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April 24, 2001

Dave DeMars
Southwest Division
1230 Columbia St., Suite 1100
San Diego, CA. 92101

Re: Document Review Evaluation – Calculation and Implementation of Supplemental Manganese Ambient Levels, Hunters Point Shipyard, San Francisco, California

Dear Mr. DeMars:

Tetra Tech EM, Inc. (TtEMI) appreciates this opportunity to further discuss our intent and approach in developing the above referenced document, wherein a supplemental ambient concentration for manganese in soil was proposed. Comments provided by Mr. Walter Kitchin are presented below, followed by relevant information regarding our decisions and process.

If you have any questions regarding the above, or would like to further discuss the content of the document, please feel free to contact me.

Sincerely,

Mike Wanta
Installation Coordinator

cc: Walter Kitchin, SWDIV
Virginia Demetrios, TtEMI
Tom Shoff, TtEMI
Douglas Davenport, TtEMI

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TETRA TECH EM INC.

TRANSMITTAL/DELIVERABLE RECEIPT

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TO: Mr. Richard Selby, Code 02R1
Contracting Officer
Naval Facilities Engineering Command
Southwest Division
1230 Columbia Street, Suite 1100
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FROM: Barna Szabo
for **Daniel Chow,** Program Manager

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RESPONSE TO NAVY COMMENTS ON CALCULATION AND IMPLEMENTATON OF SUPPLEMENTAL MAGANESE AMBIENT LEVELS, HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA

This document presents the responses of Tetra Tech EM Inc. (TtEMI) to comments from U.S. Navy Southwestern Division (SWDIV) on Calculation and Implementation of Supplemental Maganese Ambient Levels, Hunters Point Shipyard, San Francisco, California, submitted on March 28, 2001. The comments addressed below were received from Mr. Walter V. Kitchin, U.S. Navy on March 21, 2000.

General Comments:

1. **This document is generally consistent with the Navy's Procedural Guidance for Statistically Analyzing Environmental Background Data and the Navy's Handbook for Statistically Analyzing Environmental Background Data; however it uses a threshold value as its site delineation and decision criteria which is a significant deviation from the Navy's approach. On the positive side, it further evaluates sample values that exceed an established threshold value, and it relies on site and regional geology and other actual site knowledge, rather than trying to rely on statistics alone to evaluate background. Unfortunately, its use of the threshold value approach is not consistent with policy and clearly demonstrates the problems that the Navy's Procedural Guidance and Handbook identified with the use of threshold values.**

   Response:

   The effort to establish Hunters Point Ambient Levels (HPALs) was established in 1995, was agreed to and implemented, and the resulting HPAL levels documented in the 1997 Record of Decision (ROD) for Parcel B. The process of agreeing to the protocols and methods by which the HPALs would be established was rather lengthy and intensive; therefore, the Navy requested Tetra Tech to follow the same protocol in the calculation of a supplemental manganese ambient level (SMAL). Using a different protocol, namely that referenced in the Navy Procedural Guidance and Handbook, would likely have required the Navy to again seek consensus with the Base Realignment and Closure (BRAC) Cleanup Team (BCT) over the application of the protocols set forth in those documents. Further negotiations with the regulatory agencies would have caused delays to the project. The SMAL calculation was performed on a reduced dataset using the same statistical methods applied when calculating the original HPAL of 1,400 milligrams per kilogram (mg/kg) documented in the Record of Decision (ROD).

2. **A clear definition of the 95% UCL of the 95th percentile should be provided. The threshold value concept and its limitations should be discussed in practical terms. This is very important and should have a section devoted to it. It should be noted that site and regional knowledge weight heavily in determining what constitutes ambient conditions for inorganics, especially those that are detected above the 95%UCL.**

   Response:

   The methodology and terminology applied in calculating the SMALs were consistent with that previously published for calculation of HPALs. Thus, the definition originally provided and approved for the HPALs was applied in the calculation of the SMALs. We recognize that site and regional knowledge have great bearing on determination of ambient conditions for inorganics, and appreciate your comment.

3. **The Navy Procedural Guidance and Navy Handbook demonstrated that as the number of samples increases, the chances of having a site sample exceed the 95% UCL threshold value is almost assured. The original HPS data set, with over 3000 ambient samples, contained many values greatly exceeding the 95% UCL, however site and regional data indicate they are ambient and should not be labeled as contamination and cleaned up. This same situation can occur even with the approach that separates the HPS data according to strata (chert and basalt bedrock as an example) because of the inherent problems with the threshold approach. Once a threshold is set it has a tendency to take on a life of its own, and anything above it is considered contamination, often incorrectly. The 95% UCL threshold value can be used as a tool to focus on the individual samples and locations above the 95% value. More emphasis and explanation should be put into evaluating the values that fall above the 95% UCL of the 95th percentile. The Navy Procedural Guidance and Handbook provide some suggestions on how to do this. This evaluation should occur prior to delineating any sites strictly on the basis of manganese concentrations that exceed the 95% UCL of the 95th percentile.**

   Response:

   The Navy and Tetra Tech applied the established HPAL protocol to establish the SMALs, for reasons discussed above. Negotiations with the BCT with regard to appropriate application of statistical methods, based on the protocol established in developing the 1995 HPALs as discussed above, are currently underway.

Specific Comments:

1. **Pg 14 References: The references are incomplete. The following should be added Procedural Guidance for Statistically Analyzing Environmental Background Data, Navy 1998; Handbook for Statistical Analysis of Environmental Background Data, Navy 1999. The document in which the original ambient levels were presented should also be referenced, particularly since this document is intended to supplement this document.**

   Response:

   We must respectfully decline, as these documents were not applicable to the analyses performed, for reasons described in the above responses.

2. **Figure 6: The shape of the curve of this probability plot may be very misleading. It appears as several populations, which would not be consistent with normal background. What I think is represented by this figure is a low number of samples with an extremely high bias because many of the samples were taken from manganese mines. This plot may be of better use with further explanation, in that it clearly demonstrates high natural concentrations and variability of manganese in the chert of the Franciscan Complex and basalt formations of the California Coast Ranges. This interpretation combined with the chert and basalt sample data from HPS produces a strong weight of evidence argument for the high ambient manganese concentrations at HPS.**

   Response:

   The interpretation of the probability curve for the SMAL was performed in a manner consistent with the calculation of HPALs as discussed previously. We are currently addressing this comment with respect to comments provided by the BCT with regard to data management issues like the one you describe, and we appreciate your input with regard to data presentation in the figure.