NAVY RESPONSE TO DEPARTMENT OF HEALTH SERVICES COMMENTS ON QUALITY ASSURANCE PROJECT PLAN (QAPP), HUNTERS POINT ANNEX

Comments by the Department of Health Services (DHS) on the Draft QAPP (dated March 31, 1988) have been reproduced below in boldface type. The Navy's response is presented below each DHS comment.

Please note that the procedures and QA/QC for air sampling have been removed from the revised QAPP as discussed with DHS on May 12, 1988; that information will be presented in the revised Air Sampling Plan once discussions with DHS and the Bay Area Air Quality Management District (BAAQMD) are completed. As a result, the original Section 10 has been deleted. The original DHS comments, including section number citations, are presented verbatim. Section numbers cited in this response are those in the final QAPP.

COMMENT:

At the bottom of the title page, provisions must be made for the signatures of approving personnel. As a minimum, the QAPP must be approved by the following:

1. **Organization's Project Manager**
2. **Organization's responsible QA Official**
3. **Funding Organization's Project Officer**
4. **Funding Organization's Quality Assurance Officer**

RESPONSE:

The DHS staff have indicated that an approval page is not required. The Navy does not plan to incorporate an approval page.

Section 1

COMMENT:

The document stresses the need of flexibility to accommodate site specific conditions. The Department feels that one of the objectives of Quality Assurance Project Plan (QAPP) is to develop standard operating procedures in order to assure consistent data quality. We recognize some field conditions may require certain addition or modification of SOPs

and will review them on a case by case basis. However, within the context of QAPP, guidance document (QAMS 005/80) clearly indicates the procedures developed in the QAPP should be concise and definitive to achieve data quality goals.

RESPONSE:

The Navy feels that the standard procedures outlined in the QAPP are concise and definitive. The purpose of this QAPP is not to specify where a certain method will be used, but rather, to describe the procedures to be used where a specific method is employed. The specific locations and methods to be used during the field investigation are presented in the sampling plans with reference to the procedures as described in the QAPP. It is intended that the QAPP and Sampling Plans be used in conjunction with each other. Future revisions to the Sampling Plans will cite the specific page or section numbers when referencing the QAPP.

Section 4

COMMENT:.

1. **EPA has found their Certified Lab Program to be 80-85 percent complete on a nationwide basis. The goal of 100 percent completeness seems unrealistic. A definitive goal of completeness will have to be established prior to the implementation of a sampling plan.**

RESPONSE:

The sentence "A goal of 100 percent completeness has been established for the RIs chemical data." has been deleted from Section 4.0. The paragraph now begins "The required level of completeness will vary with the data quality needs for each individual site."

COMMENT:

2. **Representativeness is mostly concerned with the proper design of the sampling program. The rationale used to determine sampling locations must be explicitly explained.**

RESPONSE:

The following sentence has been added to Section 4.0: "The rationale for design of the sampling programs are site specific and are addressed in the sampling plans."

COMMENT:

3. **Mg/l should be changed to μg/l for ppb.**

RESPONSE:

The appropriate change has been made to Section 4.0 in the QAPP.

Section 5.2.2. Electromagnetic and Resistivity Surveys

COMMENT:

Page 5-3: **The type of resistivity survey to be conducted needs to be specified (e.g. Schlumberger, Dipole-Dipole).**

RESPONSE:

The following sentence has been added to Section 5.2.2: "The expected resistivity method to be conducted is the Schlumberger method; however; Dipole-Dipole and Wenner methods may be used depending on results of geophysical test program."

Section 5.2.3. Seismic Surveys

COMMENT:

Page 5-3: **In order to improve shallow subsurface data, for any seismic profile equal to or greater than 200 feet in length, in addition to the end shots, an additional shot should also be taken at the center of the spread.**

RESPONSE:

This procedure will be followed and the QAPP has been modified to indicate this.

COMMENT:

Page 5-4: **If explosives are used in the seismic survey, all shots will be conducted by a licensed blaster, and the blasting procedure will be thoroughly documented in the site Health and Safety Plan.**

RESPONSE:

The QAPP has been modified to reflect the use of licensed blasters and provide for documentation.

Section 5.2.4. Magnetic Surveys

COMMENT:

Page 5-5: **To reduce the possibility of erroneous measurements due to interference by nearby AC power sources, field personnel should take at least two readings at each survey point, in order to ensure instrument precision.**

RESPONSE:

Interference from AC power sources will be avoided if possible. If unavoidable, location of such sources will be documented in the field log book. Duplicate reading will also be obtained. The QAPP has been modified to reflect this clarification.

