed nature of the sites, continuing disturbance of Sites 28 and 29, and likely remedial action for the landfill at Site 11, as stated in the comments submitted by the Department of Toxic Substances Control on January 23, 1998.”

3. **Comment:** The tissue concentrations estimated using correlation analysis may be either higher or lower than the actual tissue concentrations of the prey items. The estimates or ecological hazard in the Predictive Assessment may then be either over-protective or under-protective. This Validation Study ignores previous HERD comments to include the concentration of all inorganic elements and mercury (Section 1.1, page 2) used to re-calculate the Hazard Quotients (HQs) and Hazard Index (HI) rather than the selected subset identified in the Predictive Assessment. The specific comment in the HERD memorandum of January 23, 1998 was:

We recommend that bird tissue samples which are analyzed for

metals be analyzed by inductively coupled plasma (ICP) spectroscopy and the results of all metals be reported rather than limiting the metals data to those specified (Section 7.2, page 27). Mercury should, of course, be analyzed by the cold vapor atomic absorption method.

This Validation Study is therefore, deficient and should be rejected until all the inorganic elements analyzed by ICP and mercury are included in the assessment of ecological hazard.

Response: See response to DTSC HERD general comment 1.

4. Comment: Please provide some determination in the text that the soil concentration of inorganic elements at Site 8 is equal to or less than the soil concentration at Sites 11 and 29. This is necessary as the tissue concentration from Sites 11 and 29 were used as surrogates for Site 8 (Section 2.2.1, page 5).

Response: The soil concentrations of COPECs in Site 8 are comparable to concentrations from nearby Sites 11 and 29. Because the maximum bird tissue concentration from six samples (three from Site 11 and three from Site 29) was used in the food-chain model for Site 8, the model for Site 8 is considered representative. The 95th percentile upper confidence limit of the mean (UCL₉₅) concentration of COPECs in soil from Sites 8, 11, and 29 are presented below.

UCL₉₅ CONCENTRATIONS IN SOIL

COPEC	Site 8 UCL₉₅ (mg/kg)	Site 11 UCL₉₅ (mg/kg)	Site 29 UCL₉₅ (mg/kg)
Copper	66.7	188	47.4
Lead	90.5*	2,840	2,680
Mercury	0.07*	--	0.48*
Total DDT	1.8*	1.1*	--

Notes:

-- Concentration not above YBI background level; UCL₉₅ not calculated
mg/kg Milligram per kilogram

* Maximum concentration

5. Comment: The basis for not including Site 8 in the Validation Study is that it is described as graded with a gravel cover (Section 1.1, page 2). However, further description of the plant communities (Section 3.1.1, page 8) at Site 8 indicate that 'most' of Site 8 was regraded and covered with gravel but that ruderal habitat including various brome grasses currently exist at Site 8. Please provide further justification for excluding Site 8 from the ERA given habitat similar to other sites included in this report are evaluated.

Response: Site 8 was included in the draft validation study. As explained in Section 1.1, the 1998 bird surveys and 1999 bird tissue collection did not include Site 8 because at the time of those investigations, the planned reuse for Site 8 would have eliminated the peregrine falcon's exposure pathway at the site. That decision was not reached due to habitat characteristics; rather, it was based on planned reuse.

A decision was made by the Navy to include Site 8 as part of the validation study in February 2001 because at that time it became known that the State of California owns the parcel and that the future reuse was to remain unchanged, thereby maintaining the existing exposure pathway to the peregrine falcon.

6. **Comment:** Please provide some statement in the text regarding the final deposition of the soil after California Department of Transportation grading occurred at Site 8 (Section 2.2.1, page 4). As ecological hazard was not evaluated at Site 8, a deed restriction or some document of similar legal force, should be implemented for Site 8 to ensure that future use does not allow exposure for ecological receptors.

Response: A statement regarding the final deposition of the soil after the 1997 regrading of the site by the California Department of Transportation will be added to the final report, as requested.

Ecological hazard was evaluated at Site 8 using food-chain modeling techniques based on site-specific soil information and bird tissue concentrations from nearby Sites 11 and 29. Any proposed institutional or engineering controls for Site 8 will be included in the Draft Final RI report and are beyond the scope of the validation study.

7. **Comment:** The Department of Toxic Substances Control (DTSC) may wish to investigate requiring measures to limit the release of lead-based paints and other contaminants from CalTRANS projects into the environment. HERD suggests that the other natural resource trustees [i.e., California Department of Fish and Game (CDFG), National Oceanic and Atmospheric Administration (NOM), U.S. Fish and Wildlife Service (USFWS) and the Department of the Interior (DOI)] be consulted on this issue.

Response: Comment 7 is noted.

