

**RESPONSE TO AGENCY COMMENTS ON THE  
DRAFT SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN/QUALITY  
ASSURANCE PROJECT PLAN) FOR TIME-CRITICAL REMOVAL ACTION AND  
SUPPLEMENTAL SAMPLING ACTIVITIES SITE 31 (AREA OF CONCERN 1)  
NAVAL WEAPONS STATION  
SEAL BEACH DETACHMENT, CONCORD, CALIFORNIA**

**August 23, 2002**

This document represents the U.S. Department of the Navy's responses to comments from the San Francisco Bay Regional Water Quality Control Board (RWQCB) and the U.S. Environmental Protection Agency (EPA) on the "Draft Sampling and Analysis Plan (SAP) (Field Sampling Plan/Quality Assurance Project Plan) for Time-Critical Removal Action and Supplemental Sampling Activities Site 31 (Area of Concern 1) Naval Weapons Station Seal Beach Detachment Concord, California," dated May 24, 2002. Comments were due on July 24, 2002. The Navy received comments from RWQCB on July 2, 2002, and from EPA on August 8, 2002.

**RESPONSES TO RWQCB COMMENTS**

**GENERAL COMMENTS**

- 1. Comment:** It is unclear to Board Staff how the Navy will approve the "optional" sampling activities to be conducted at the Area of Concern 1 (AOC-1). What will be the decision points enabling these additional sampling activities? Board Staff supports supplemental sampling at AOC-1 to determine if other areas might have been contaminated by the anthropogenic activities held at the site.

**Response:** The Navy discussed potential additional sources that should be sampled at AOC 1 with the regulatory agencies during a remedial project managers' (RPM) meeting on December 13, 2001. During that meeting, the Navy and regulatory agencies agreed on a list of six additional potential sources that required further investigation to address data gaps for soils. This list of sources was documented in minutes from that meeting (Tetra Tech 2002) and in responses to agency comments on the "Preliminary Assessment Addendum, Area of Concern 1, Naval Weapons Seal Beach, Detachment Concord, California" (Tetra Tech 2001b). On the basis of this meeting and documentation, the Navy obtained funding on a fixed-cost basis to collect additional samples at the identified locations.

During a subsequent RPM meeting on April 25, 2002, the regulatory agencies requested additional samples in the vicinity of the spent acid pond and a concrete slab shown on a 1967 map of the facility. In a May 1, 2002, letter, EPA requested several other additional samples at locations labeled "shop," "pryon filter," "digester," and "bagger" (EPA 2002).

The Navy originally planned to submit the draft SAP for regulatory agency review in early May. The Navy modified the SAP to accommodate the new sampling locations requested by the agencies, but had not obtained funding to collect these samples at the time the draft SAP was submitted for review. Accordingly, the additional sampling locations requested by the agencies in April and May 2002 are labeled as "optional", and will be sampled during the proposed sampling event if the Navy is able to obtain funding for the additional samples during the current funding cycle. Section 1.1.2.3 has

been modified to clarify that the optional sampling is contingent on the availability of funding.

- 2. Comment:** **The Navy needs to present why the San Francisco Bay Regional Water Quality Control Board Risk Based Screening Levels (RBSLs) for soils will not be adopted as a regulatory standard for the supplemental sampling activities. The federal Preliminary Remedial Goals are less stringent than the Regional Water Quality Control Board supported RBSLs. Board Staff recommends using groundwater ceiling levels (where groundwater is a current or potential source of drinking water) instead of the less stringent California Toxics Rule to determine if there has been impact to this resource quality. Finally, Board Staff understands that these State criteria are un-promulgated however they provide a basis for determining the extent of site contamination and how impaired the hydrologic resources might be to Staff of the San Francisco Bay Regional Water Quality Control Board.**

**Response:** The Navy has reviewed the RBSLs referred to in the comment (RWQCB 2001), and notes that these standards are not promulgated and are therefore not appropriate for adoption as regulatory standards. The December 26 memorandum describing the applicability of the RBSL document notes that “this document is not intended to establish policy or regulation. Use of the document is intended to be entirely optional on the part of the discharger” (Hill 2001). The Navy has chosen to perform detailed ecological risk assessment, rather than rely on the predetermined screening levels proposed by RWQCB. The RBSL document notes that the RBSLs may not be appropriate for high-profile sites that warrant a detailed environmental risk assessment. The Concord site is a Superfund site on the National Priorities List, and should be considered high profile. Additionally, the Navy has performed a detailed ecological risk assessment for AOC 1, and will perform additional risk assessment as part of future work at the site.