COMMENT:

Since the proton-precession magnetometer measures the total magnetic field, the instrument cannot be used to determine horizontal magnetic gradients. The contractor should specify the instrument they will use to measure horizontal gradients in this section.

RESPONSE:

The following sentence has been added: "A Geometrix Model 856 will be used during the survey to measure the gradiometer variations in horizontal magnetic gradient."

Section 5.2.5. Geophysical Test Surveys

COMMENT:

Page 5-6: **The type of DC resistivity soundings to be performed prior to the other geophysical surveys needs to be specified in this section.**

RESPONSE:

The following sentence has been added to Section 5.2.2: "Soundings will be performed using either a Schlumberger or Modified Wenner array."

Section 5.3. Soil Gas Survey

COMMENT:

1. **Details on the actual methods for sampling and analysis of ambient air, soil gas, and quality assurance/control (QA/QC) samples should be provided. Protocols for Air Quality Sampling and Soil Gas Well and Probe Sampling contained in Sections 10.3 and 10.4 are insufficient to properly review this investigatory technique.**

   Section 5.3 states that 1 to 2 liters of soil gas will be pumped from each well to flush (purge) the probe. Section 10.4 states that 2 probe volumes will be purged from the probe. This discrepancy must be clarified. Two to three probe volumes would be more appropriate.

   Sources for "organic-free blank samples" must be specified.

RESPONSE:

The above three comments have been addressed in the QAPP. A new appendix (D) has been added to provide more detail and clarification regarding the soil gas procedure.

COMMENT:

2. **Identities and the rationale of the selection of "target analytes" to be analyzed for must be provided.**

RESPONSE:

We have stated in Section 5.3 that target analytes will be addressed in site sampling plans where soil gas surveys are proposed. The phrase "the target analytes" has bee modified to "the target analytes and selection rationale."

COMMENT:

3. **Soil gas monitoring is a qualitative, not a quantitative procedure, used to "rapidly evaluate the areal extent of chemical contamination. . ."**

RESPONSE:

Soil gas sampling gives a quantitative result, i.e. the concentration of a volatile chemical in the soil gas. However, because the immediate source of that chemical in the soil gas is the underlying soil or ground water, soil gas sampling is often used to evaluate the areal extent and to site borings and/or monitoring wells. Modifications have been made to the QAPP to clarify this.

Section 6.0. Drilling and Well Installation Procedures

COMMENT:

More detailed qualification should be identified for the term "qualified field technician."

RESPONSE:

The title "qualified field technician" has been deleted and replaced with "hydrogeologist" throughout Section 6.0.

Section 6.1. Drilling Methods

COMMENT:

Page 6-1: **The objective of performing borings at Hunters Point Annex is to 1) obtain, to the best extent possible, representative records of lithology and hydrogeology, and 2) install monitoring wells to locate and define areas of contaminated ground water. For these reasons, the use**

of flight augers and direct mud-rotary drilling methods cannot be approved. Additional justification for this action is as follows:

1. **Neither flight augers nor mud rotary methods can supply lithologic data of sufficient quality to satisfy our requirements. Both flight auger and mud rotary drilling yield highly disturbed samples that can only be approximately located within the borehole.**

RESPONSE:

A third objective of performing borings at the Hunters Point Annex is to obtain soil samples for chemical analysis.

Flight augers are to be used in conjunction with hand sampling or portable hydraulic drill rigs and only in area where access is limited; the QAPP has been modified to clarify this. Mud rotary methods will be used in limited situations where geophysical logs are needed, the boring cannot be drilled by hollow-stem augers, and/or other preferred drill rigs are unavailable. The Navy agrees that use/availability of other drill rigs will be explored at the time such field work is needed. Soil samples will be obtained by the methods described in Section 7.2 of the QAPP; lithologic logging will be supplemented by observation of drill cuttings between such discrete samples.

COMMENT:

2. **In mud-rotary methods, a) contaminants can be circulated with the drilling fluid, b) drilling fluid mixes with the formation water and permeates into the formation, c) little information on the locations of water-bearing strata can be gathered during drilling, and d) drilling fluids can interfere with the results of chemical analyses.**

RESPONSE:

Conductor casings can be used to reduce cross-contamination of different hydrologic zones. Proper drilling muds will form a borehole "cake" and reduce influence on formation water and reduces the potential for area contamination. Experienced drillers are able to estimate water-bearing strata by mud characteristics and cuttings, and drill rod behavior.

COMMENT:

Since hollow-stem auger (HSA) borings have been successfully completed in unconsolidated sediments as deep as 300 feet, and since this method is ideally suited for undisturbed sampling, HSA boring with continuous

corings should be the method of choice. An acceptable second choice would be dual wall reverse-circulation drilling (using air as the drilling fluid), but only under the following conditions: 1) HSAs cannot be successfully used for well completion, due to heaving sediments entering the stem; 2) the borehole is a deep pilot boring that will extend to unweathered bedrock and the hole will also be logged using down-hole geophysics.

