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HUNTERS POINT
SSIC NO. 5090.3

# Department of Toxic Substances Control

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Winston H. Hickox
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October 30, 2000

Commanding Officer
Department of the Navy
Naval Facilities Engineering Command
Southwest Division
1220 Pacific Highway
San Diego, CA 92132-5190
Attention:Richard Mach

PARCEL B, DRAFT MANAGANESE SCREENING AND IMPLEMENTATION PLAN, HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA

Dear Mr. Mach:

The Department of Toxic Substances Control has completed its review of the above-mentioned document. Attached please find our comments.

If you have any questions, Please contact me at (510) 540-3822.

Sincerely,

Chein Ping Kao, P.E.
Senior Hazardous Substance Engineer
Office of Military Facilities

Enclosure

CC: Ms. Claire Trombadore
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**Memorandum**

Date: September 29, 2000
To: Chein Ping Kao, P.E., Project Manager
From: Eileen Hughes

**Notes on: Draft Manganese Screening and Implementation Plan, Parcel B, Hunters Point Shipyard (Plan: dated September 20, 2000)**

The Plan was prepared for the Department of the Navy, Southwest Division, Naval Facilities Engineering Command (Navy) by Tetra Tech EM, Inc. The principle author was John Wakabayashi, Ph.D., R.G., an independent geological consultant.

**General Comment**

The memo presents some good information regarding the occurrence of manganese (Mn) in chert and basalt. However, the Navy's argument is not fully persuasive, as discussed below.

**Specific Comments**

1. Limited scope. This Plan states that it is specific to Parcel B. The Plan proposes that some manganese concentrations greater than the Hunters Point Ambient Level (HPAL) for manganese (Mn) are "background" concentrations--related to the occurrence of manganese in chert and basalt. "Background" concentrations are proposed to be determined on a site-by-site basis (i.e., for each excavation area). However, use of the term "background" in this manner is not appropriate. "Background" determinations are made on a site-wide basis (i.e., for all of Hunters Point), in a manner similar to HPALs which were determined for all of Hunters Point. That is, "background" is not determined for small subsites of a larger site. For example, de minimis sites can be as small as 64 sq feet.

2. Industrial sources. Decision points on Figure 2 include determining whether a site does "coincide with industrial sources". The criteria for determining whether a site "coincides with industrial sources" should be provided. For the sake of clarification, typical sources and known sources of Mn should be described and included on Figure 1.

An additional proof would be to show that the site does not coincide with industrial sources by demonstrating, for example, that the suite of contaminants associated with sandblasting is not present at the site.

3. Mn greater than *and* less than 1400 mg/kg. One decision point

(Figure 2: left side of chart near center page) queries: whether rock fragments contain Mn greater than 1400 mg/kg or whether rock fragments contain Mn less than 1400 mg/kg. However for some sites with multiple samples (e.g., 23-2, 24-1), Mn concentrations are both greater than and less than 1400 mg/kg. For these sites, the path taken by the Navy in Figure 2 is the path for Mn greater than 1400 mg/kg (which results in a no further action recommendation).

This approach is problematic. First, to be consistent with the way the rule is actually applied in this Plan, the rule should be re-stated to say: "if <u>any</u> frags are greater.." Second, the Navy should explain why it is more reasonable to follow the "greater than" path rather than the "less than" path, or 3) an alternative flow path should be included for the condition "both greater than and less than".

4. <u>Matrix and rock percentages</u>. Since the Mn concentrations in the rock fragments are not adjusted to the total soil volume or total mass of the sample, the significance of the concentrations of the fragments can't be determined. For example, it is not known what percentage (1%?, 60%?) of the total soil is represented by the high concentration (4700 mg/kg) in chert in excavation 23-2, or by the low concentration (65 mg/kg) in chert 2 in excavation B3229.

Similarly, matrix concentrations from the remedial investigation (RI) represent an unknown percentage of the total soil mass or volume. Matrix concentrations (with rock fragments removed) were used in the risk assessment, which is the usual procedure. Matrix concentrations are used in risk assessment because the exposure routes (dermal, inhalation, ingestion) assume small particle size. However, if the matrix is a small percentage of the total sample, the risk assessment may have over-estimated risks.

If the Navy chooses to pursue an argument along these lines, data is required regarding the grain size distribution of the samples. If this data exists it should be evaluated. Where excavations are still open, samples should be collected for grain size distribution analysis.

5. <u>Consideration of means and medians</u>. Rough observations on the means and medians suggest that the Navy has not sufficiently proven its argument that chert and basalt rock fragments are enriched in Mn above 1400 mg/kg.

The mean and median concentrations of Mn for each rock type are less than 1400 mg/kg. These are (in mg/kg): basalt (20 samples) mean 775/ median 355; chert (13 samples) mean 1051/ median 580; shale and sandstone/shale (sh and ss/sh 4 samples) mean 400/ median 340; serpentinite (2 samples) mean/median 220. The sample sizes for ss/sh and

sh and serpentinite are too small for meaningful interpretations.

Similarly, results in Table 1 (in mg/kg) do not support the Navy's argument. Outcrop chert samples (2 samples, 128 and 1074) indicate that the mean and median of chert (601) is less than 1400. And the basalt range (6 samples, 234 to 1750) suggests that the mean and median of Mn in basalt outcrops are likely less than 1400. Shale matrix (1 sample at 1212) and ss/greywacke (2 samples, 485-544, mean/median of 514) are less than 1400. It is noted that these sample sizes are too small for meaningful interpretations.

6. Particle size distribution. The data presented are not sufficient to show that Mn derived from native chert and basalt occurs preferentially in "sand-sized and smaller" as asserted on page 4 (first paragraph) and page 5 (first paragraph). Particle size analyses combined with chemical analyses is required to support this argument.

Furthermore, since the Navy pulverized the native rock into smaller sizes during fill operations, the Navy is responsible for any increased risks which may be associated with smaller grain sizes.

7. Archived samples. If there are archived samples from the RI and other investigations, the archived samples could be reexamined and a more detailed description of the lithology of rock fragments provided. Also, size distribution analyses could be performed.

8. Clusters. The cluster in Parcel E (where there is no bedrock chert) looks about equivalent to the cluster in Parcel C (where there is bedrock chert). What explanation is provided for the cluster in Parcel E?

9. Sample depth. The selection of only samples greater than 10 feet below the ground surface for inclusion in this analyses is not well supported. For example, the text notes that shallow occurrence of chert is common.

10. Sampling protocols and analyses. The Plan does not include a description of sampling procedures and analytical methods used. Similarly, lab reports, QA/QC results, chain of custody forms, etc. are not provided. For example, special instructions must have been given to lab to proceed in a manner different from the usual so that the lab would sample rock fragments and not the matrix for the sample received.

11. Collocated samples. The first decision rule on Figure 3 says that if a collocated sample has Mn less than 1400 mg/kg then no further action is necessary. This situation is interprted as as a characterization issue. To characterize the volume of soil around the initial exceedence, more than one

sample is necessary, as discussed in previous comments.

12. Imported fill. For specific site locations, do records indicate whether fill is derived from local sources or if it has been imported?

13. Reference. The geological map which served as the basis for the geological interpretation on Figure 1 should be cited on the figure.

14. Signatory. The Plan should be signed by a registered geologist in the State of California. Registration number should be provided.

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