Clarifications of Navy Data Set at South Basin for USEPA

The following clarifications are in response to questions from Craig Cooper (USEPA) addressed to Simon Loli (Navy) via email on March 1, 2012.

USEPA Question 1: *Is this table correct with respect to all Navy data for Parcel F, Subareas IX and X ? Note that it appears that the individual congener data and certain non-PCB COCs are missing for some samples; but perhaps we queried the Navy database incorrectly.*

Response: The table is correct and includes the data for Parcel F in the South Basin shown as Subareas IX/X in the Final Parcel F Feasibility Study (FS) (Barajas 2008). (As clarification, only a small portion of Area IX is included in the remedial footprint and is therefore described in the FS as Area IX/X).

It is correct that non-PCB COCs and individual congener data are not included in some of the sample results. The data provided to the USEPA represents multiple field investigations over the course of several years. The Validation Study analyzed sediment samples for metals, organics, and TPH and included a limited number of sample locations at the mouth of Yosemite Slough (Battelle et al., 2005). The Feasibility Study Data Gaps Investigation (FSDG) included more sample locations at the mouth of Yosemite Slough, but only for PCBs because the primary goal of the FSDG was to determine the location and volume of sediment requiring evaluation in the subsequent FS. At that time, it was understood from the work from the Validation Study that PCBs were the primary risk driver in the South Basin. Therefore, the majority of the sample results from the mouth of Yosemite Slough were from the FS Data Gaps Investigation and primarily analyzed for PCBs (Battelle et al. 2007). As further described below in response to Question 2, PCB congeners were also not evaluated for every sample.

USEPA Question 2: *How did the Navy calculate total PCB concentrations for each sample location in Parcel F without having individual congener data?*

Response: Rapid Sediment Characterization (RSC) was used to analyze for total PCBs in 51 cores to provide detailed data on the horizontal and vertical distribution of PCBs in the South Basin. Approximately 10 percent of the RSC samples underwent laboratory analysis for PCB congeners by gas chromatography/mass spectrometry (GC/MS) to confirm the accuracy of the RSC results and provide data for development of a correlation relationship between RSC and laboratory results. Regression analysis was then performed to evaluate the quantitative relationship between the field-screening total PCB data (RSC) and laboratory-based confirmatory analysis data calculated as 2 × the sum of 18 congeners from laboratory analysis. This evaluation provided a quantitative indicator of the overall quality of the data obtained by screening and was used to determine whether an adjustment to the screening data was warranted. As a result, a correction factor of 1.1 was applied to the screening data.

Because traditional sampling and analysis methods for marine ecosystems do not always provide the information needed for decision-making in a timely and cost-effective manner, RSC methods have been widely used for over a decade to improve site characterization and reduce costs. The application and use of rapid characterization methods are discussed in detail in *Field Analytical and Site Characterization Technologies—Summary of Applications* (USEPA 1997).

USEPA Question 3: *How did the Navy calculate removal volumes for FS alternatives in Subareas IX and X? For the Alts that involve removal, I think the Navy looked at the maximum concentration in the top 2 foot interval in each polygon. Then, if there was a hit above 1240 ppb total PCB, then the various Alternatives have removal depths as shown on FS Figure 5-3 in that polygon. Correct?*

Response: Correct. For purposes of defining the remedial footprint, the Navy evaluated each polygon and considered the maximum concentration to a depth of 2 feet. If the maximum concentration exceeded the total PCB "Do Not Exceed" value, then the polygon was included in the remedial footprint.

USEPA Question 4: *Does the Navy consider the top 1 foot to be the "biological active zone"?*

Response: The Navy considers only the top 10 cm as the biologically active layer in the South Basin. However, in response to concerns raised by USEPA and other agencies, an added factor of safety was used and the FS considered the top foot as the potential biologically active layer.

USEPA Question 5: *In both Alt 5 and 6, the removal/backfill depth was assumed to be 1 foot in the mouth of Yosemite Slough. Does the Navy have modeling information to show that a 1 foot cap would be sufficient for long-term effectiveness?*

Response: The Navy performed modeling to demonstrate short- and long-term effectiveness as part of the FS (Barajas 2008). The model was used to predict residual PCB concentrations in surface sediment and to estimate the amount of dissolved-phase PCB transport from the sediment bed into the water column over time. The model considered (1) sediment accumulation (such as burial), (2) dissolved-phase PCB transport from diffusion (such as transport in response to a concentration gradient), (3) bioturbation (such as physical mixing from biological activity), and (4) porewater advection (such as fluid transport) in the sediment bed. Please see Section 4.0, page 4-2 of the Parcel F FS that discusses application of the model and Attachment 4 of the Parcel F FS for additional information regarding the model.