Should reverse-circulation drilling be necessary, the use of water or mud as a drilling fluid is only warranted if the hole cannot be kept open using other methods and the hole will be logged using down-hole geophysics. In this case, the Contractor should submit a sample of the drilling mud for chemical analysis, to check for possible interference with soil and ground-water analyses.

RESPONSE:

As stated above, hollow-stem auger will be the main drilling method used at Hunters Point Annex. Some situations and field conditions may require use of other rig types; those decisions are site specific and are deferred to the sampling plans. The Navy agrees to analyze a sample of the drilling mud.

Mud rotary drilling is currently proposed in selected pilot borings (approximately 6 locations) where geophysical log data are needed for subsurface interpretation. The remaining pilot borings and shallow test borings will be drilled using hollow-stem auger rigs.

For completing a deep boring and/or monitoring well, the Navy acknowledges the DHS preference for dual-wall reverse circulation drilling methods. However, this method has disadvantages in 1) no geophysical logs can be performed, and 2) the availability of drilling rigs is limited. The Navy will attempt to use this method when appropriate and will provide justification when mud rotary is used as a substitute. As stated above, if mud rotary is used a sample of the mud will be collected and analyzed for the analytes of interest.

Section 6.3, 6.5, 6.5.1, 6.5.2

COMMENT:

Only a geologist should be allowed to log the boreholes, cores or drill cuttings. The identification/interpretation of the materials observed is the responsibility of a registered geologist. Geologic logging may be done by an unregistered geologist, but then only when under the direct supervision of a registered geologist.

RESPONSE:

Well installations will be supervised and borehole logging will be performed by a geologist, engineer, or hydrogeologist. The appropriate change has been made in Sections 6.3, 6.5, 6.5.1, and 6.5.2. The following sentence has been added to Section 6.3: "A registered geologist will review all field logs."

Section 6.4. Borehole Geophysics

COMMENT:

Page 6-3: **For every boring that will be geophysically logged, a caliper log should also be run.**

RESPONSE:

The appropriate addition has been added to the document.

Section 6.5.1. Single-Casing Wells

COMMENT:

1. **Copies of unedited field logs shall be sent to the Navy and the regulatory agencies within 7 calendar days after the completion of the monitoring well or completion of the boring if it is not completed as a monitoring well. "Interpretive" or "report-ready" logs have their place in finished reports but are not acceptable for technical review.**

RESPONSE:

The Navy will submit copies of field boring logs after review by an HLA registered geologist. These copies will be submitted on an informal basis (perhaps monthly) or with reports. We understand that the DHS will evaluate the continuing need for this procedure at some future date. Modifications to the document are not necessary.

COMMENT:

2. **Surveyed elevations of the measuring points of the monitoring wells shall be submitted to the Navy and the regulatory agencies within 7 calendar days after the completion of the particular phase of the survey.**

RESPONSE:

The Navy will supply the regulatory agencies this information on a regular basis (monthly) after data has been checked by HLA managers for consistency and accuracy. Modifications to the document are not necessary.

COMMENT:

3. **Well design, construction and material selection in the California Site Mitigation Decision Tree process should be considered.**

RESPONSE:

The Navy will consider the protocol outlined in the Decision Tree document. However, these selection decisions are dependent upon site conditions, objectives, cost, availability, as well as technical merits. No revision to the document is necessary.

COMMENT:

4. **Hollow stem auger holes shall be a minimum 8 inches in diameter when using a 4-inch casing. It is necessary to provide a 2 to 3 inch annulus between the casing and the borehole wall to allow access of a tremie pipe, measuring tape and to prevent bridging of filter pack material or bentonite pellets.**

RESPONSE:

Auger and casing sizes will be chosen such that there is adequate annular space for addition of the filter pack material, bentonite and grant. The document has been revised to indicate that at least an 8-inch O.D. hollow-stem auger be used.

Section 6.5.1. and 6.5.2.

COMMENT:

1. **Only flush-threaded casing is allowed.**

RESPONSE:

The phrase "bell-end" has been deleted.

COMMENT:

2. **Casing manufacturer's markings are to be of a non-toxic material that is to be removed during the pre-construction cleaning.**

RESPONSE:

The Navy has contacted suppliers that will provide casings with no manufacturer's markings. No changes to the document are necessary.

