



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

March 20, 2007

Mr. Thomas Macchiarella, Code 06CA.TM
Department of the Navy
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

**RE: Draft Work Plan for Data Gap Sampling Investigation, Installation
Restoration Site 14, Alameda Point**

Dear Mr. Macchiarella:

EPA has reviewed the above referenced document, prepared by Innovative Technical Solutions, Inc. and submitted by the Navy on January 25, 2007. The document describes a sampling approach to fill in data gaps for Site 14 in preparation for the upcoming remedial design documents. We enclose a few comments from our review for your consideration.

Please call me at (415) 972-3029 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Anna-Marie Cook".

Anna-Marie Cook
Remedial Project Manager

Enclosure

Cc list: Steven Peck, Navy
Dot Lofstrom, DTSC
Erich Simon, Water Board
Peter Russell, Russell Resources, Inc.
George Humphreys, RAB Co-Chair
Karla Brasaemle, TechLaw Inc
John Chesnutt, EPA

**Review of the Draft Work Plan for Data Gap Sampling Investigation,
Installation Restoration Site 14, Alameda Point**

GENERAL COMMENTS

1. Since Total Organic Carbon (TOC) in soil and groundwater consumes in situ chemical oxidation (ISCO) reagents, a rigorous survey of TOC content of saturated zone soil and groundwater is generally recommended prior to ISCO treatment, especially at hydrocarbon sites; however, TOC analysis is limited to new monitoring well groundwater sampling in the Draft Work Plan for Data Gap Sampling Investigation Installation Restoration (IR) Site 14 (the Draft Work Plan). Furthermore, the Draft Work Plan acknowledges that the relative success of ISCO remediation largely depends on contact of the chemical oxidant with target contaminants (i.e, cis-1,2-Dichloroethene [cis-1,2-DCE], 1,2-Dichloroethane [1,2-DCA] and vinyl chloride), but does not acknowledge that the presence of relatively high levels of TOC (in part due to the presence of diesel fuel) in groundwater and possibly in saturated zone soils will compete with target contaminants for oxidants.

TOC and Total Petroleum Hydrocarbons (TPH) were reported in Remedial Investigation (RI) soil samples (saturated zone soil sampling was apparently not conducted during soil investigations) and in the Basewide Groundwater Monitoring Program (BGMP) groundwater sampling, as follows:

- TPH was reported at 4,150 milligrams per kilogram (mg/kg) at M101-C from 5-6 feet below ground surface (ft bgs),
- TOC was reported at 0.9% dry weight (or about 9,000 mg/kg) at M101-A from 2-3.5 ft bgs,
- TPH has been reported above 1,000 micrograms per liter (ug/L) in each of the first water bearing zone monitoring wells at Site 14 and at a maximum concentration of 7,360 ug/L at monitoring well M101-A in winter 2004.

Please revise the objectives and Data Quality Objectives in the Draft Work Plan and Sampling and Analysis Plan (SAP). Please revise Section 3.1 to identify TOC content of saturated zone soil as a data gap, and consider collecting saturated zone soil samples for TOC analysis in the area of the planned ISCO pilot test. Please also analyze all groundwater samples for TPH and TOC. Finally, please consider collecting a saturated zone soil sample at each of the proposed HydroPunch® locations and new monitoring well locations, and holding these samples for subsequent TOC analysis to support the groundwater remedial design, as necessary.

2. The analytical laboratory has not been specified in the text as indicated in EPA's guidance document QA/R-5 and the text indicates that a laboratory will be selected in the future, but SAP Worksheets #26 and #30 indicate that the laboratory is Columbia Analytical Services. Please include the name of the laboratory in the text of final version of the Draft Work Plan and SAP or submit text and worksheet replacement pages once the laboratory has been selected.

SPECIFIC COMMENTS

1. **Section 4.3.2, Grab (HydroPunch®) Groundwater Sampling, Page 22:** It is possible that the proposed approach will not result in vertical delineation of the current extent of contamination because the assumed depth of contamination (e.g., 6 to 10 ft bgs in the source area, 11 to 18 ft bgs downgradient) is based on grab groundwater samples that were collected in 1998. The text indicates that 2 to 4 HydroPunch® samples will be collected from each boring, and that sampling will be limited to the upper 15 feet near the source and the upper 20 to 25 feet in the downgradient portion of the plume. Since the configuration of the plume may have changed in the 9 years since the grab groundwater samples were collected, the approach should include both horizontal and vertical delineation of the contaminant plume. Initially, more samples per boring should be collected in the source and downgradient areas so that the vertical depth of contamination in each area can be assessed. Please revise the HydroPunch® sampling approach to ensure that the vertical extent of contamination is delineated.
2. **Section 4.3.4, Monitoring Well Development and Sampling, Page 26:** The text states that after a minimum of "48 hours following well installation (to allow the surface seals to set properly), the monitoring wells will be developed," but the purpose of the minimum 48 hour period is also to allow the bentonite/cement grout to set. Please revise the quoted statement to include time for the bentonite/cement grout to set.
3. **Section 4.4, Sample Collection for Bench-Scale Test, Page 28:** Details specifying collection of soil and groundwater for bench scale analysis is not adequately described in Section 4.4, and was not included in the SAP (Appendix A). Please revise Section 4.4 to specify the interval from which the soil sample will be collected and specify sampling equipment and procedures that will be used for soil and groundwater sample collection. In addition, please revise Appendix A to include detailed sampling procedures for the soil and groundwater needed for the bench-scale test.
4. **Section 5.1.1, Stormwater Management, Pages 31 and 32:** The text calls for measures to prevent discharge of impacted surface-water runoff from the work area to San Francisco Bay, but IR Site 14 is on the Oakland Inner Harbor. Please state that stormwater measures will prevent discharge of impacted surface-water runoff to the Oakland Inner Harbor.

