04.01-12/07/92-00857

Baker

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December 7, 1992

Commanding Officer
Atlantic Division
Naval Facilities Engineering Command
Building N-26, Naval Station
Norfolk, Virginia 23511-6287

Attn: Mr. Ken Clark, P.E.
Code 0321B

Re: Contract N62470-89-D-4814
Navy CLEAN, District III
Contract Task Order (CTO) 0134
Draft Interim Remedial Design for the
Shallow Aquifer at Hadnot Point
Industrial Area

Dear Mr. Clark:

This letter addresses comments from U.S. EPA Region IV on the Draft Project Plans for the referenced project. These comments were contained in a letter from Ms. Michelle Glenn, dated November 16, 1992. Baker's response to these comments are presented in the same order as contained in Ms. Glenn's letter, which has been attached. These comments have been incorporated into the Draft Final Project Plans, which were submitted to LANTDIV on December 2, 1992.

DRAFT WORK PLAN GENERAL COMMENTS

Additional information will be provided in the Work Plan on the design criteria and assumptions.

The proposed pumping rate of 6 gpm is based on the results of a previous hydrogeological study conducted in this area (O'Brien & Gere, 1988). The scope of work will be modified to correspond with EPA comments. Specifically, one aquifer test will be conducted (rather than two) using a newly installed, minimum 4 inch diameter, pumping well. The optimum pumping rate will be selected based on the results of the step-drawdown test. The text will be modified to reflect this.

Response to Comment No. 1

Page 1-2, Section 1.1 will be corrected as requested.

Response to Comment No. 2

Page 1-2, Section 1.2 will be edited as requested. The Site Management Plan will be retitled as the Project Management Plan.

Response to Comment No. 3

Page 2-4, Section 2.1.3 has been revised to address EPA's comment.

Response to Comment No. 4

Environmental Science and Engineering, Inc. (ESE) will be spelled out.

Response to Comment No. 5

Benzene will be included in Section 2.2 on Page 2-6. Oil and grease has been removed as a contaminant of concern.

Response to Comment No. 6

Table 2-1 will be revised so that all the monitoring wells can be properly identified.

Response to Comment No. 7

Section 3.1 on page 3-1 will be revised to more accurately address the purpose of the TSWP.

Response to Comment No. 8

The definition of flocculation will be revised per EPA's comment.

Response to Comment No. 9

The description of the carbon adsorption process will be revised per EPA's comment.

Response to Comment No. 10

The description of the goals of the treatability study presented in Section 3.4 will be revised to focus on need to provide supporting data for the remedial design.

Response to Comment No. 11

Section 3.3 will be revised to make it clear that the site-specific cleanup goals are North Carolina groundwater criteria.

Response to Comment No. 12

Section 3.5.1 (Section 3.3 of Draft Final) will be revised to clarify that the objective of the bench-scale test will be to provide data to support the design of the pretreatment components.

Additional information will be provided on the method of collecting a groundwater sample for the bench-scale test.

Response to Comment No. 13

The MCL's for antimony, beryllium, and nickel will be corrected on Table 3-1.

Response to Comment No. 14

The second paragraph in Section 3.5.2.2 (Section 3.4.1.2 of Draft Final) will be revised to clarify any misunderstanding of the use of the words "water" and "liquid". All samples for this test will be groundwater samples collected from a monitoring well or from the pumping well.

Response to Comment No. 15

The reference to "dissolved" metals (in Section 3.4.1.3 of the Draft Final) will be changed to "total" metals.

Response to Comment No. 16

Duplicate samples of all six oil/water separation tests will be analyzed for oil and grease for QA/QC purposes.

Response to Comment No. 17

The treatment goals (MCLs) for the aquifer will be clarified in this paragraph.

Response to Comment No. 18

Section 3.4.2.1 (Draft Final) will be revised to identify the preservative as H_2SO_4 to pH < 2.

Response to Comment No. 19

The bench-scale treatability study will not include a full size carbon column, therefore, no material description of the carbon column will be required.

Response to Comment No. 20

Section 3.5.5 (Section 3.5.3 of Draft Final) will be revised to specify that the Treatability Study Report will provide data and recommendations for "fine-tuning" the remedial design.

Response to Comment No. 21

Analytical data for influent and effluent samples from the pilot-scale carbon adsorption unit will be presented in the Treatability Study Report.

Response to Comment No. 22

The sample bottle labels include information on the preservative used for each sample (see Figure 6-3 in the Sampling and Analysis Plan).

Response to Comment No. 23

Section 3.9 will be revised to include TCLP metals testing of the bench-scale residuals generated. Both hazardous and nonhazardous waste will be disposed of properly.

Response to Comment No. 24

Section 3.10 will be revised to include a discussion of the planned revisions to the CRP (in accordance with 40 CFR 33.435) and the preparation of a Fact Sheet.