COMMENT:

3. **The filter pack shall be designed based on the texture of the formation material to be stabilized; the slot size of the screen is to be selected based on the texture of the filter pack material.**

RESPONSE:

The filter pack and slot size specifications will be selected based on the data obtained from pilot borings drilled in the reconnaissance stage of the field investigation. The appropriate changes have been made to the document and detailed descriptions will be included in the site sampling plans.

COMMENT:

4. **All materials used to advance the borehole, construct the monitoring well, and develop the well shall be cleaned prior to use and protected from the time it is cleaned until the time it is placed in the hole.**

RESPONSE:

This is standard operating procedure that is covered in Section 10.1 of the document.

COMMENT:

5. **Screen lengths should not exceed 5 feet except where necessary to span the expected range of the water table fluctuation. The goal of monitoring is to acquire water quality data at in situ concentrations and to acquire it at discrete depth intervals and to acquire depth-discrete piezometric data. Long screen wells are an expediency that no one can afford; they act to dilute the contaminants by allowing water from many levels into the casing and also are vertical pathways for those contaminants.**

RESPONSE:

Short screen lengths (i.e. partially penetrating wells) are not judged necessary at this time. On the basis of available information, the shallow water-bearing zone at HPA is anticipated to be a maximum of about 40 feet thick. Wells will be screened across the entire thickness of the aquifer; the need for clusters of partially penetrating wells will be evaluated based on the data obtained from the fully screened wells.

COMMENT:

6. **It is important to specify a time lag after the bentonite pellets have been placed above the filter pack. Using fresh water it may take almost an hour for the pellets to swell enough to seal off the annulus and prevent downward leakage of the grout from the next step in the well construction. Pellets placed below the water table should be 0.5-inch diameter. Formation waters that are saline or brackish may take even longer to cause the pellets to swell. Bentonite placed above the water table should be crushed material, not pellets.**

RESPONSE:

The QAPP has been modified to specify a time lag of 45 to 60 minutes between placement of bentonite pellets and grouting.

COMMENT:

7. **Page 6-7: The bentonite pellet seal should be at least three feet thick. If the seal will be placed below the water table, the seal will be checked for bridging, and any bridges will be broken with a weighted tape, tremie pipe, or other similar device.**

RESPONSE:

Appropriate changes have been made in the document.

COMMENT:

8. **After 24 hours, check for grout shrinkage around the casing at the surface; fill in where needed.**

RESPONSE:

This is standard procedure in well installation and maintenance. The document has been revised to clarify this.

COMMENT:

9. **The ground-water level measuring point shall be clearly marked on each casing or protective cover.**

RESPONSE:

This comment has been added to the document in Section 6.5.1.

COMMENT:

10. **The well numbers shall be clearly marked on each casing, cap and on the outside of the protective cover.**

RESPONSE:

Well identification markings are addressed in Section 6.5.1. Well casings are generally not marked, as they are completed inside of locking well covers or in utility boxes, where the sides of the casings are not visible.

Section 6.6. Well Development

COMMENT:

1. Page 6-10: **Swabbing has been known to cause significant damage to monitoring wells and the surrounding filter pack. Therefore, swabbing is not a recommended method of well development.**

RESPONSE:

The primary methods of well development will consist of surging, pumping, or bailing. Swabbing will only be considered in special situations, if required, and will be performed by experienced personnel.

COMMENT:

2. **Well development through narrow slots is best done by use of a vented surge block.**

RESPONSE:

A vented surge block may be used in conjunction with pumping or bailing. The document has been modified to reflect this.

Section 7.0. Soil and Sediment Sampling Procedures

COMMENT:

1. General Comments on Sampling Procedures:

QAMS 005/80 states that for each major measurement parameter, that the QAPP should include a "description of technique or guidelines used to select sampling sites." This description has not been provided in the QAPP. This description of techniques or "strategies" is particularly important when attempting to determine the spatial distribution of contaminants at a site. It is not necessary to establish where samples are to be taken in the QAPP, but it is necessary to discuss the strategy for locating sampling "points" and the rationale for the selected strategy. If one is looking for evidence of contamination, a different strategy will be used than one for determining the average concentration and quantity of a contaminant in a volume of soil. Also, the sampling strategy will depend on the properties of the contaminant, the nature of the contaminant release and dispersal, and what is known about the physical and chemical features of the medium to be sampled. Knowledge of the physical environment will be based upon data obtained during surface geophysical investigations, visual evidence of possible contamination, and research of past site activities.

RESPONSE:

A discussion of the overall sampling strategies and objectives has been added as an introductory paragraph to Section 7.0. Specific strategies for sampling of individual IR sites are outlined in the sampling plans.

COMMENT:

The distinction between surface and subsurface sampling is not altogether clear. It would be better to differentiate between sampling for the purpose of describing soil physical properties and sampling for the purpose of estimating the concentrations of contaminants.