Generally accepted ecological screening criteria do not exist. In general, site-specific conditions and factors profoundly affect ecological risks, making use of generic screening levels impracticable. The RBSLs are not suitable as screening levels at AOC 1 for the following specific reasons:

- **Depth of soils considered:** The ecological risk posed by a contaminant concentration buried by 3 meters of soil is clearly significantly different than the risk posed by contaminants at the surface, yet the RBSLs provide a single number to assess ecological risks for both cases.
- **Habitat:** The RBSLs do not differentiate between environments. For example, copper concentrations in wetland soils pose a greater ecological risk to some receptors than copper in an upland soil, yet the RBSLs propose a single number to assess ecological risk in both cases.
- **Receptors:** The RBSLs do not differentiate between ecological receptors or trophic levels. The risk posed by mercury concentrations in soil to an invertebrate is different than the risk posed to a raptor, yet the RBSLs provide a single number to assess ecological risks for both cases.
- **Foraging range:** The RBSLs do not consider foraging range of the receptors or size of the contaminated area. A spatially limited hot spot does not pose the

same risk to a Northern Harrier with a range of 642 acres as it does to a mouse with a range of 1500 square feet, yet the RBSLs provide a single number to assess ecological risks for both cases.

For these reasons and others, the Navy does not believe that the unpromulgated RBSLs are appropriate screening criteria and has elected not to use these values for screening purposes.

- 3. Comment:** **Please include a brief presentation of the food chain model used to evaluate ecological risks for the soils remaining at the site.**

**Response:** A detailed discussion of the food chain model was presented previously in the preliminary assessment addendum (Tetra Tech 2001a). The Navy believes that it is not appropriate to include the food chain model in the SAP, and is further concerned that a short discussion of the food chain model would by necessity omit certain critical details of the model. Therefore, the food chain model has not been added to the SAP, and the reader is encouraged to refer to the original model presented in the PA addendum (Tetra Tech 2001a).

- 4. Comment:** **Please scientifically clarify why in some cases composite instead of discrete samplings will be used.**

**Response:** The objective of collecting composite samples is to screen potential source areas and to determine whether further investigation of those sources is merited. Several of the potential source areas identified by regulatory agencies (such as the warehouse area, laboratory/shop, northern boundary of site, and concrete slab) are large and diffuse, and it would be difficult to select an appropriate location to collect discrete samples to characterize the entire potential source. In these areas, the Navy proposes to collect 3- or 4-point composite samples to screen the potential source areas to determine if a contaminant source is present. Two other sites (east and west process tanks) consist of groups of tanks that are no longer present but are shown on historical drawings. Because the tanks are no longer present and the historical drawings do not include precise locations of the tanks, it is difficult to ensure that a sample collected in the field would coincide with a former tank location. The Navy believes that composite samples from the tank areas are more likely to encounter any contamination than individual samples.

The Navy's intention in collecting composite samples from potential source areas is to assess whether potential sources are actual sources of contamination. If the regulatory agencies do not agree that the proposed sampling techniques will allow an adequate assessment of potential sources, the Navy will modify the sampling plan as appropriate. However, if the initial screening by comparing composite sample results with regulatory criteria does not indicate that contamination is present, the Navy does not intend to assess the potential sources further.

- 5. Comment:** **Please integrate the approach and rationale of the recently led radiological survey done at the site. The results of this survey need to be included in the report presenting the results of this removal action and supplemental sampling activities.**

**Response:** There is no reason to believe that radiological activities of any kind were conducted at AOC 1 either by the Navy or by the former fertilizer plant. The regulatory agencies expressed concern that the ash-like material present at AOC 1 resembles fly ash, and that some ash-like materials at other sites contain unsafe levels of radioisotopes.