5. **Section 8, Schedule, Page 37, Table 1, Implementation Schedule for Field Activities and Appendix A, Table A-1, Implementation Schedule for Field Activities:** The text states that fieldwork was tentatively scheduled to begin in late February 2007, but comments on the Draft Work Plan are due in March 2007. Please update the schedule in Section 8 and on Table 1.
6. **Figure 6, Decision Tree for MIP Borings and Section 4.3.2, Grab (HydroPunch®) Groundwater Sampling:** The decision tree indicates that if electron capture detector (ECD) deflections do not occur in the first three borings, membrane interface probe (MIP) borings will be terminated and that soil samples will be collected from as many as 4 HydroPunch® borings in the contaminant source area, but Section 4.3.2, which describes HydroPunch® procedures, does not include soil sampling, and the text on page 21 states that, "Soil samples will not be collected for analysis." It is also unclear how many soil samples will be collected from each boring. Further, the phrase "to physically characterize soil" in the box on Figure 6 is vague, since it is unclear if the intent is to obtain lithologic information, soil for geotechnical testing, or soil for laboratory analysis. Please revise Section 4.3.2 to include a discussion of soil sampling procedures and to specify the purpose of the soil samples. Also, please revise Figure 6 to clarify the intent of physically characterizing soil.
7. **Appendix A, Section 1.3.5, Previous Investigations, Pages A-9 and A-10:** This section does not describe groundwater investigations at IR Site 14 under the BGMP. Please include a discussion of the BGMP at IR Site 14.
8. **Appendix A, Section 2.2.2, Direct-push Borings and MIP/SC Logging System, Pages A-34 and A-35:** Although the text states that the detectors capable of detecting the full range of volatile organic compounds (VOCs) are described in Section 3 of the Draft Work Plan, the ranges over which these detectors are effective are not discussed in the Draft Work Plan or in the SAP. In addition, it is unclear whether the MIP is effective when high concentrations are detected at a shallow depth and there are lower concentrations at depth (i.e., whether high concentrations are cleared completely from the instrument). Please provide additional information about the range of concentrations that can be detected by the MIP. In addition, please discuss whether the MIP would detect low concentrations of VOCs if they are present at lower depths in a borehole where high concentrations are present at a shallow depth.
9. **Appendix A, Section 2.2.6, Monitoring Well Development, Page A-41:** The Draft Work Plan specifies a 48 hour period to allow cement to set before well development, but the SAP only specifies 24 hours. A 48 hour period is preferred. Please revise the text to specify that the grout will be allowed to cure for 48 hours.

In addition, a SAP is normally more detailed than a work plan, but the text in the SAP does not specify when indicator parameters will be considered stable. Please revise the SAP to include the requirements for indicator parameter stability.

10. **Appendix A, Section 2.2.8, Procedure for Groundwater Sampling from Monitoring Wells, Page A-46 and Work Plan, Section 4.3.5, Monitoring Well Development and Sampling, Page 27:** Dissolved oxygen (DO) should not be considered a secondary parameter since it is an indicator of the reliability of VOC data. In addition, DO measurements collected using a flow through cell or down-hole instrument are among the most reliable parameters for field measurements. Please revise the Draft Work Plan and SAP to specify that DO as a primary stabilization parameter.
11. **Appendix A, Section 2.2.12, Decontamination, Page A-49:** It is unclear whether tubing used for purging and sampling wells will be dedicated tubing left in the wells, disposable tubing, or if it will be decontaminated after each well is sampled. Please clarify.
12. **Appendix A, Section 2.6.2, Field Instrument/Equipment Calibration Procedures, and SAP Worksheet #22, Field Equipment Calibration, Maintenance, Testing, and Inspection Table:** Neither the text nor SAP Worksheet 22 address calibration of the DO meter or the meter used to measure oxygen reduction potential (ORP). Please include the calibration requirements for the DO and ORP meters in the text and on Worksheet #22.
13. **Appendix A, Table A-2, Analytical Methods, Parameters for Analysis, and Reporting Limits:** The reporting limits for some metals are too high. It should be possible to achieve a reporting limit of no more than 5 micrograms per liter (ug/L) for antimony, 1 ug/L for beryllium, 2 ug/L for cadmium, 5 ug/L for chromium, 5 ug/L for copper, 1 ug/L for lead, 40 ug/L for selenium, 5 ug/L for silver, 2 ug/L for thallium, and 10 ug/L for zinc. Please revise this table to specify lower reporting limits or explain why lower reporting limits cannot be achieved.