RESPONSE:

The following sentence was added to Section 7.1 of the QAPP: "The methods described in this section are for soil or sediment samples in the uppermost 2 feet."

2. Section 7.1. Surface Sampling

COMMENT:

Hand trowels are not the best tool for obtaining surface soil samples in that 1) sample volumes are typically inadequate, 2) the dimensions of the sampling unit (depth and diameter) are not easily determined, and 3) the soil may be too hard to penetrate to an appropriate sampling depth. It would be preferable to use stainless steel liner tube sampler for organic volatile samples. Stainless steel trowels could be used for most metals and inorganic analyses. A bucket auger may be appropriate if it is not required to obtain undisturbed soil samples. Procedures for breaking through concrete or asphalt surfaces also need to be briefly discussed.

RESPONSE:

It is intended that most surface (i.e. 0 to 2 feet deep) samples would be obtained using a split barrel sampler lined with stainless steel tubes. In certain situations, hand trowels will be used; for example, in soft, loose soil from the upper six inches. The document has been revised to clarify this. Use of bucket augers is inappropriate in these situations. As discussed with DHS, procedures for breaking concrete or asphalt surfaces need not be discussed in the QAPP.

3. Section 7.2

COMMENT:

Collecting lithologic samples from the cuttings on a hollow stem auger rig is a poor method of obtaining samples. It is very difficult to determine the particle size distribution of a sample take from cuttings because of mixing and also the uncertainty of the depth that the sample was collected. Lithologic descriptions should be based on a downhole sampling as needed (i.e., 5' intervals may not be sufficient).

RESPONSE:

Lithologic logging during hollow-stem auger drilling will be based on downhole samples obtained using a split barrel sampler lined with stainless steel tubes. Examination of drill cuttings provides supplementary information; drill cuttings will not be used for chemical or physical analysis.

COMMENT:

Where physically possible, undisturbed soil samples should be obtained from continuous cores or exposed soil faces and should be analyzed for the following physical and chemical properties where appropriate; bulk density, porosity, percent silt (0.05 to 0.002 mm), percent clay (<.002 mm), percent soil moisture (volume/volume), pH, and percent organic carbon (mass/mass). Soil properties to be described in the field should include soil boundaries, soil color, and other physical features that may be visually apparent. It may not be necessary to determine all of the above mentioned soil properties if it can be shown that they are not necessary to model the migration and the fate of contaminants in soils. Soil classification, according to the ASTM system, does not provide adequate information on soil properties to make an assessment of the potential fate of contaminants in soils and sediments. Details on sampling techniques are provided in Section 3.1.4.a of the California Site Mitigation Decision Tree.

RESPONSE:

In some instances, the above mentioned data may be needed; these are site-specific details that will be discussed in the sampling plans. Lithologic logs will use the ASTM system as a base; however, additional information such as soil structure, alteration, etc. are to be provided where observed.

Section 8.0. Water Sampling Procedure

COMMENT:

1. **Section 8.1. Sampling Protocol - Label all containers before each sampling round.**

   Add preservatives before each sampling round.

RESPONSE:

We anticipate that numerous wells will be sampled in each sampling round. Because of the number of samples and the associated handling problems, we do not anticipate adding preservatives to empty sample bottles before each round. Preservatives for metals analysis will be added immediately after filtering or sampling, as appropriate for analysis; the document has been modified to reflect this.

COMMENT:

2. **P8-1, bullet 5: In wells which run dry during purging, the samples to be analyzed for volatile compounds should be collected as soon as there is enough water in the well to collect the samples.**

RESPONSE:

The QAPP has been modified to reflect this DHS comment.

COMMENT:

Bullet 6: Bailers should have an attachment on the bottom (e.g., stopcock) which allow the sample to be decanted from the bottom with minimum of aeration.

RESPONSE:

The Navy will decant as described and the document has been modified to reflect this. However, we will evaluate this procedure during the first sampling round and adjustments may be needed.

COMMENT:

3. **P8-2, Bullet 1: An in-line filtration unit attached to the discharge line of the bladder pump is preferred over decanting samples into a separate filtration assembly.**

RESPONSE:

This procedure will be considered, however, no revision to the document is necessary.

COMMENT:

4. **P8-2, Bullet 10: The time of purging (beginning and end) should also be noted.**

RESPONSE:

The time of purging is included on the ground-water sampling form in Appendix B.

Section 9.0. Water-Level Measurement Procedures

COMMENT:

Water-level measurements shall be submitted to the Navy and the regulatory agencies within 7 calendar days after the completion of each round of water-level measurements.

