



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

N00217.003115
HUNTERS POINT
SSIC NO. 5090.3

August 10, 1995

Dave Song
Department of the Navy
Engineering Facilities Activity, West
900 Commodore Way, Building 101
San Bruno, California 94066-0720

Subject: Draft Final Phase 1B Ecological Risk Assessment Work Plan, Field Sampling Plan and Quality Assurance Project Plan, Hunters Point Naval Shipyard

Dear Mr. Song:

Enclosed please find the Environmental Protection Agency's (EPA's) comments regarding the Draft Final Phase 1B Ecological Risk Assessment Work Plan dated June 7, 1995 and the Field Sampling Plan dated June 7, 1995. EPA's Quality Assurance Management Section also reviewed and commented on the above referenced documents. Their comments are included in Attachment 2. We have also completed our review of the Quality Assurance Project Plan dated July 5, 1995 and will be submitting our comments to you next week.

If you have any questions regarding these comments, please call me at (415) 744-2410.

Sincerely,

A handwritten signature in cursive script, appearing to read "Sheryl Lauth".

Sheryl Lauth
Remedial Project Manager

Attachment

cc: Cyrus Shabahari, DTSC
Rich Hiatt, RWQCB
Richard Powell, Navy

ATTACHMENT 1
ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON
HUNTER'S POINT NAVAL SHIPYARD PHASE 1B ECOLOGICAL RISK
ASSESSMENT, DRAFT FINAL WORK PLAN (WP)
AND FIELD SAMPLING PLAN (FSP)

General Comments

1. Most of the technical issues relating to the risk assessment process have been well thought out, however, there are a number of issues relating to the degree of conservatism in the risk assessment that are discussed in more detail below.
2. The detection limits listed in these documents will not meet risk-based detection limits. Standard CLP procedures are inadequate for many of these analyses. It is strongly recommended that the detection limits be revised to ensure that risk-based levels are achieved (see Table 1 attached to these comments for recommended detection limits and methods for some of the analyses).
3. It is recommended that a sensitivity analysis be conducted to identify the "drivers" in the risk assessment process to quantify uncertainty. To decrease the uncertainty surrounding a risk estimation, more emphasis should be placed on collecting data to decrease uncertainty surrounding the main "drivers" in the risk estimate. Key parameters believed to affect risk should be input as reasonable ranges in the determination of the site-specific uncertainty.

Specific Comments

1. **WP Section 1.2, bullet 6.** The use of Microtox in marine sediment testing has had mixed results. Many times there is a "stimulatory" effect from sediment exposure. Because of the problems associated with stimulatory effects and the difficulty in interpreting these data in terms of ecological significance, it is recommended that the test results not be used in the ecological risk assessment should there be interpretation problems.
2. **WP Section 2.4.1.1, page 9, paragraph 3.** Please quantitatively describe the areal extent of the wetland areas at Hunters Point Annex (HPA) and describe how these areas will be assessed. For example, the kestrel may not be the most conservative choice for a terrestrial receptor in a wetland habitat. It is recommended that assessment and measurement endpoints be selected specifically for the wetland habitat.
3. **WP Section 2.4.1.2, page 9, sentence 1.** It states that Parcel A "possibly" includes Threatened & Endangered (T&E)

species, yet on pages 10 and 12 the peregrine falcon (a T&E species) has been positively identified at HPA. Please correct this discrepancy.

4. **WP Section 3.1, page 14, sentence 2.** There are terrestrial benchmark values that have been developed by Oak Ridge National Laboratory in the past two years (Suter et. al., 1994). They may be useful in the screening level approach.
5. **WP Section 3.2.2, page 18, paragraph 1.** The group mean was used to develop hazard quotients (HQ) and hazard indices (HI). This is appropriately conservative compared to the upper 95th, but the distribution of the concentrations should be evaluated before a mean is selected. Highly skewed distributions would be more accurately reflected using the median.

In addition, please clarify how the groupings were selected. It is important to consider the distance between sampling locations when determining the groupings. For example if the mean (or median) is used to develop HQs and HIs for screening purposes and the sampling locations are far apart, any one exceedance of a HQ (i.e., using the lowest value in lieu of the mean) could be detrimental (i.e., it may not be a hot spot since the areal extent can not be adequately evaluated). This information should be taken into consideration in the determination of data gaps and the subsequent sampling scheme for the Phase 1B work.