Agencies requested that the Navy evaluate whether radioisotope contamination is present at AOC 1. The Navy reviewed a publication by the United States Geological Survey (USGS) that discusses radiological concerns associated with fly ash (USGS 1997). The publication concluded that “the vast majority of coal and the majority of fly ash are not significantly enriched in radioactive elements, or in associated radioactivity, compared to common soils or rocks” and that fly ash does not generally pose a health risk. The same publication noted that an “extreme calculation” assuming high proportions of fly ash in concrete building products in a residence resulted in an enhanced dose of 3 percent of natural environmental radiation, and that the radioactivity of typical fly ash is not significantly different from that of conventional concrete additives or other building materials such as granite or red brick (USGS 1997). In response to agency concerns, the Navy performed radiological screening of the ash-like material and verified that the material does not contain concentrations of radioisotopes that could affect worker safety or disposal options. The results of the characterization will be discussed briefly in the summary report describing the TCRA, but will not be discussed in the SAP.

6. **Comment:** **Board Staff recommends completing geoprobe activities a statistically significant distance away from formerly bored locations to provide new interpretable data on site contamination.**

**Response:** The Navy requests further clarification of where RWQCB believes additional borings are required and what RWQCB considers a “statistically significant distance.” Existing borings at the site include two groups: (1) targeted borings, advanced at suspected source areas, and (2) a gridded area over the entire eastern half of the site. The Navy wishes to clearly define the objectives of any future investigation at the site and will discuss future sampling at AOC 1 in detail with the regulatory agencies.

#### SPECIFIC COMMENTS

1. **Comment:** **Section 1.2.1.2, Supplemental Sampling Activities, p 18: The Navy’s rationale why these locations will be additionally sampled is missing from the report. For example, it is unclear why discrete samples will be collected from each of the three boreholes drilled 100 feet west of the soils samplings grid. This section needs to refer to Figure 5. Moreover, it is unclear why the Navy would only sample groundwater for metals, VOCs, SVOCs, pesticides, PCBs and chlorinated herbicides if “soil concentrations at the site suggest that these compounds may be present in groundwater.” Due to the chemical properties of these compounds and the uncharacterized leaching potentials of these soils, the Navy needs to sample groundwater at the site for these contaminants regardless of soil contamination.**

**Response:** The Navy’s rationale for sampling the additional potential sources is to assess whether potential source areas pose an ongoing threat to human or environmental receptors, as discussed in Section 1.1.2.2. The Navy agreed to extend the sampling grid in the eastern half of the site 100 feet to the west in a March 2, 2000, RPM meeting, but neglected to collect additional samples during the supplemental PA investigation due to a field oversight. The Navy intends to correct this field oversight with the proposed samples. The rationale for supplemental sampling has been added to Section 1.2.1.2.

This SAP follows the recommended format presented in “EPA Requirements for Quality Assurance Project Plans, EPA QA/G-4” (EPA 2001), which requires that the

objectives of the proposed sampling be presented before detailed plans for the sampling. Since a map showing sampling locations is more appropriate in a section detailing the sampling to be performed than in a section discussing general objectives of the sampling, the map showing sampling locations (Figure 5) remains in Section 2.1.2.1.

The objective of collecting groundwater samples is to determine whether site soils have affected local groundwater. Since compounds in soil cannot leach to groundwater if the compounds are not present in soil, the Navy intends to analyze groundwater samples for organic compounds only if they are detected in site soils. Semivolatile organic contaminants (SVOC) were detected at low concentrations at several different locations at AOC 1, and therefore, the Navy will collect and analyze groundwater samples for SVOCs in addition to metals. Other organic contaminants have not been detected or have been detected only at trace concentrations in the existing soil samples from the site. (Note that units for organic compounds detected in soils listed in Tables 1 and 2 of the PA addendum [TtEMI 2001b] are incorrectly listed as milligrams per kilogram; the correct units in these tables should be micrograms per kilogram.) Therefore, all groundwater samples will be analyzed for metals, SVOCs, total suspended solids (TSS) and total dissolved solids (TDS), and some groundwater samples may be analyzed for volatile organic compounds (VOC), pesticides, polychlorinated biphenyls (PCB), or chlorinated herbicides if significant concentrations of these compounds are detected in soils. The soil and groundwater sampling will be phased, so that analytical results for soils are available for review before groundwater samples are collected, to ensure that groundwater is tested for an appropriate list of analytes.

