



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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Re: EPA Comments on the Final *Technical Memorandum Assessing Selenium Concentrations in the Clay Remaining After Excavation of Contaminated Sediments* for Site 27, Former Naval Station Moffett (dated February 26, 2008)

We have reviewed the Navy's Final *Technical Memorandum Assessing Selenium Concentrations in the Clay Remaining After Excavation of Contaminated Sediments*, (Tech Memo) for Site 27, Former Naval Air Station Moffett Field, Santa Clara County, California which was submitted as Appendix C to the Draft *Remedial Action Completion Report*. Our comments on the Draft *Remedial Action Completion Report* are being provided in a separate letter. The Tech Memo was developed to support the conclusion that the remedial action at Site 27 has been completed and that no further excavation is required to address residual detections of selenium above the clean up goal. We agree that no further excavation is necessary at Site 27 and support the Navy's proposal to prepare an Explanation of Significant Differences (ESD) based on the findings of the Tech Memo. We have the following comments on the Final Tech Memo.

According to the Site 27 ROD (dated June 24, 2005), the selected remedy at Site 27 consists primarily of sediment and soil excavation and off-site landfill disposal. The excavation was limited to sediments from the Northern Channel and associated ditches and soil from the Lockheed berm and the berms adjacent to Building 191. The ROD provides that confirmation samples and visual identification of the clay layer in the excavation would be jointly used to confirm that the remedial action in the Northern Channel and associated ditches had been completed.

#### GENERAL COMMENT

A Tetra Tech site geologist confirmed via visual inspection that the sediments in the Northern Channel and associated ditches had been removed down to the underlying

clay layer, indicating that the Navy has accordingly completed this component of the selected remedy. It appears; however, based on confirmation sampling that there is a notable cluster of selenium concentrations in the North Patrol Road Ditch that exceeds the Target Cleanup Goal (TCG). The area of concern demarcated by confirmation samples is a roughly 700 foot section of the North Patrol Road Ditch west of the Marriage Road Ditch intersection. In Figure 3-1 of the Tech Memo, the western terminus of this area would be the first confirmation sample below the TCG, the 0.95 mg/kg sample that appears to be sample number 04-100. While the Tech Memo provides several explanations for the presence of selenium at a range of concentrations and the confirmation samples indicate that the detected selenium might represent background levels, those samples also indicate that the Navy's remedial action has exposed selenium in the underlying clay layer which may present an unacceptable risk to ecological receptors.

The ROD selected 0.926 mg/kg as the sediment TCG, a risk-based number for ecological receptors. Consequently, the Navy needs 1) to demonstrate that the selenium exposed by its remedial action in the described area does not present an unacceptable risk to the site's ecological receptors or 2) to perform limited site restoration with acceptable native cover to interrupt the exposure pathway. The Navy can conduct sampling at the ditch bottom-water interface to show that the specific form of selenium present in the area in question is insoluble and not available for uptake by the site's ecological receptors. Alternatively, sampling to measure the re-emplacement of sediments since construction activities were completed and demobilization activities began in December 2006 may demonstrate sufficient containment of the selenium. If sampling fails to demonstrate that the risk from the elevated selenium concentrations in this area is not a concern, other more active methods of sequestering the selenium could be implemented. The excavation of the channel in this area could be restored with a layer of acceptable native cover to remove the risk.

## **SPECIFIC COMMENTS**

- 1.** The first three sentences of the final paragraph of Section 1.2 should be moved to Section 4.0, (Summary and Conclusions), elsewhere in the Tech Memo, or deleted. These sentences are the conclusions of the Tech Memo and are not the problem statement or the objective of the Tech Memo. The first sentence should also be revised as it is somewhat misleading, suggesting that the ROD addressed the underlying clay layers when the ROD was merely silent with regard to clays.
- 2.** It is unclear why a 95 percent confidence interval as discussed in Section 3.0 was calculated for the confirmation samples. Typically, gathering information from an entire data set renders a confidence interval unnecessary. As the sample size increases, the standard error and therefore the confidence interval decreases until, when the entire data set is sampled, the confidence interval equals zero. If the data set mean is known, there is no need for a confidence interval.
- 3.** Section 3.1 states that selenium was not used in any know historical mission at Moffett. However, it appears that the Navy and the Naval Petroleum and Oil Shale

Reserves Office conducted large-scale evaluations of oil shale's suitability for use as a military fuel beginning in the 1970s. Selenium is present in oil shale and its waste product. Explain whether or not these Navy activities could have been potential sources of selenium at Moffett.

4. Additional information is needed to explain the relevance of the referenced background selenium concentrations discussed in Section 3.1.1. Coast Range soils and rocks are highly variable and it is unclear if the Guadalupe River results are appropriate for comparison to Site 27.
5. Section 3.1.2 should be deleted. The origin of the materials in the debris pile is unknown and the presence or absence of selenium in the debris pile does not provide a comparable or reliable point of reference for the sediments or clays in the ditches. While the measured concentrations of selenium in the debris pile may be similar to those in the ditches, the findings do not preclude the possibility that the selenium in both areas was the result of Navy operations.
6. Section 3.1.4 should be deleted. The Tech Memo states that research shows that selenium has been shown to accumulate in sediments in reducing environments such as wetland channels. This may be true in the cited case but the Navy did not collect and analyze samples from the sediment/water interface to determine the actual redox potential of the surficial sediments. The samples collected at 12 and 18 inches bgs would naturally be reduced and not representative of the surficial sediments to which ecological receptors would be exposed.
7. Section 3.2 should be deleted. The cleanup level of 0.926 mg/kg was developed in a risk assessment and selected in the Site 27 ROD. If the Navy does not wish to produce a new ecological risk assessment and amend the ROD, this section which attempts to undermine the existing risk assessment should be removed from the Tech Memo. Furthermore, the site use factor for the black-necked stilt should be removed as it is based on a qualitative description of the habitat available for foraging which is different from the habitat assumptions used before the Final Feasibility Study.

## MINOR COMMENTS

1. The first paragraph of Section 3.0 includes two contradictory statements regarding the number of confirmation samples collected from the Northern Channel. Correct the later statement to state that "However, 57 of the 200 samples from the Northern Channel..."
2. In Section 3.1.3, Item number 5 contains a couple minor errors. The results "were mostly in the range of 2 to 3 mg/kg." The concentrations reported as non-detected with a reporting limit above the cleanup level of 0.926 mg/kg were filtered out."
3. The terms "Grouping" and "N" in the table in Section 3.1.3 should be explained.

4. Section 3.1.3 references Figures 3-2, 3-3 and 3-4. Explain the titles of these figures (e.g. MFA Quantile Plots). Also, add the vertical bar that represents the cleanup goal in these figures.
5. In the last sentence of Section 3.1.3, the abbreviation for selenium, "Se," should be replaced with the whole word.
6. Section 3.1.5, Summary, seems to be logically misplaced. The section would be more appropriate immediately following Section 3.1.3 or in Section 4.0.

We appreciate the opportunity to review this document and can work with the Navy to implement the recommendation to limit the risk posed by the selenium in the underlying clays at Site 27. These comments comply with the September 18, 1990 Federal Facility Agreement. If you have questions regarding these comments, please feel free to contact me at (415) 947-4117.

Sincerely,



Yvonne Fong  
Remedial Project Manager

cc: Mark Walden, Moffett  
Elizabeth Wells, RWQCB  
Becky Stanton, CA Dept F&G

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SRAC OFFICE