6. **WP Section 3.2.2, page 18, paragraph 2.** Please list the chemicals detected at the site that do not have associated ER-L or ER-M values. Explain how these chemicals will be evaluated in the risk assessment.
7. **WP Section 3.2.2, page 18, paragraph 3.** Explain why 10 percent was chosen as the contribution of the hazard quotient to the hazard index that represented COPCs driving the risk. Any HQ >1 could potentially be a risk-driver. Provide more justification of the selection of a 10 percent exceedance as a driving factor.
8. **WP Section 4.2, page 20, paragraph 4.** The proposed terrestrial endpoint for the American kestrel will be protection of the population, which is appropriate. However, because peregrine falcons are T&E species, the endpoint should be protection of the individual. Please change this in the text.
9. **WP Section 4.2, page 21, paragraph 1.** Under what circumstances will exposure and effects be qualitatively analyzed? How would the methodology preclude use of a quantitative analysis? It is recommended that an outline be developed to list the contingencies, should a quantitative

analysis become infeasible. Also, provide an outline of the circumstances and potential actions to be taken if there is a problem with performing a quantitative analysis.

10. **WP Section 4.2, page 22, paragraph 3.** There is a grammatical error in the second to last sentence. Please change "assessment endpoints" to "receptors".
11. **WP Section 5.0, page 23, paragraph 2.** Please confirm, in the text, that sediment chemistry and bioassay locations will be co-located (i.e., the sediment analytics and bioassays will be performed on samples from the same composite).
12. **WP Section 5.0, page 23, paragraph 2.** In the second sentence, add AVS/SEM to the list of factors affecting bioavailability.
13. **WP Section 5.0, page 23, paragraph 3.** Add a period to the first sentence.
14. **WP Section 6.2.1, page 26, paragraph 1.** Boothman and Helmstetter have developed a new SOP (15 December 1993) for measuring AVS/SEM [Allen et al. (1991) was based on Boothman's last protocol]. Please contact Warren Boothman at the Environmental Research Laboratory, Narragansett for specific analytical differences and how these difference may or may not affect the interpretation of the results.
15. **WP Section 6.2.2, page 28, paragraph 3.** High-speed centrifugation without filtration will most likely cause a stimulatory response in *Photobacterium phosphoreum* (see Specific Comment #1).
16. **WP Section 6.3.1, page 29, paragraph 1.** Please ensure that depositional areas are sampled at the storm water outfall locations. Often storm water outfalls have erosional areas at the point of discharge. Sampling these erosional areas will not adequately characterize the contaminant load in the sediment contributed by the storm drains.
17. **WP Section 6.4.1, page 31, paragraph 1.** Standard EPA methods will not always meet risk-based detection limits. Please compare the detection limits to the risk-based values, to determine which analytes may need specialized methods (see General Comment #2).
18. **WP Section 7.1.6, page 37, paragraph 1.** Many times the reference locations chosen for a particular study are not true reference stations due to chemical contamination or physical differences, etc. It is recommended that performance standards be applied to both the reference area and control samples. For example, Puget Sound reference

performance standards are listed in the table below. If the reference areas meet the performance standards, then numerically compare the mean site survival to the reference mean as described in this paragraph. If the reference areas do not meet the performance standards, use a statistical comparison to the control to determine effects.

Puget Sound Sediment Performance Criteria

Bioassay	SMS Reference area/control performance standards	PSDDA Reference area/control performance standards
Amphipod	Control sediment < 10% mortality; reference sediment < 25% mortality.	Control sediment < 10% mortality; reference sediment < 20% mortality above control.
Bivalve larvae	Seawater control < 50% combined abnormality and mortality.	Seawater control <10% abnormality AND <50% combined abnormality and mortality; reference sediment < 20% combined abnormality and mortality normalized to control normal survivor counts.
Echinoderm embryo	Same as bivalve.	Same as bivalve.
Neanthes growth	Control sediment <10% mortality; reference sediment biomass ≥80% control biomass.	Control sediment <10% mortality; reference sediment biomass ≥80% control biomass.
Microtox	None	No numeric criteria for control sediment; reference sediment <20% light diminution over control.