**2. Comment:** **Section 1.2.2.3, Optional Sampling Activities, p 20: Please indicate to Board Staff what would trigger the visual evidence of contamination in soils at the site. Please provide the rationale why borings advanced at the center of the former spent acid pond would only be sampled at levels found below 9 feet below ground surface. It is understood that a prior sample was taken in 1999 at the 4.5- 5 feet depth yielding arsenic and chromium values above the RBSL for that site. Therefore, Board Staff recommends taking discrete soil samples between 0- 3 feet below ground surface in this characterization effort as well. Finally, Board Staff also advises obtaining one discrete sample from the middle of the former concrete slab. This sample would indicate if contamination might have occurred in the soils found below the concrete through slab fractures.**

**Response:** Visual evidence of contamination: Visual evidence of contamination would include discoloration, staining, changes in texture, presence of waste materials observed at other locations at the site, or other visual indication that a particular lithologic interval may be contaminated or is not a natural material.

Basis for proposed depths of pond bottom samples: The original depth of the bottom of the feature labeled "spent acid pond" on historical facility maps is not known. An undated topographic map of the facility shows that the elevation of the edge of the pond is 24 ft above mean sea level (msl). A more recent topographic map of the site shows that the area formerly occupied by the acid pond is approximately 27 feet above msl, or approximately 3 feet higher than the former elevation of the edge of the pond. The Navy intends to advance one boring to 20 feet bgs to penetrate the bottom of the former pond. The Navy proposes to collect continuous split-spoon samples of the interval from the ground surface to 20 ft below ground surface (bgs), and to select

samples for analysis based on visual evidence of contamination or the presence of elevated organic vapor concentrations. If visual or vapor evidence of contamination is lacking, the Navy will select a sampling interval most likely to coincide with the bottom of the pond. The proposed default sample intervals span the interval from 9 to 15 feet bgs, or 6 to 12 feet below the former elevation of the shoreline of the pond. The Navy chose these depths as the most likely depths to span the bottom of a pond with dimensions of approximately 70 feet by 120 feet.

The Navy intends to advance a 20-foot boring in the center of the former spent acid pond area because the regulatory agencies expressed concerns at the April 24, 2002 RPM meeting that sample SB09, collected from the 4.5- to 5- feet bgs interval in 1999, may have been collected from the soil used to fill the pond rather than from the base of the pond. The spent acid pond boring is considered optional, subject to availability of funding. The existing sample shows that the soils used to fill the pond are not contaminated with metals at concentrations of concern. Soils from sample SB09 do not exceed background concentrations or EPA Region 9 preliminary remediation goals (PRG). As discussed in response to general comment 2 above, the Navy does not agree that unpromulgated RBSL criteria are suitable screening criteria for the site, and does not intend to collect a shallow soil sample at this location on the basis of an RBSL exceedance.

Basis for sampling scheme around former concrete slab: An “open slab” is identified in the west central portion of the site on a 1967 facility map. The slab is not a building foundation, and the label on the 1967 map suggests that a roof did not cover the slab. Materials stored on the slab are unknown, but given that the site is a former fertilizer manufacturing facility, it seems quite likely that fertilizers were stored there. The agencies expressed concerns at the April 25, 2002, RPM meeting that unknown materials may have been stored on the slab, leaked, and migrated to the edges of the slab. To assess this possibility, the agencies recommended collecting a composite sample from the perimeter of the slab.

The comment requests a discrete sample from the center of the former slab. A sample from the center of the slab would indicate if contamination migrated through fractures in the slab only if the sample location fortuitously coincided with the location of such a fracture. If the sample location did not coincide with the location of a fracture, the sample would not be likely to exhibit contamination. There is no reason to suspect that a fracture would more likely be located in the center of the former slab than at any other location. Further, the slab is no longer present and cannot be assessed for the presence of fractures, and the available facility maps do not identify fracture locations. Accordingly, the Navy intends to collect samples from the edges of the slab, as the agencies originally suggested in the April 25, 2002, meeting.

**3. Comment:** Table 3, Data Quality Objectives for Field Sampling, p 2 of 4: Indicate statistically what the Navy means by a “revised UCL<sub>95</sub>.”