8. **Comment:** The list of prey species for the Peregrine falcon (Section 3.1.3, page 10) lists the American robin first. The American robin is an insectivorous bird. Various species of sparrows were sampled for this Validation Study. The various species of sparrows on TI are granivorous birds feeding on seeds and plants, while the American robin is an insectivorous bird. Insectivorous birds, being higher on the food web, would be expected to

accumulate higher tissue concentrations of some COPECs. Given that birds for the Validation Study were collected by shooting, please explain why American robins were not collected. This is particularly significant, as the lead tissue concentration from one sparrow sample from Site 28 (183BT004, Table 4) was 123.2 mg/kg. Lead tissue concentrations of insectivorous birds could reasonably be expected to be greater than those for granivorous birds.

Response: The goal of the March 1999 bird tissue collection was to collect three samples of species that were included on the target list at each site, as presented in Section 5.1 of the draft validation study. As explained in Section 5.1, the target species list was based on the 1998 bird survey results and consultations with local peregrine experts, including Brian Walton of the Santa Cruz Predatory Bird Group. The American robin was a preferred species for collection at Sites 28 and 29. However, as explained in Section 5.5, no American robins or red-winged blackbirds were seen or heard on the sites during the field investigation. European starlings and house finches were heard calling in or near the sites but were never observed. The most abundant birds at each site were sparrow.

Peregrine falcons are generalists that prey on the most "available" bird species, so sparrows, as the most abundant species at the site, were considered the most "available" bird species at the time of tissue collection and were therefore collected.

9. **Comment:** A Site Use Factor (SUF) of 0.0025 is used for the TI contribution to potential toxic effects for the Peregrine falcon based on the ratio of the sparrow home range to the Peregrine falcon home range (Section 6.1.8, page 21). The elements and chemicals addressed in this Validation Study are threshold toxicants. Intake from offsite, based on some estimate of 'ambient' concentration, must be factored into the evaluation, with a presentation of the relative impact of intake from TI.

Response: TtEMI conducted a literature search for bird tissue data that would support the calculation of an "ambient" dose based on regional bird tissues. While some regional bird tissues are available for dabbling and diving ducks, no regional data was found from species that are known prey items of the Bay Bridge peregrine falcons (Bell and others 1996). Without such data, calculation of an ambient dose would introduce significant uncertainty to the evaluation of risk.

For the final validation study, the Navy will adjust the site use factor to 0.25, which is an extremely conservative estimate based on the large foraging range of the Bay Bridge peregrine falcons.

10. **Comment:** The allometric conversion of the NAVY/BTAG Toxicity Reference Values (TRVs) (Section 6.2, page 22) could not be checked as the assumed weight of the sparrow was not indicated in the document. Please forward the assumed

weight for the sparrow so that the allometric conversion can be confirmed.

Response: The TRVs were allometrically converted to the weight of the peregrine falcon, rather than to the weight of the sparrow because the falcon is the receptor of concern in this study. As explained in Section 6.1.2 of the draft validation study, an average adult body weight of male peregrine falcon (0.611 kilograms) was used in the dose model and in the allometric conversion of the TRVs (Dunning 1984).

11. Comment: The dose and hazard quotients (HQs) (Table 5 and Table 6) were checked at random and found to be arithmetically correct.

Response: Comment 11 is noted.

Conclusions This Validation Study regarding the potential impact to Peregrine falcons is incomplete. The full suite of inorganic analytes reported by ICP is not evaluated, despite HERD comments over more than 5 years.

All inorganic analytes reported by ICP, in addition to mercury by cold vapor analysis, should be included in this assessment of ecological hazard to the Peregrine falcon before approval by DTSC.

In addition, HERD recommends that California Department of Fish and Game (CDFG), National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS) and the Department of the Interior (DOI) be consulted on this issue.

Response See response to DTSC HERD general comment 1.

RESPONSES TO DFG OSPR

General Comments

1. Comment: The DFG is in general concurrence with the review provided by Dr. James Polisini of the Department of Toxic Substances Control (DTSC) on May 7, 2001. The DFG has only a few new comments on the document beyond those expressed by DTSC.

Response: Comment 1 is noted.

2. Comment: The Navy intends to provide site-specific contaminant concentrations in order to verify the exposure predictions made for ecological receptors in the

SLERA. It is recommended that other exposure factors, such as life history characteristics of the peregrine falcon, also be fully evaluated at NAVSTA TI. For example, home ranges reported in the literature for peregrine falcon may be much larger than those at the sites under study because TI and YBI may provide attractive foraging areas. Juvenile exposure factors may be entirely different from adult estimates reported in the literature. The Navy should discuss the uncertainties in the exposure assessment that ultimately may greatly affect the overall estimate of risk to ecological receptors.