SMS=Sediment Management Standards, Washington State Department of Ecology

PSDDA=Puget Sound Dredge Disposal Analysis, multi-agency group (EPA, COE, DOE, DNR)

19. **WP Section 7.2, page 37, paragraph 3.** An invertebrate composite will best represent an avian diet provided the composite is of species typically composing the diet of the selected avian species. However, by compositing, information is lost on the relative lipid contents of the invertebrates and body burden estimates per species are not possible. It is recommended that key prey species of the receptors of concern be selected for collection and analysis. Multi-species composites for analytical purposes are generally not recommended (PSEP, 1989). It is recommended that individual composites by species be collected and analyzed. It is also recommended that the lipid content be analyzed in all of the fish and invertebrate tissue samples. Organics are normalized by lipid content and lipid content varies among species. For the purposes of the risk assessment, the analytical information can then be combined to represent the total contaminant concentration in the prey. Also, because avian species generally select fish species in a similar size range, it is recommended that a specified size range for fish be included in the work plan.
20. **WP Section 7.2.1, page 38, paragraph 1.** The two grab samples suggested in the work plan are inadequate for collection and characterization of invertebrates. At a minimum, five grab samples per sample location of sediments should be collected for invertebrate samples due to the diversity in abundance and patchy distribution of benthic organisms.
21. **WP Section 8.1, page 39, step 2.** The location poses a potential risk to benthic receptors if either the HIs or HQs are greater than one. Please revise the text to include HQs > 1 as indicating a potential risk.
22. **WP Section 8.1, page 39, step 3.** A correlation analysis should also be performed on HQs and individual chemicals. An individual chemical will often have a positive correlation with detrimental effects.
23. **WP Section 8.1, page 39, step 4.** Please see specific comment #23.
24. **WP Section 8.2.1.1, page 41, paragraph 1.** Give an example of how the exposure duration (ED) will be used in the exposure assessment. It states that an ED = 1 will be used for receptors that are year-round residents of the "assessment area." How will the "assessment area" be determined and how does this differ from the "area of contamination (AC)" described in the following paragraph?
25. **WP Section 8.2.1.1, page 41, paragraph 2.** In the calculation of the "site use factor (SUF)" how will the

"area of potential exposure (APE)" be determined? It is acknowledged that home range estimates are not always accurate, yet estimating foraging areas without a detailed scientific investigation could result in over or under estimates of actual site use by the receptor. There is a concern that the SUF and the ED stated in Specific Comment #24 may not give conservative or even realistic estimates of exposure. It is acknowledged that by using these factors an attempt is made to give a more realistic explanation of exposure but that is dependent on the accuracy of the data used in developing these exposure factors. Please provide examples and more detail to ensure a conservative and realistic estimate of exposure will be developed.

26. **WP Section 8.2.1.1, page 41, paragraph 2.** How will the "area of contamination (AC)" be determined? Many of the sampling locations are from 60-500 meters in distance from each other. How will the area between the sampling locations be determined? If there is an exceedance of an HQ or HI and detrimental effects at a particular station, does the area of contamination extent to the next sampling point?
27. **WP Section 8.2.1.2, page 43, paragraph 1.** Averaging the diet over the year may not be a conservative estimate of exposure. During the reproductive period the diet intake will substantially increase and exposure to COPC may increase. It is recommended that a dietary intake range be used or evaluated to see the affect on the exposure estimate.
28. **WP Section 8.2.1.3, page 44, proposed table.** Include all of the input parameters used in developing the exposure estimate (e.g., SUF, AC, ED, APE). It is recommended that ranges be presented in the table, along with the actual number selected for use. Include (as a footnote or separate column) the reference used for each number.
29. **WP Section 8.2.1.4, page 45, bullet 6.** Under what circumstance will the 95th UCI or the maximum concentration be used (e.g., will this be dependent on the number of detects)?
30. **WP Section 8.2.2.2, page 49, paragraph 1.** Provide the range of TRVs used for selecting the final low and high TRVs.
31. **WP Section 8.2.3, page 50, paragraph 3.** It is recommended that all risk estimates (i.e., not just the intermediate risk estimates) be evaluated according to the criteria listed in this paragraph. Alternatively, a quantitative uncertainty analysis should be performed.
32. **WP Section 9.1, page 52, paragraph 3.** What small mammal and which trophic level will be used in the dose estimate? For example, a shrew (carnivore) may be more highly exposed than

a vole (herbivore). Because a shrew's diet consists of earthworms and the earthworm gut can contain a significant amount of soil, the shrew is exposed to COPCs through direct soil ingestion, indirect soil ingestion from within and on the earthworm, and accumulation of COPCs in the tissue of earthworms. Please ensure that the risk estimate is adequately conservative for the receptors at the site.