**Response:** The “UCL<sub>95</sub>” is a statistical parameter that represents a conservative upper bound estimate of mean concentration of a population of samples. UCL<sub>95</sub> is defined as the 95<sup>th</sup> percentile upper confidence limit on the arithmetic mean. As described in Section 2.1.1.1 of the SAP, the revised UCL<sub>95</sub> is the UCL<sub>95</sub> concentration of a new population of samples that will remain on site after the removal action is complete. Concentrations of samples from areas that will be excavated and removed from the site will be

removed from the data set, new analytical data from areas surrounding the excavations will be added, and a revised UCL<sub>95</sub> will be calculated from the new data set.

4. **Comment:** **Table 3, Data Quality Objectives for Field Sampling, p 3 of 4: Please clarify the following statement: “Concentrations of metals and organic compounds will be evaluated with respect to levels of TSS.” The Navy should report both total and dissolved contaminants concentrations in groundwater. Detection limits should also be lower with the most stringent contaminant criteria compared.**

**Response:** “Dissolved” metals are operationally defined as those that remain in a sample that has been passed through a 0.45-micron filter (Puls and Powell 1992). Because the filtering process may exclude metals present as colloids in groundwater, the Navy has elected to collect only unfiltered metals samples from the monitoring wells that will be installed at the site. The Navy intends to collect unfiltered metals samples using low flow-rate purging techniques because studies by EPA have shown that low flow-rate purging techniques can obtain more accurate and representative groundwater samples for metals analyses than conventional sampling and filtering techniques (Puls and Powell 1992). The Navy intends to analyze both total and suspended solids concentrations of the samples to more accurately quantify the mobile fraction of metals in groundwater and to verify that the low flow-rate sampling technique has effectively excluded suspended particulates from the samples. High concentrations of metals will be considered tentative if suspended solids content from the same sample is also elevated.

5. **Comment:** **Table 3, Data Quality Objectives for Field Sampling, p 4 of 4: The Navy needs to indicate how the Concord Water Screening Values were evaluated using the literature sources mentioned in the report.**

**Response:** The derivation of the Concord water screening values has been discussed in detail with the regulatory agencies during many RPM meetings and is outlined in the “Draft Five-Year Periodic Review Assessment For Litigation Area Naval Weapons Station, Seal Beach Detachment Concord, California” (TtEMI 2001a). The rationale for the water screening values described in that document is as follows:

Under Section 303(c)(2)(B) of the CWA, Title 33 United States Code Section 1313(c)(2)(B), states are required to adopt numeric criteria for priority pollutants that may impair the beneficial uses of water bodies within their borders. On May 18, 2000, EPA promulgated the California Toxics Rule (CTR) to fill a gap in California’s Section 303 water quality standards created when a state court overturned California’s water quality control plans that contained water quality criteria for priority pollutants. CTR criteria set levels for acute and chronic exposure to dissolved metals contamination found to be protective of aquatic life. In combination with beneficial use designations in RWQCB’s Basin Plan (RWQCB 1995) for the San Francisco Bay Basin, these criteria are applicable water quality standards for ambient surface water in the Litigation Area. After consultation with EPA and RWQCB, the Navy identified numeric criteria presented in Table 10 [Concord water screening values shown in Appendix D of the SAP] as the applicable ARARs for surface water quality in the ditches and sloughs; these values include the lower of the freshwater or saltwater criteria from EPA (1997a), EPA (1998), or the CTR and, for mercury, the criterion from RWQCB’s Bay Basin Plan.

## RESPONSES TO EPA COMMENTS

### GENERAL COMMENTS

- 1. Comment:** The Draft SAP states that the purpose of the document is to, “obtain...additional soil and groundwater data to evaluate whether further action is warranted at the site after the [Time Critical Removal Action].” However, it is U.S. EPA’s understanding that the Navy intends to conduct a Remedial Investigation for the site following completion of the removal action. The purpose of the supplemental sampling is to evaluate the scope of work necessary to support a Remedial Investigation report.

**Response:** Section 1.1.1 has been modified to explicitly acknowledge that one purpose of collecting additional soil and groundwater data is to evaluate the scope of work for a remedial investigation.

- 2. Comment:** Consistent with past discussions on AOC-1, U.S. EPA believes that the Navy’s proposal to install three wells is insufficient. U.S. EPA staff recommend a minimum of four (4) wells as follows; two down-gradient wells along the northern border (one near field/down-gradient to the former “Spent Acid Pond (wastewater surface impoundment); one near field/down-gradient to the soils hot-spots); one near field/down-gradient to the road bed cinder material (boiler slag) removal area; and one up-gradient ‘background’ well (located in the southwest corner of the site).