Response: The Navy has made every effort to tailor the exposure factors for this validation study specifically to the two pair of peregrine falcons that nest on the Bay Bridge. The Navy has consulted with Santa Cruz Predatory Bird Group experts that monitor the Bay Bridge peregrine falcons, and incorporated site use information that is specific for these pairs. As explained in Sections 3.2 and 6.1.8 of the validation study, the year-round territory of the Bay Bridge-East peregrine falcons encompasses an area of about 39 square kilometers (km²) and includes a small group of skyscrapers in downtown Oakland and several buildings at the Emeryville Crescent (Bell and others 1996). The territory of the Bay Bridge-West peregrine falcons extends from Nob Hill in northern San Francisco to a boundary south of the Islais Creek Channel and from an eastern boundary at YBI westward to buildings at Van Ness Avenue and Fell Street in San Francisco, an area of about 32 km² (Bell and others 1996).

The Navy acknowledges that some uncertainty is associated with the estimation of risk in the validation study. As stated in Section 7.2.2 of the draft validation study, "Potential sources of uncertainty in the dose estimates include inaccuracy in model parameters based on poor literature data, population and individual variation in life history, and variation in dietary patterns of animals at the site."

3. Comment: Please send the DFG a copy of paper of Bell *et al*, 1996, "Bridge Use by Peregrine Falcons in the San Francisco Bay Area."

Response: The requested paper was mailed to DFG on June 25, 2001.

Specific Comments

1. Comment: Section 6.1.8, pg. 21, para. 3: The site use factor (SUF) for the peregrine falcon should not be derived from the sparrow home range. The DFG believes that the SUF should be based on the ratio of the size of NAVSTA TI to the home range of the peregrine falcon. Ultimately, the SUF is calculated as the site size (403-acre TI and 147-acre YBI equals 2.23 km²) divided by the minimum home range of the peregrine falcon (e.g., 2.23 km²/32 km²), yielding a SUF of 0.0696. The SUF of 0.0025 is not acceptable to the DFG.

Response: This validation study is specifically for IR sites 8, 11, 28, and 29 located on YBI, rather than all of TI and YBI; therefore the SUF for each IR site if calculated as DFG recommends, would be the individual IR site area (rather than the size of all of TI and YBI) divided by the minimum home range of the peregrine falcon.

A SUF of 0.25 will be used for the final validation study (see response to DTSC

HERD specific comment 9). Given the large foraging range of peregrine falcons, an SUF of 0.25 is an extremely conservative estimate that assumes YBI is an attractive foraging area for nesting peregrine falcons.

2. **Comment:** **Section 6.2, pg. 22, para. 3: The meaning of a low TRV and a high TRV is unclear because the Navy-BTAG TRVs are not exclusively based on NOAELs or LOAELs. We suggest that the statement be changed to: The low TRV represents the no adverse effect level, below which adverse ecological impacts are not expected to occur. In contrast, the high TRV represents the approximate mid-point of observed adverse effects, and as such, represent a level of contamination that would be expected to have an adverse ecological impact.**

Response: The text will be revised to read as follows:

The low TRV represents a chronic no adverse effect level, below which adverse ecological impacts are not expected to occur. In contrast, the high TRV represents a dose at which a specific biological effect was seen in the laboratory test organism. Hence, the high TRV can be used to identify sites posing potential risk to birds or mammals (EFA West 1998).

3. **Comment:** **Section 6.3.1, pg. 24, para. 1: Since no bird samples were collected at Site 8 and DDT exceeded background levels, this section should include a discussion of risk to receptors from pesticides found on-site. A more thorough evaluation of the threat posed by pesticides may be necessary if the proposed reuse does not take place. It is premature to make a recommendation of “minimal risk to the peregrine falcon” at this site.**

Response: See the response to DTSC HERD’s specific comments 5 and 6. Although no bird samples were collected at Site 8, bird samples were collected at nearby Site 11, which had comparable DDT concentrations.

Conclusions As detailed above, the DFG is concerned that this VP inadequately evaluates potential risk of site contaminants to the peregrine falcon. The DFG recommends that the Navy provide both a revised document that clearly addresses all expressed concerns and a response to comments detailed in this letter before this document can be considered final by the DFG.

References

- Bell, D., D. Gregoire, and B. Walton. 1996. “Bridge Use by Peregrine Falcons in the San Francisco Bay Area.” *Raptors in Human Landscapes: Adaptations to Built and Cultivated Environments*. D. M. Bird and others (editors). Harcourt Brace and Co.
- Dunning, J. B. 1984. “Bodyweights of 686 Species of North American Birds.” Western Bird Banding Association, Monograph Number 1.

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PRC Environmental Management, Inc. 1997. "Draft Final Remedial Investigation Report, Naval Station Treasure Island, San Francisco, California." Prepared for Engineering Field Activity West, Naval Facilities Engineering Command, San Bruno, California. September.

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TtEMI. 1999. "Draft Final Remedial Investigation Report, Offshore Sediments Operable Unit, Naval Station Treasure Island, San Francisco, California." Prepared for Engineering Field Activity West, Naval Facilities Engineering Command, San Bruno, California. September.



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