USEPA Question 6: *Did the Navy FS consider type/quality of backfill material and modeling for erosion of backfill (i.e. a hydrodynamic model)?*

Response: See answer to question 5 above. The evaluation of potential for erosion potential was performed using site-specific data for the sediments currently in place in the South Basin and was used to evaluate the potential for buried contamination to become exposed. Modeling to evaluate the potential for the backfill to erode was not performed. However, the FS assumed that the backfill would consist of similar sediment physical properties and that the current contours would be maintained in order to minimize the potential for erosion. Specific and more detailed consideration for mitigated potential for erosion of backfill will be included as part of the remedial design.

USEPA Question 7: *I believe the Institutional Controls in the Navy FS include No Power Boats, No Anchors, and No Clamming. Yes? Wading, swimming, and kayaking will be okay, Yes? Re: Whatever our remedies end up being regarding removal/capping/MNR/etc., the ICs we establish for inner Slough should be fully consistent with ICs in South Basin. We will also need to think through, to some degree, long-term enforcement of whatever ICs we end up with. Detailed thinking on that could happen during the RD.*

Response: The Navy will address IC implementation and maintenance actions, including periodic inspections and reporting requirements, in the preliminary and final remedial design reports (see page 3-6 of the Parcel F FS). Disruption of the sediment at Parcel F from boats occasionally anchoring in the area would not cause the remedy to fail catastrophically, because the remediation goals are applied as an average concentration over the entire area; however, ICs to discourage boating activity could be included as a supplement to support the remedy (see page 3-5 of the Parcel F FS).

The FS notes that the following uses will be restricted at Parcel F: boating, anchoring, swimming, and clamming. The clamming restrictions would be implemented by posting warning signs and through physical barriers to restrict access. Physical barriers could include a perimeter fence to restrict access and limit exposure in specified areas along Parcel F (see page 3-7 of the Parcel F FS).

USEPA Question 8, Part 1: *For excavations near the shore areas, did the Navy FS consider a requirement for bank stability/protection perhaps using a buried geotextile?*

Response: The Navy did not consider a requirement for bank stability/protection using buried geotextiles in the FS. Evaluation of the shoreline stability will be included as part of the remedial design.

USEPA Question 8, Part 2*: The fill soils surrounding the Slough are of uncertain quality and we don't want recontamination to occur due to sloughing of the bank material back into the Slough or Bay. Obviously, the details on bank protection, if needed, would get worked out during the RD process.*

Response: Agreed. It will be important to consider bank stability and mitigate the potential for recontamination from sloughing of Yosemite Slough bank material in the Slough or Bay.

USEPA Question 9: *What is the Navy's opinion of activated carbon addition to the backfill? Is this a cost-effective addition to Alts 5 and 6?*

Response: Alternatives 5 and 6 combine excavation of sediments with placement of 1 foot of backfill. Both alternatives include the option (5a and 6a) to treat the backfill with activated carbon. Treating the backfilled sediment with activated carbon is intended to provide additional reduction of residual contamination from contaminants left in place below the excavation depth. It is difficult to quantify the added benefit from using activated carbon to backfill in a large surface area because it is a cutting edge practice and still not a proven technology. The added effectiveness from using activated carbon (versus clean backfill alone) as compared to the additional cost of using the activated carbon remains uncertain at this time.

References

Barajas and Associates. 2008. *Final Feasibility Study for Parcel F*. April.

Battelle, Blasland, Bouck & Lee, Inc. (BBL), and Neptune & Company. 2005. "Final Hunter Point Shipyard Parcel F, Validation Study Report, San Francisco Bay, California." May 2.

Battelle, Neptune & Company, and Sea Engineering, Inc. 2007. "Technical Memorandum, Hunters Point Shipyard Parcel F, Feasibility Study Data Gaps Investigation, San Francisco Bay, California." Prepared for Department of the Navy, Base Realignment and Closure, Program Management Office West (BRAC PMO West). July.

United States Environmental Protection Agency (USEPA). 1997. *Field Analytical and Site Characterization Technologies—Summary of Applications*. EPA/542/R-97/011. November.