**Response:** During the April 25, 2002, RPM meeting, USEPA suggested that three monitoring wells may be sufficient to evaluate potential groundwater contamination at AOC 1. The Navy proposed to install three new monitoring wells at AOC 1, at locations to be determined in consultation with regulatory agencies. Because EPA now suggests that four additional wells should be installed, the Navy has amended sections 1.1.2.3, 1.2.1.3, 1.2.2.3, and the groundwater sampling section of the data quality objectives (DQO) table (page 3 of Table 3) to reflect installation of four wells at locations to be determined in consultation with regulatory agencies. However, the Navy obtained funds for well installation on the basis of the April 25, 2002, RPM meeting. The additional well requested by EPA will require additional funds, and therefore the additional well now requested is categorized as optional sampling, which will occur contingent on the availability of funding.

- 3. Comment:** The Draft SAP discusses “Optional Sampling” of the former spent acid pond. As previously raised during past site discussions, U.S. EPA does not believe the one existing soil sampling location (SB09) is sufficient to characterize this area. U.S. EPA has expressed concern that the location of SB09 may be outside the northern border of the former surface impoundment and it was unclear if shallow soil samples (even if within the boundary of the pond) would have assessed soils that represent the pond operation or backfill material that could have replaced an excavated pond. Furthermore, there may be several potential Applicable or Relevant and Appropriate Requirements (ARARs) that apply to the closure of surface impoundments that needs consideration by the Navy which include 40 CFR, Sections 264 - 265 and Title 22, Section 66264.228.

**Response:** The Navy agrees that the existing sample from SB09 is probably too shallow to characterize the base of the spent acid pond, as noted above in response to RWQCB

specific comment number 2. As shown in the 1974 aerial photograph, the former spent acid pond has dimensions of approximately 70 feet by 120 feet, but there are no surface features at the site that indicate where the pond was located. The Navy has made every effort to identify the location of the spent acid pond based on site drawings and aerial photographs, and the coordinates of sample location SB09 were determined from those sources. Sample SB09 was advanced in a location approximately 100 feet east-southeast from the northwest corner of the perimeter fence. Based on the 1974 aerial photograph, this location should be well within the boundaries of the former spent acid pond. The Navy will advance the new exploratory boring proposed in Section 1.2.2.3 slightly southeast of SB09, in the center of the spent acid pond based on coordinates obtained from aerial photographs. EPA is invited to suggest more appropriate coordinates or mark drilling locations in the field, if EPA believes that the Navy has not identified the correct location of the former spent acid pond.

- 4. Comment:** **Given the high metals concentrations on the site, it is recommended that the Navy analyze a proportion (e.g., 10%) of soil and groundwater samples for hexavalent chromium since it is more toxic than trivalent chromium.**

**Response:** Although concentrations of some metals in soils at AOC 1 are high, as EPA has noted in this comment, chromium concentrations in AOC 1 soils are not significantly elevated. The University of California Division of Agriculture and Natural Resources and the U.S. Department of Agriculture soil survey teams identified a group of 50 benchmark soils as most representative of soils in the state of California. The average background chromium concentration in these 50 benchmark soils samples was 122 milligrams per kilogram (mg/kg) (Kearney Foundation of Soil Sciences 1996). The maximum chromium concentration detected at AOC 1 is 138 mg/kg (at location GB39), which only slightly exceeds the average chromium concentration in California soils. The average chromium concentration in AOC 1 soils was 47.5 mg/kg. Further, the EPA Region 9 PRG for industrial soils is 100,000 mg/kg for trivalent chromium and 64 mg/kg for hexavalent chromium. As a conservative assumption, EPA typically assumes that as much as one-sixth of total chromium in soil is present in the hexavalent form. If one-sixth of the total chromium present in the sample from GB39 was in the hexavalent form, the highest concentration of hexavalent chromium would be 23 mg/kg, well below the PRG for hexavalent chromium in industrial soils.