RESPONSE:

The Navy will submit water-level measurements to the agencies on a regular basis (perhaps monthly) and with reports. The measurements will first be reviewed for accuracy and consistency. Modifications to the document are not deemed necessary.

Section 10. Air Quality Monitoring Procedures

As described on page 1, the air monitoring procedures have been deleted from this document and will be included with the air sampling plan. However, the responses to the DHS comments are provided below.

COMMENT:

1. **There is no mention of air sampling for semivolatile organics. Semivolatile organics should be sampled in vapor phase and trapped on particulates. A high volume sampler with backup absorbent can be used.**

RESPONSE:

The appropriate additions will be included in the Air Sampling Plan.

COMMENT:

2. **Detection limits for ARB/ADD L002 methods should be 1 ppb.**

RESPONSE:

This will be addressed in the Air Sampling Plan.

COMMENT:

3. **Air sampling form should include volumetric flow rate being used and should have identification of sampling station. The above comments also apply to integrated sample forms. Ambient temperature and pressure should also be on forms.**

RESPONSE:

The form has been modified to address this DHS comment.

COMMENT:

4. **The QAPP mentions Tedlar bags to collect ambient air samples. If the bags are to be reused, there should be a section on preparation, purification, storage, and handling of the bags.**

RESPONSE:

Because of the DHS comments, use of Tedlar bags, stainless steel containers, and Tenax tubes are being reevaluated. If Tedlar bags are used, they will not be reused; therefore, cleaning procedures would not be described.

COMMENT:

5. **At least 10 percent of ambient air samples taken should be collocated samples. Spiked tedlar bags should be taken into the field to determine losses.**

RESPONSE:

The appropriate addition will be included in the Air Sampling Plan.

COMMENT:

6. **Air samples collect in Tedlar bags should be analyzed within 72 hours.**

RESPONSE:

The appropriate addition will be included.

COMMENT:

7. **Prior to collecting air samples on absorbents, the breakthrough volume of various chemicals have to be determined in order to use the correct flow rate. There is a minimum and maximum flow rate within which solid absorbents can be used.**

RESPONSE:

Breakthrough volumes will be evaluated. This subject is still under evaluation and discussion.

COMMENT:

8. **If solid absorbents are used, EPA's method should be preferred over NIOSH's.**

RESPONSE:

The Navy agrees with this comment, but no modifications to the document are deemed necessary.

COMMENT:

9. **The flow rate shall be calibrated using a flow meter traceable to NBS.**

RESPONSE:

The appropriate change has been made to the document.

COMMENT:

10. **Air samples collected on solid absorbents should be analyzed within the time limit specified in EPA's "Compendium of Methods for the Determination Toxin Organic Compounds in Ambient Air." Solid absorbents not listed by EPA should follow NIOSH methods.**

RESPONSE:

The Navy agrees with comment and this is addressed in the Air Quality Plan.

Section 11. Decontamination Procedures

COMMENT:

P11-2, Bullet 2:

Frequent equipment blanks should be collected. Usually, equipment for collecting samples containing metals is rinsed in 1:1 nitric acid and that for samples containing organic materials, such as oil and grease, is cleaned with a spectroscopic grade solvent such as isopropanol. These rinses are the preferred decontamination method and if they are omitted, the adequacy of the alternate procedures should be demonstrated with frequent blanks.

RESPONSE:

Equipment blanks will be collected two times a week during sampling operations. Nitric acid and solvent rinses will not be used; these rinses may create more of a hazard to personnel than necessary. Evaluation of the chemical analyses of the equipment (rinsate) blanks will demonstrate the adequacy of decontamination.

Section 14.0. Analytical Procedures

COMMENT:

Not all the labs listed here are certified by DHS to perform all of the analytical procedures that will be required at the site. Care should be taken to ensure that analyses are requested only from those labs that are certified for those particular analyses. TMA/Norcal is the only lab listed that is certified for asbestos analysis.

RESPONSE:

It is intended that only California Certified Laboratories will be used for analytical analyses of analytes for which they are certified. The document has been modified to clarify this.

Section 15.0. Data Reduction, Validation, and Reporting

COMMENT:

1. **Specific standard mathematical and/or statistical procedures for data reduction should be identified and an example should be given here.**

RESPONSE:

Because of the numerous possible mathematical or statistical procedures for data reduction, it is not feasible that they be included in this document. A description of any such procedures used in data reduction or evaluation will be included in reports, as appropriate. Examples of the types of procedures which may be used in data reduction are included in EPA's Data Quality Objectives for Remedial Response Activities, Appendix A.

COMMENT:

2. **Section 15.3. The following should be added to the reporting requirements.**

   - **Presentation of all QC data (e.g., all blanks, internal duplicates and RPD, spikes and percent recovery, field duplicates and RPD) with related Calculations."**
   - **Any corrective actions."**

RESPONSE:

The appropriate changes have been made to the document (new Section 14).

