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From: Commander, Western Division, Naval Facilities Engineering Command
To: Distribution

Subj: DRAFT BACKGROUND SAMPLING PLAN

Encl: (1) Response to comments

1. In accordance with the Federal Facility Agreement for Naval Station, Treasure Island, Hunters Point Annex, enclosure (1) is forwarded in response to comments generated during the review of subject document.

2. Should you have any questions regarding this enclosure, the point of contact is Commander, Western Division, Naval Facilities Engineering Command (Attn: Louise T. Lew, Code 1811, (415) 244-2551.)

3. Submit written comments if any to Mr. Eddie Sarmiento, Commanding Officer, Naval Station Treasure Island, Building 1 (Code 84), San Francisco, CA 94130, with a copy to Western Division, Naval Facilities Engineering Command (Louise T. Lew, Code 1811, 900 Commodore Drive, San Bruno, CA 94066).

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NAVY RESPONSE TO EPA COMMENTS

The following are EPA comments on the draft *Background Sampling Plan* presented in their letter dated January 9, 1991, and the Navy's responses.

Comment 1: **The sample locations for use in the background study were not described or keyed into a map. The variability of the data may be related to units or waste handling practices. Section 1.1 states that the sample locations were chosen so that they represent uncontaminated areas, but no documentation was provided. Please include a location map showing points where samples will be collected relative to the units and known areas of contamination.**

Response: The data used for the background study were from the Phase I investigations at the Tank Farm (IR-6), the PCB Spill Area (IR-8), and the Pickling and Plate Yard (IR-9). These investigations are described in interim reports for these sites. Site maps showing sample locations for these IR sites are included in the references *HLA 1990 d,e, and f*, respectively in the draft *Background Sampling Plan.*

All samples, not only those from areas suspected of being uncontaminated, were used for the Population Partitioning Analysis for Phase 1 of the *Background Sampling Plan.* Using all the data collected to analyze for background levels is based on the concept described in Section 1.1, the Phase 1 Description. Not all sites nor all sampling points investigated will be contaminated by inorganics, therefore some percentage of samples will be representative of background conditions (even though they may be from within areas contaminated by organics.) It is understood that variations in background concentrations will occur as a result of lithology and depth. Therefore, it is stated in Section 3.1 that "it is probable that more than one background level is present at HPA for each element/compound," and it is also why the tables and illustrations have different groupings of data by lithologic type and depth.

If samples are going to be specifically collected as background samples, as may be required in Phase 3, a map showing sample collection points and known areas of contamination will be provided in a technical memorandum for Phase 2 that summarizes the requirements for sample collection. Additionally, maps showing the sample collection points for Phase 3 will be provided in the Phase 3 report.

Comment 2: **While we accept the general approach using population partitioning, the argument for and subsequent application would be improved if cross-sections through each area of concern were prepared showing the general lithology.**

Response: Cross sections, including general lithology, through each area included in the Phase 1 evaluation (Sites IR-6, IR-8, and IR-9) are found in the Interim Reports for each of these sites (*HLA, 1990 d,e,f*) as referenced in the draft *Background Sampling Plan.* The chemical data will be shown on cross sections in the forthcoming Summary of Findings Memorandum for the Operable Unit (OU) II sites. Cross sections with posted chemical data will be included in a technical memorandum for Phase 2 of the background sampling.

Comment 3: **The results of the statistical analysis compiled in Appendix B should be submitted to EPA on diskette. These data should be evaluated graphically in the context of depth. We recommend that the variability be keyed into cross-sections through the given areas of concern. These cross-sections would then define the general site specific lithology as well as the depth variability of the metals of concern. EPA Region 9 has PC-based software that would be appropriate for this task. Please contact us for further information.**

Response: The results of the statistical analysis compiled in Appendix B will be submitted to EPA on diskette. We can provide the GEO-EAS input files and output files from the respective analyses. With regard to the depth variability of concentrations for the OU-II sites, this information is currently being processed for the Summary of Findings Memoranda. We propose that the recommended cross sections with site-specific lithology and depth variability be included in a Technical Memorandum to be completed as part of Phase 2 of the Background Sampling, rather than as part of a revision to the draft *Background Sampling Plan.* This memorandum would include additional sites and lithologies not included in the draft *Background Sampling Plan.* We would, of course, be interested in knowing about the PC-based software EPA has that could perform this task.