33. **WP Section 9.2, page 53, paragraph 6.** If selection of bioaccumulative COPCs will be based on a screening exposure and effects model using the kestrel, it is imperative that the model be adequately conservative for all organisms at the site (i.e., a shrew model should indicate less risk than the kestrel model). In this screening level exercise, it is recommended that receptors at the site be evaluated for the most conservative scenario. Revise the text to include an approach for accomplishing this task.
34. **WP Section 9.3, page 55, paragraph 4.** Although a greater proportion of a kestrel's diet may be from ingestion of voles (herbivores), the greater proportion of contaminant loading may be from ingesting a carnivore such as a shrew. It is recommended that a simple sensitivity analysis be conducted to ensure that an adequately conservative scenario is developed before tissue samples are collected.
35. **WP Figure 2-1.** Provide a clear demarcation of parcels. It is difficult to distinguish between the parcels.
36. **WP Figure 2-4.** In section 9, additional assessment endpoints were evaluated. Please update this figure to include the additional endpoints.
37. **WP Figures 3-7 through 3-10.** It is recommended that this information be taken a step further in the final report (not in the revised work plan) by grouping sites, along with their HQs, HIs, and the additional data collected in Phase 1B to develop clusters of contaminated areas and hot spots. A large uncertainty will be in determining boundaries and this particular point should be carefully thought out before sampling begins.
38. **WP Figure 4-5.** Please update this figure to reflect the current work plan (e.g., pelagic fish are no longer a measurement endpoint).
39. **WP Figure 6-1 through 6-4.** It is not clear why different bioassays are proposed along the transects. For example, in figure 6-1, the last sediment location along the transect has a suite of bioassays, yet one transect only shows Microtox as the bioassay. This discrepancy also occurs in various locations along the other transects. How will the information obtained from this schematic be interpreted? Please specify why a suite of bioassays were chosen for some

locations and why only Microtox or just sediment chemistry was chosen for other locations. A full suite of bioassays and chemical analyses is recommended for all biological test locations.

40. **WP Figure 8-2.** Will the ranges of uncertainty factors be used in the derivation of the TRV or will just one uncertainty factor be used, depending on the available data? It is recommended that justification be provided in the final report for the choice(s) of uncertainty factors.
41. **WP Tables 3-6 and 3-7.** This table is very informative. It is recommended that an additional table be developed to illustrate exceedances of HQs. For example, in parcel C (station 17), lead is approximately six times the HQ-L and one times the HQ-M, illustrating a substantial elevation over the effects-based value. At this same location, endrin is approximately 200 times the HQ-L and 1.28 times the HQ-M. If only the HIs are used, according to table 3-7, lead is not listed as a "significant" chemical under exceedances of an HI-L. The extremely high exceedance of endrin effectively "masks" the significant contribution that lead may have.
42. **WP Tables 4-2 and 9-1.** It is recommended that this information be used to select species for the purposes of tissue analyses. Instead of compositing everything that is collected, attempt to identify key prey species to be collected for the purposes of tissue analyses.
43. **WP Table 7-2.** Please update this table according to the information provided in Specific Comment #19.
44. **FSP Section 3.2.1.3, page 8, paragraph 2.** Please include redox potential as a conventional parameter to be analyzed.
45. **FSP Section 3.2.2.3, page 9.** Include TOC and grain size in the core analyses. This information is useful in determining anthropogenic inputs and historical sediment deposition.
46. **FSP Section 3.3.1, page 10.** Do not pool invertebrate species (see Specific Comment #20). If possible, composite two or three key prey species. Also include lipid analyses for normalization procedures.

It is also recommended that if sufficient biomass is not available at all of the sites, perform the bioaccumulation study on all of the sample locations. This will help in the interpretation, especially if half of the areas have site-specific tissue samples and half of the areas do not.

47. **FSP Section 3.3.2, page 10.** A van Veen grab is inappropriate for the collection of fish species. Either

seine or trawl for fish species.