Section 16. Quality Control Checks

COMMENT:

1. **Section 16.1. Field QC Checks**

   There is no list showing "the matrix and analysis specific description and frequency of field external QC samples" as indicated in the text.

RESPONSE:

The phrase "field/external QC samples is listed below." has been modified to "field/external QC samples is also described below."

COMMENT:

2. **Section 16.2. The check standards used should preferably be obtained from a standard setting agency such as the EPA, NBS, etc. If such standards are not available, then a second standard may be obtained from a different manufacturer (or a different lot number of the same manufacturer).**

RESPONSE:

Calibration and check standards, with known concentrations, are prepared in the laboratory from standard solutions obtained from EPA, NBS, or equivalent. The use of these standards will be in accordance with the requirements of the analytical method.

Section 19

COMMENT:

1. **Section 19.1. If HLA will not eliminate data, then data that do not meet certain QC performance standards should be identified and rationale given for not eliminating the data.**

It is stated that "sample recollection and analysis will only be used in extreme cases of QC problems." Please define "extreme cases of QC problems." Sample recollection and analysis should be done whenever it is necessary to achieve QA goals.

RESPONSE:

Data that do not meet relevant QC criteria will be appropriately labeled in the DBMS by the use of qualifiers (flags). The qualifiers will consist of a letter code associated with each analytical result that will indicate whether the data have met relevant QC criteria. Sample recollection and analysis will only be performed when insufficient data are available to support the decision-making process. It is anticipated that resampling will be unnecessary because of the large volume of data to be generated in the RI; however, the need for resampling will be evaluated relevant to data needs and uses.

COMMENT:

2. **Duplicates. Field duplicates for analyses, except volatile organics, should be thoroughly mixed so that a homogeneous mixture results, and duplicates should be taken from this mixture.**

RESPONSE:

Soil duplicates will not be collected because of the inherent difficulties with adequately homogenizing the sample. Data from the analysis of soil duplicates will not necessarily significantly increase the confidence in the analytical results. The Navy intends to assess the quality of the chemical data from soil samples through the use of other internal and external quality control samples.

COMMENT:

3. **Section 19.1.2. Duplicates. The statistical analysis should stop at the calculation of the RPD. The RPD for each parameter should be compared to precision objectives in Table 1.**

RESPONSE:

For duplicate data, the use of the QC charts has been re-evaluated. QC charts will be used to compare observed RPD with the objectives proposed in Table 1. Section 18.1.2 (new numbering) of the QAPP has been modified to reflect this revised approach.

COMMENT:

4. **Section 19.1.3. Spikes. The statistics analysis should stop at calculation of percent recovery for each parameter. The percent recovery for each parameter can then be compared to accuracy objectives in Table 1.**

RESPONSE:

The approach to analysis of spike data is essentially the same as that discussed for duplicates, in Comment #3, above. Section 18.1.3 (new numbering) of the QAPP has been modified to reflect this revised approach.

COMMENT:

5. **Page 19-5. Since a general percent recovery limit of 75% to 125% has been set for spike recoveries, a similar general precision limit should be set as a precision measure for the duplicates.**

RESPONSE:

The QC criteria for spikes has been modified to be consistent with EPA SW-846 and the Contract Laboratory Program Statement of Work (CLP SOW). Section 18.1.3 (new numbering) of the QAPP has been modified to reflect these changes. In addition, the precision limits for duplicates is shown on Table 1.

COMMENT:

6. **QC charts should be plotted to see if data are within acceptable limits.**

RESPONSE:

Sections 18.1.2 and 18.1.3 (new numbering) have been modified to clarify that QC charts will be plotted to see if data are within acceptable limits.

COMMENT:

7. **PG 20-1. If QC criteria (precision and accuracy) specified are not met, then these samples should be subjected to corrective action.**

RESPONSE:

Section 19.2 (new numbering) has been modified to clarify that corrective actions will be initiated in the event that laboratories do not meet specified QC criteria for precision and accuracy.

Table 1

COMMENT:

1. **Precision goals of 50% or greater set for some analytes are too wide. We suggest, at a maximum, 40% for VOC and 20% for all others.**

RESPONSE:

Precision goals for internal QC samples will be consistent with CLP SOW. However, for those analytes for which there are no established criteria for precision, the goals in Table 1 are based on the analytical laboratory's experience with precision goals obtained for the method, as well as the ultimate use of the data. For this reason, precision goals set with no established criteria will be of a more qualitative nature. Form II, SW-846, Water Matrix Spike/Matrix Spike Duplicate indicates that precision goals of 50% or greater are appropriate for certain analytes. For external QC samples, the QC limits were established based on prior project experience and laboratory performance and are believed to be appropriate.