Comment 4: **While a key objective of establishing background is to help determine site cleanup levels for site-related contamination, as noted in the first paragraph on page 1, factors other than the results of this background study may need to be taken into account at Hunters Point in determining cleanup levels. For example, given the nature of materials used to create the fill at HPA, health risks may be present which need to be addressed regardless of the results of this proposed study. We will need to evaluate the study results before agreeing on how they should be used in determining site cleanup levels.**

Response: We agree with the comment. The data generated by the background study will be used in conjunction with the health risk assessment to make cleanup level determinations.

NAVY RESPONSE TO DEPARTMENT OF HEALTH SERVICES COMMENTS

The following are DHS comments on the draft *Background Sampling Plan* presented in their letter dated January 15, 1991, and the Navy's responses.

General Comments:

Comment 1: **The stated purpose of this document is to determine "site cleanup levels and evaluating human health risks." The Department does not agree that any background sampling plan should be used to determine the cleanup levels. Cleanup levels will be determined using a human health based risk assessment. The Department recommends that the interested regulatory agencies meet to further discuss the intent of this sampling plan.**

Response: This statement is misquoted. What the plan states in Section 1.0 is that "This information is to be used in determining site cleanup levels for remediation and evaluating human health risk." The background study itself will not determine cleanup levels. The data resulting from the study will be used in conjunction with a health risk assessment in determining cleanup levels through a Public Health Evaluation.

Comment 2: **A general assumption made for population partitioning is that samples have been collected from non-impacted or uncontaminated sources. Since most of the data collected to date and used for the analysis is from known/suspected contaminated sources, the assumption is violated.**

Response: As stated in the draft *Background Sampling Plan* (Section 1.1), population partitioning requires that samples from both unimpacted and impacted areas be present in the data set. The statistical/graphical approach of data analysis is used to illustrate which samples may represent background conditions and which are from impacted areas. Site characterization studies intentionally include samples from both subsets because samples will be collected from outside the extent of contamination to evaluate the vertical and horizontal extent of contamination. Use of data from the IR sites under investigation is therefore valid for the population partitioning approach. The background levels estimated using this approach will be confirmed through the collection and analysis of samples from known unimpacted areas if required during Phase 3 of the background sampling. These results will be included in a report following Phase 3.

Comment 3: **The proposed method of statistical sampling does not account for the fact that much of the fill is composed of man-made material, i.e., sandblast grit or dredging material, with high concentrations of metals. Also, borings were placed in areas suspected of high contaminant concentrations. The borings do not necessarily represent random sampling nor do they necessarily extend beyond the limits of the contamination.**

Response: As shown in the tables and illustrations, the fill material is, in fact, being segregated from the other materials for statistical evaluation and sampling. It is understood that there is no natural background for sandblast fill materials. Determination of background conditions in sandblast fill materials will not be

performed in subsequent phases of background sampling. Dredging materials may have background levels of chemicals (especially metals) that are either natural or anthropogenic. Note that in the context of the EPA *Risk Assessment Guidance for Superfund, Human Health Evaluation Manual*, Part A, July 1989, chemical concentrations in fill materials could be considered as anthropogenic background levels (EPA, 1989, section 4.4.1, pg 4-5). The interpretation or use of anthropogenic background level data for this medium (the fill) will be dealt with in the Public Health Evaluation.

It is true that some of the borings were intentionally placed in areas of known or suspected contamination. Our response to General Comment 2 explains why data from these borings are valid for statistical evaluation. It is also true that all borings may not have extended down vertically beyond the vertical limit of the contamination. This is considered unimportant to the assessment for the reasons explained in Comment 2. As long as an appreciable number of the samples are representative of each population (impacted and nonimpacted), it is feasible to distinguish between them.