48. **FSP Section 4.0, page 14.** If small mammals are collected, please composite by species.
49. **QAPP Section 1.0, page 2, paragraph 1 and Tables 11-15.** Standard CLP methods will not give detection limits suitable for ecological risk (see General Comment #2). For example, a detection limit of 30 ppb should be achieved for TBT to reach risk-based detection limits. Table 15 lists a detection limit of 2.2 ppm for TBT.
50. **QAPP Section 8.8, page 52, paragraph 3.** Please evaluate the new AVS/SEM method (Boothman and Helmstetter 1993) to determine if a change in protocol is warranted. If the 1993 protocol is not used, please describe, in detail, why the latest version was not incorporated into this document (see Specific Comment #14).
51. **QAPP Section 8.10.2, page 57, bullet 2.** Mortality in any one control replicate must not exceed 20 percent.
52. **QAPP Section 8.10.2, page 58, bullet 11.** Do not feed the test organisms. This test is designed to be used without food additions.
53. **QAPP Section 8.10.3, page 62, paragraph 1.** Include information on holding times to ensure the organisms are held in the laboratory for the appropriate length of time (and that they do not exceed holding times) for each bioassay.
55. **QAPP Section 8.11, page 64, bullet 1.** Please describe the size range to be used at the initiation of the test. Also, include text describing the test design to ensure adequate biomass will be recovered for detection of target analytes.
56. **QAPP Section 10.0, page G-9.** Include the reburial protocol (in clean sediment) as an additional bullet.

TABLE 1
RECOMMENDED ANALYTICAL PARAMETERS AND METHOD DETECTION LIMITS
FOR SEDIMENT AND POREWATER SAMPLES

Sediment Parameter	Recommended Method Detection Limit	Recommended EPA Analytical Method
Grain Size	0.1%	Plumb (1981)
Total Organic Carbon	0.1%	EPA #9060
Arsenic	0.1 mg/kg dry wt	EPA #7061
Cadmium	0.1 mg/kg dry wt	EPA #7131
Chromium, total	0.1 mg/kg dry wt	EPA #7191
Copper	0.1 mg/kg dry wt	EPA #7211
Lead	0.1 mg/kg dry wt	EPA #7421
Mercury	0.02 mg/kg dry wt	EPA #7471
Nickel	0.1 mg/kg dry wt	EPA #7520
Selenium	0.1 mg/kg dry wt	EPA #7741
Silver	0.1 mg/kg dry wt	EPA #7761
Zinc	1.0 mg/kg dry wt	EPA #7950
Total PAHs	0.02 mg/kg dry wt	EPA #8270 or 8310
Total PCB Congeners	0.001 mg/kg dry wt	NOAA (1993) or Tetra Tech (1986)
Priority Pollutant Pesticides	0.02 mg/kg dry wt	EPA #8080



ATTACHMENT 2
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

August 10, 1995

MEMORANDUM

SUBJECT: Draft Final Field Sampling Plan and Draft Final Work Plan for Phase 1B Ecological Risk Assessment, Hunters Point Annex, San Francisco, California (EPA QAMS Document Control Number P3CA005W95VSF1)

FROM: Eugenia McNaughton, Environmental Scientist
Quality Assurance Management Section (QAMS), P-3-2

THROUGH: Vance S. Fong, P.E., Chief
Quality Assurance Management Section, P-3-2

TO: Sheryl Lauth, Environmental Protection Specialist
DOE & Northern California Section, H-9-2

The draft final field sampling plan (FSP) and draft final work plan (WP), prepared by PRC Environmental Management, Inc. and dated June 7, 1995, were reviewed. The review was prepared in accordance with the guidance documents, "Preparation of a U.S. EPA Field Sample Plan for Private and State-EPA Lead Superfund Projects (9QA-06-93, August 1993) and "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, May 1994).

The FSP describes only general procedures for off-shore and on-shore activities such as the collection and analysis of sediment and tissue samples as well as the collection of small mammals. However, specific items such as descriptions of laboratory analytical services to be performed or required sample volumes are not provided in the FSP, but are incorporated by reference to the WP, the quality assurance project plan (QAPjP), the health and safety plan (HSP), and the investigation derived waste (IDW) waste management plan. Although the WP and the QAPjP were submitted for review, HSP and IDW were not. The WP summarizes findings from activities performed under Phase 1A and discusses the effects of these results on activities to be performed in Phase 1B. The WP also provides numerical calculations for all risk determinations to be performed using data collected during Phase 1B. The following concerns should be addressed prior to approval of the FSP, the WP.