COMMENT:

2. **Quality Assurance goals in the table must be clearly distinguished from actual QC criteria. The certified laboratories listed in page 14-1, should have QC criteria based on actual data for laboratory measurements. These QC criteria should be used to implement corrective action when necessary.**

RESPONSE:

The laboratories will implement corrective actions according to standard laboratory operating procedures based on their actual past QC data.

COMMENT:

3. **RPD should be reported for base/neutral/acid organics (semivolatiles) and pesticides/PCBs in air, and the sources for this data should be given.**

RESPONSE:

The RPDs will be presented in the Air Sampling Plan.

COMMENT:

4. **Table II should read "Acceptable Percent Recovery" not Acceptable RPD. Percent Recovery should be reported for semivolatiles and pesticides/PCBs in air, and the sources for this data should be given.**

RESPONSE:

Table I, Part II, Accuracy, has been modified, as appropriate. Air information will be presented in the Air Sampling Plan.

COMMENT:

5. **Analysis of Surrogates. This table should also read "Acceptable Percent Recovery" not acceptable RPD.**

RESPONSE:

The appropriate change has been made.

Table 2

COMMENT:

1. **Analytical methods for semivolatiles and pesticides/PCBs in air should be identified.**

RESPONSE:

The Navy does not intend to analyze air samples for pesticides (PCBs) which will be indicated in the Air Sampling Plan. The appropriate method number for semivolatile analysis will be presented in the Air Sampling Plan.

COMMENT:

2. **Reference 7, provided for TPH analysis is incorrect. As far as can be determined, the document referenced, "Recommended Methods of Analysis of the Organic Compounds Required for AB 1803" does not contain these methods. The proper reference should be "Leaking Underground Fuel Tank (LUFT) Field Manual." A copy of this document is enclosed for your use (see Attachment A).**

RESPONSE:

The LUFT Field Manual will be referenced in the QAPP for TPH analysis and the appropriate change has been made.

COMMENT:

3. **Please specify the precision and accuracy for the PQLs cited in the table (see Reference 2).**

RESPONSE:

As stated in Table 2, the PQLs are from SW-846 and are generally accepted limits of detection. Therefore, it is not necessary to cite the methods used by the EPA to generate the PQLs.

COMMENT:

4. **Reference methods for Anions/Cations should be EPA 300 series/200 series rather than EPA 200/300.**

RESPONSE:

The appropriate change has been made.

Table 3

COMMENT:

1. **Holding times for air samples should be listed.**

RESPONSE:

The appropriate additions will be included in the Air Sampling Plan.

COMMENT:

2. **VOC samples should be collected in special VOA vials that can be purchased as certified clean.**

RESPONSE:

This is standard laboratory QC protocol. Only certified clean vials will be used. No revision to the document is necessary.

COMMENT:

3. **Certified clean containers can be purchased for other organic analyses or the container should be cleaned as described below:**

   1) Thoroughly washed with nonphosphate detergent and hot tap water.

   2) Rinsed 3 times with tap water.

   3) Rinsed with nitric acid (1:1).

   4) Rinsed 3 times with ASTM Type I water.

   5) Rinsed with methylene chloride

   6) Oven dried.

   7) Baked at 400 degrees C (when required).

   Containers for metals should be:

   1) Thoroughly washed with nonphosphate detergent and hot tap water.

2) **Rinsed 3 times with tap water.**

3) **Rinsed with nitric acid (1:1).**

4) **Rinsed 3 times with ASTM Type I Water.**

5) **Oven dried.**

RESPONSE:

The Navy agrees with DHS comment and regards this as standard laboratory protocol. No modification to the document is necessary.

COMMENT:

4. **From Table 3, it appears that soil samples may be sent to the lab in brass sleeves. If this is the case, there should be a written procedure describing how the "core" will be handled in the lab. Special care in obtaining samples for VOC analyses seems appropriate.**

RESPONSE:

Only stainless steel sleeves will be used to obtain soil samples for chemical analyses. The Navy has consulted various analytical laboratories on the core handling issue. Although no EPA protocol is written, the laboratories will follow a standard protocol for removal of soil from cores for analyses. The typical method is to discard about 2 centimeters of soil from one end of the sample and then remove half of the required subsample. The procedure is repeated for the other end of the core to obtain the remaining half of the subsample. To the extent possible, the two subsamples will be representative of the entire tube length. Specific soil conditions may require some modification to this procedure. While this procedure will be discussed with the laboratories, discussions of specific laboratory methods are not discussed in the QAPP and no revision to the document is necessary.