The value in random sampling is that the population characteristics are known with a given statistical confidence with an optimal number of samples. The larger the sample population the less important it is to do random sampling because as "n" (the number of samples) increases, a greater proportion of the population is represented by the sample population. In this case there will literally be thousands of samples for consideration. In the *Background Sampling Plan*, we performed preliminary calculations using Stein's Method to estimate the approximate number of samples needed to determine population characteristics with a specified degree of confidence; Tables 4, 5, and 6 show that the number of samples needed to estimate population statistics with a specified degree of confidence is, for the most part, in the tens of samples. The proposed sampling for the RI far exceeds those numbers for most media. Finally, the third phase of the background study is designed to fill in the gaps where insufficient data are collected, i.e. where there are not enough samples to determine population statistics with an acceptable degree of confidence.

Comment 4: **Evaluation of the data by area and comparison of the areas throughout HPA may indicate the relative influence of a particular site or area to the estimated "site-wide" background.**

Response: We intend to evaluate the data in different spatial and lithologic groupings in order to identify whether any site-specific influences exist. If there is an area dominance we should be able to evaluate its effect on the rest of the sitewide dataset and take that into consideration for the Phase 3 work.

Specific Comments:

Pg	Sec	Pgph	Comment
1	1.0	1	**Comment: Line 9. DHS does not agree with the statement that "This information is to be used in determining site cleanup levels for remediation and evaluating human health risks." Site cleanup levels will be determined after the human health risks have been**

evaluated. See General Comment 1.

Response: See response to General Comment 1.

2	1.1	1	**Comment: Line 7. Specify the sections describing the referenced approach.**

Response: Sections 3.1 and 3.2 further describe the population partitioning approach.

2	1.1	2	**Comment: See General Comments 1 and 3. For the landfill areas, since sandblast grit was used for fill throughout the landfills, the results of that sampling will skew the background levels for grit related metals. Since the second assumption requires "a significant and distinguishable background population," samples from inside the landfill, pickling and plate yard, or any other site should not be used for population partitioning.**

Response: As stated in these responses to General Comments 1 and 3, we intend to evaluate each lithologic unit separately when we have additional data during Phase 2 of the data evaluation. If the number of samples is insufficient, additional samples will be collected during the Phase 3 work. Additionally, natural background levels will not be established for the sandblast fill materials. The Navy does not agree that "samples from inside the landfill, pickling plate yard, or any other sites should not be used for population partitioning." Such sites may have natural or naturally derived materials that exhibit background levels of metals.

3	1.2	3	**Comment: Explain how an independent check will be done if published literature is inadequate or incomplete.**

Response: There are other alternatives if published literature does not provide some acceptable information on background chemistry of lithologic units. The two options are: 1) to review data collected from other projects in the area available from printed but unpublished sources that are public information, and 2) to collect additional samples for confirmation, a task we have included in Phase 3 if needed.

8	2.4	3	**Comment: Line 6. Explain what changes will be required to the background evaluation when sufficient data has been collected to differentiate the older bay mud from the undifferentiated sediments.**

Response: It is probable that we will not be able to differentiate between older bay mud and the undifferentiated sediments because the lithologic characteristics may be indistinguishable. If older bay mud and undifferentiated sediments are

indistinguishable and sufficient samples are available, they will be treated as one "unit" in the population partitioning analysis. If they are distinguishable, they will be evaluated as separate units.

23 4.4.1 **Comment: Bullet 2. Screen lengths should not exceed ten feet without prior approval of the DHS project manager.**

Response: Hydrogeologic conditions may exist where screen lengths longer than 10 feet are necessary to monitor the complete saturated thickness of a lithologic unit, provided such a screen does not provide a conduit for cross contamination. In these instances, a registered geologist will determine if longer screen lengths are required to adequately cover the aquifer of concern, up to a maximum of 15 feet. Screen lengths and, more importantly, screened intervals will be based on lithologic and hydrologic conditions on a case-by-case basis using sound hydrogeologic judgement. If screen lengths longer than 10 feet are necessary, the DHS project manager will be notified. In the event that the project manager is not available on a timely basis, he/she will be notified as soon as possible.