Given that (1) the maximum total chromium concentration in soil at AOC 1 only slightly exceeds the average chromium concentration in California soils defined by the University of California and the U.S. Department of Agriculture, (2) average chromium concentrations at AOC 1 are well below the average chromium concentrations in California soils, and (3) the highest chromium concentration detected at AOC 1 does not exceed the PRG for hexavalent chromium using EPA's conservative assumption that one-sixth of total chromium is present in the hexavalent form, the Navy does not feel that chromium speciation is justified based on the existing data. However, if higher concentrations of chromium are detected in the new soil samples collected as part of this supplemental sampling, the Navy will consider analytical speciation of chromium as part of further investigation.

- 5. Comment:** **The Navy proposes to install borings 100 feet west of existing borings GB28 and GB35. However, in order to fully delineate the western extent of the ash-like material, borings should also be installed 100 feet west of borings GB36 and GB43. Please add at least one additional boring location 100 feet west of borings GB36 and GB43.**

**Response:** A sample 100 feet west of boring GB 36 would be located in the footprint of the former gypsum building, which covers approximately 3,600 square feet. Three samples have already been collected from the former gypsum building at location SB04, which is located approximately 60 feet west-northwest of GB36. The existing samples have not exhibited elevated levels of contaminants; therefore, the Navy believes that additional samples from this location would be redundant.

A sample 100 feet west of GB43 would be located approximately 10 feet north of sample GB11. No samples from this location were analyzed, because the sampling location was used to delineate the extent of the cinders. However, ash-like material is present from approximately 2 to 6 inches bgs at location GB11, and the Navy agrees that analytical data from this location is needed to complete the analysis of the gridded area over the eastern half of the site.

The Navy has amended sections 1.1.2.3, 1.2.1.3, 1.2.2.3, and the optional sampling section of the DQO table (page 4 of Table 3) to reflect installation of a fourth Geoprobe boring west of GB43. However, the Navy obtained funds for the work described in this SAP on the basis of the December 13, 2001 RPM meeting. The additional Geoprobe boring and soil sampling requested by EPA will require additional funds, and therefore the additional boring and sampling now requested is categorized as "optional sampling", which will occur contingent on the availability of funding.

- 6. Comment:** **In the Navy's responses to U.S. EPA comments on the Preliminary Assessment Addendum for AOC 1, the Navy agreed to evaluate surface water runoff at AOC 1 further during the TCRA. However, the Draft SAP does not appear to include a surface water runoff evaluation. The text on page 56 states that soil boring locations were selected "based on a review of ... topographic maps that identify where the potential source areas were previously located and the direction of surface water runoff". The Draft SAP should more clearly describe which proposed borings are intended to evaluate potential surface water runoff pathways and how the proposed investigation addresses surface water runoff. Also, based on a review of a 1974 aerial photograph included in the September 2001 AOC-1 Preliminary Assessment Addendum, there appears to be a surface water pathway running from a "Concrete Slab" and "West Process Tanks" to the "Spent Acid Pond". U.S. EPA recommends that this area also be considered for soils investigation.**

**Response:** The Navy has agreed to evaluate the surface water runoff, but it is unclear how surface water runoff can be evaluated at the site. The site is flat, gently sloping, and densely vegetated in all but a few locations. No gullies or other evidence of concentrated surface water flow have been noted at the site. Surface runoff, if any, is expected to occur as sheet flow during heavy rainfall events. The Navy is willing to collect runoff samples if a practical means of obtaining such samples can be determined, but is uncertain how to obtain such samples. For the investigation discussed in this SAP, the Navy intends to evaluate runoff by collecting soil samples from the northern boundary of the site, as EPA suggested in the December 13, 2001, RPM meeting, and to walk the downslope (northern) boundary of the site to determine if prospective surface water sampling locations such as gullies or escarpments can be identified. The presence of a potential surface water pathway in the area noted above will also be evaluated.

- 7. Comment:** **Previous EPA comments have requested that soil samples be collected and analyzed for fluoride. However, on Page 14, Section 1.1.2.3, Optional Sampling**

**Activities, the Draft SAP states: “Groundwater samples from supplemental sampling activities may be analyzed for fluoride to evaluate potential fluoride contamination.” In Table 3, Data Quality Objectives (DQO), the Draft SAP states that “Fluoride may be added to the list of analytes for the samples described under investigative sampling and groundwater sampling.” However, the text in Section 2.1.2.3, page 57, states, “if appropriate, the Navy will analyze soil samples and one round of groundwater samples for fluoride”. It is unclear whether fluoride will only be analyzed in groundwater samples or also in soil samples; please resolve the discrepancy between in text and Table 3. In addition, please indicate how the Navy intends to determine whether fluoride will be added to the list of analytes.**

**Response:** Section 1.1.2.3 has been modified to note that both soil and groundwater samples may be analyzed for fluoride, which resolves the noted inconsistency. As noted above, the Navy obtained funding for this investigation based on agency requests during the December 13, 2001, RPM meeting. The agencies have requested significant additional sampling since that meeting. The additional sampling is referred to in the SAP as “optional sampling”, which will be conducted if the Navy is able to obtain funds to collect these additional samples.