I. Draft Final Field Sampling Plan

Major Concerns

1. [General]

A. According to the FSP, several plan elements and procedures required to be covered in the FSP are located in the WP, QAPjP, and the IDW plan. EPA guidance states that the FSP is a "stand alone" document and may not reference field procedures in other documents except for background information. It is recommended that the following elements and information be specified in the FSP:

- rationale for all sampling locations and analytical parameters;
- action levels;
- description of analyses to be performed;
- quantitation limits for all analyses and matrices;

- container types for sediment and tissue samples;
- the container source;
- required sample volumes for all matrices and analyses;
- quality control (QC) sample identification, types (i.e., field duplicate, laboratory QC, equipment, field and trip blanks), rationale, frequency, and analytical parameters;
- sample holding times;
- sample preservation methods; and
- the disposal of IDW.

If it is deemed necessary or appropriate to reference other documents, these documents should be made available in the field during sample collection activities.

B. The laboratory chosen to perform analyses on the sediment and tissue samples should be identified in the FSP. If no laboratory has been chosen, this should be stated in the FSP.

2. [Section 2.1, Sediment Sample Handling]

A. Equipment decontamination procedures provided in Section 2.1 are not consistent with EPA recommended procedures. Any modifications to EPA procedures should be discussed in the FSP.

B. Section 2.1 provides only general guidance for the packing and shipping of sediment samples. Specific sample packaging and shipment procedures specified in

the EPA regional guidance document utilized for this review should be incorporated into the FSP. These include the method of shipment (overnight air, ground, etc.) and the shipping schedule.

- C. Examples of field QC summary forms, chain-of-custody forms, and sample labels should be provided in the FSP.
 - D. Section 2.0 should specify that the analytical parameter be included on every sample label.
3. [Section 4.0, Onshore Investigation Activities] Section 4.0 discusses in general terms the collection of small mammals in order to characterize the onshore mammalian community that may serve as prey for target raptor species. However, trapping methodologies are not specified and Section 4.0 states "[t]rapping methodologies will be detailed at a later date". The document which will contain the trapping methodologies should be specified in Section 4.0.
4. [Section 5.0, Investigation-Derived Waste] This section references the PRC document, "IDW Waste Management Plan" for the disposal of all investigation-derived waste such as the methanol used for equipment decontamination. This document should either be included in the FSP or more specific disposal procedures and requirements should be provided in Section 5.0.
5. [Table 1, Sample Locations and Analyses]
- A. Although the total number of samples, sample types, and number of samples for each analysis are provided in Table 1, a weekly sampling schedule, container types, sample volumes, preservatives, contractual and technical holding times, and field and laboratory QC samples are not included. EPA guidance recommends that this required information be included in tabular form on a sample by sample basis. Also, separate tables should be provided for each matrix, including pore water.
 - B. Table 1 lists several analyses twice, thus making the format unclear.
 - C. The analysis of pore water is discussed throughout the FSP. The description for pore water extraction should be expanded to include specific procedures and required equipment, and to identify personnel responsible for pore water extraction.
 - D. Pore water samples are not treated as a separate matrix in Table 1. A unique sample location identification should be assigned to the pore water resulting from the

centrifugation of the composite sample collected at each sample site.

- E. The analytical methods for tissue samples are not specified in Table 1. Specific analytical methods to be used for the analysis of tissue samples should be provided in Table 1.

Other Concerns

1. [Section 3.2.2, Core Samples] This section indicates that eight 3-foot cores will be taken to characterize the vertical extent of contamination. However, Table 1 lists nine 3-foot cores to be collected. This discrepancy should be addressed.
2. [Section, 3.4.1, Location Identification System; Section 3.4.2, Sample Identification System] The location identification system identified in Section 3.4.1 is not consistent with Table 1. Specifically, the designation codes for the sample types are not incorporated into Table 1 which lists samples according to "Sample Location I.D.". The sample identification system specified in Section 3.4.2 is consistent with the information regarding sample identification in Table 1. Table 1 should be corrected to include the sample type designation or rename the "Sample Location I.D." column as "Sample Identification".

II. Draft Final Work Plan

Major Concern

[General] The WP provides a rationale for data uses and a thorough review of the project design. However, specific statements regarding quantitative data quality objectives (DQOs) and the project quality assurance/quality control (QA/QC) criteria have not been provided in the WP. Although general statements are provided for DQOs for Phase 1B activities, the WP does not express DQOs in terms of numerical goals for accuracy, precision, completeness, representativeness, or comparability. If specifying quantitative goals is not relevant for total measurement of Phase 1B activities, a rationale and discussion should be provided in the WP.

Questions or comments regarding this review should be referred to Eugenia McNaughton, EPA QAMS, at (415) 744-1636.