## **SPECIFIC COMMENTS**

**1. Comment:** Section 1.2.1.2, Supplemental Sampling Activities, Page 18, Section 1.2.2.2, Supplemental Sampling Activities, Table 3, Data Quality Objectives, and Table 8, Summary of Investigation Analysis: The text on page 18 states, “groundwater and soil samples collected during supplemental sampling activities will be analyzed for a comprehensive list of chemicals, including metals, VOCs, SVOCs, pesticides, PCBs, and chlorinated herbicides, if soil concentrations at the site suggest that these compounds may be present in groundwater.” It is unclear throughout the SAP whether soil and groundwater samples will be analyzed for this comprehensive list of chemicals. Based on Table 3, groundwater samples will only be analyzed for metals, total suspended solids, and organic compounds. Based on Table 8, 6 groundwater samples will be analyzed for all analyte groups. However, based on page 20, groundwater samples will only be analyzed for VOCs, SVOCs, pesticides, PCBs, and chlorinated herbicides if these compounds are also detected in nearby soils. It is unclear how the Navy proposes to determine the analytical suite for groundwater samples. Please clarify the list of analytes for soil and groundwater samples in the SAP.

**Response:** Several sections of the SAP have been modified to accurately reflect the Navy’s proposed sampling suite. In general, the sampling scheme is as follows:

- Soils to delineate hot spots and confirmation samples will be analyzed for lead, selenium, and mercury.
- Soils in new potential source areas such as the spent acid pond, the laboratory, and the process tanks, will be analyzed for a full suite of contaminants including VOCs, SVOCs, metals, pesticides, PCBs, and chlorinated herbicides. VOCs will not be analyzed from any soil sample collected within 1 foot of the ground surface.
- Groundwater samples will be analyzed for metals, SVOCs, TSS, and TDS, because metals and SVOCs were detected in site soils at concentrations that

may affect groundwater, and because TSS and TDS data allow interpretation of the mobile fraction of metals in groundwater. Results from soil samples will be available before groundwater sampling occurs. If other organic compounds are detected in soil at concentrations that may affect groundwater, groundwater samples will also be analyzed for the other organic compounds that were detected.

2. **Comment:** **Figure 5, Proposed Sampling Locations in Potential Source Areas: For the “Concrete Slab” supplemental sampling activities, the text box indicates that one discrete sample will be collected; however, the figure shows four sample locations. Additionally, page 21 of the SAP states that a four-point composite sample will be collected at the slab. Please correct this discrepancy.**

**In addition, the text box indicates that three discrete samples will be collected at the spent acid pond, but the figure only shows one sample location. Further, page 20 of the SAP states that samples will be collected from one sample location at three different depths. Given U.S. EPA concern for this area of the site as indicated above, a minimum of three borings are recommended. Depths of these boring may need to be deeper than the six feet maximum depth proposed, depending on what can be learned regarding the design of the pond (excavated or diked).**

- Response:** Figure 5 has been corrected to show that a composite sample will be collected at the concrete slab. The Navy agrees that a 6-foot soil boring may not penetrate the bottom of the former pond. As described in Section 1.2.2.3, the Navy plans to advance a single boring to a depth of 20 feet beneath the center of the pond, and to collect samples from the following three discrete soil intervals in that boring: (1) the bottom of the pond, (2) directly beneath the bottom of the pond, and (3) 2 feet beneath the bottom of the pond. If the bottom of the pond cannot be identified in the field based on visual evidence of contamination, default sample depths are presented in Section 1.2.2.3 that are expected to span the bottom of the pond. Figure 5 has been modified to indicate that discrete samples will be collected from one location at three depths. The need for additional borings in the pond area will be assessed based on results of the spent acid pond exploratory samples.

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