Response to Comment No. 25

A newly installed, minimum 4 inch diameter, pumping well will be installed in order to conduct the aquifer test (pleases refer to response to general comment on Chapter 4). This pumping well will be installed in the vicinity of HPGW 24-1. This area has been selected based on the following:

- HPGW 24-1 exhibited higher total VOC contaminant levels than other shallow monitoring wells, including HPGW 23 (Baker, 1992).
- It is located within the contaminant plume near the 900 Buildings area (refer to figures 4-1, 4-2, and 4-3 from Baker, 1991). Contaminant plume migration could be accelerated if an aquifer test were conducted using a pumping well located outside the plume.

Response to Comment No. 26

A newly installed pumping well will be used for conducting the aquifer test. In this context, use of the term "development" will be correct.

Response to Comment No. 27

In order to produce accurate water level measurements, the piezometer will be of small diameter (1 inch) and will have a short screen length (1 foot, hand cut). The small diameter of the piezometers prevents developing. Water levels in the piezometers are expected to accurately mimic water levels in the aquifer without development.

Response to Comment No. 28

Water levels in the pumping well, piezometers and nearby monitoring wells will be measured using a pressure transducer connected to a data logger. Water levels in other wells within the monitoring well network will be measured using a water level meter.

Response to Comment No. 29

The text will be revised to state that VOC samples will not be composited.

Response to Comment No. 30

Section 5.1.1 will be revised to include the estimated design capacity of the sewers that will be used to convey the treated groundwater to the Hadnot Point Industrial Area Sewage Treatment Plant.

Response to Comment No. 31

Section 5.1.2 will be revised to refer to the Health and Safety Plan prior to entering a manhole.

Response to Comment No. 32

Section 6.1 will include the design flow (80 gpm) of the proposed groundwater treatment systems.

Response to Comment No. 33

A brief description of the HPIA Sewage Treatment Plant will be included in Section 3.5.2 of the RDWP.

Draft Site Management Plan General Comments

The "Site Management Plan" will be renamed the "Project Management Plan" in the Draft Final report.

Draft Sampling and Analysis Plan General Comments

The SAP will be revised to incorporate EPA's general comments. The Draft Final Work Plans will include the installation of a pumping well for conducting the aquifer pump test. The incorrect sampling and decontamination methods presented in the Draft SAP will be revised.

Response to Comment No. 1

Section 3.1 will be rewritten to reflect changes in the pilot-scale study. All of the groundwater samples collected for the characterization, bench-scale, and pilot-scale tests and will be individual, discrete samples.

The pumping well to be used for the pilot-scale testing will be located in the northern contamination plume, near HPGW 24-1.

Response to Comment No. 2

Section 3.2.1 will be revised to note that both filtered and unfiltered samples will be collected for the characterization samples.

Response to Comment No. 3

Section 3.3 will be revised to include the use of organic-free deionized water for the preparation of QA/QC blank samples.

Response to Comment No. 4

The paragraph regarding Field Duplicates/Split Samples will be revised in the Final SAP in accordance with the USEPA comments.

Response to Comment No. 5

Section 3.3, Preservative Blanks, will be revised to indicate that one preservative blank will be collected for each preservative used during groundwater sampling.

Response to Comment No. 6

The example sample designation number will be corrected as noted by EPA.

Response to Comment No. 7

Section 5.1.1 will be revised to indicate the VOC limit in the work area (5 ppm for 5 continuous minutes) that requires respiratory protection.

Response to Comment No. 8

Item No. 6 on Page 5-2 will be revised to state that field measurements of specific conductance, temperature, and pH be taken after each well volume is purged.

Response to Comment No. 9

Item No.7 on Page 5-2; a teflon bailer will be used.

Response to Comment No. 10

Section 5.1.2 will be revised to indicate that VOC samples during the pilot-scale test will be collected every 12 hours, from the discharge line of the submersible pump (i.e. influent to the air stripper) prior to the oil/water separator.

Response to Comment No. 11

The second paragraph in Section 5.2 (Section 5.1.2 in the Draft Final) will be revised by deleting the reference to "treated water" and replacing it with "effluent," meaning groundwater which is being pumped through the pilot plant. Nonpowdered latex or vinyl gloves will be used.

Response to Comment No. 12

Temperature, pH, specific conductance, and dissolved oxygen of the groundwater will be measured at each sampling location, prior to sample collection.

Response to Comment No. 13

The tap water rinse step will be included as step 4 in the cleaning procedures presented in Section 5.3.1.1 (Section 5.2.1.1 in the Draft Final).

Response to Comment No. 14

Page 5-6 (Section 5.2.1.6 in the Draft Final), hoses will be placed in clean bucket filled with deionized water which will be pumped through the hose.

Response to Comment No. 15

This section will be rewritten to include a more detailed description of the procedures to be used to clean and decontaminate large machinery.

Response to Comment No. 16

Section 6.3 will be revised to indicate that prenumbered log books will be used.

Draft Quality Assurance Project Plan General Comments

A sign-off page for personnel approving the QAPP will be included in the Final QAPP.

Response to Comment No. 1

Section 5.2 in the Final QAPP will be revised to include a more detailed and site specific discussion of DQOs, including the establishment of detection limits, criteria for accuracy and precision, sample representativeness and data comparability.

Response to Comment No. 2

QA/QC preservative blanks are required and are noted in the SAP. They will be added to the Final QAPP.

There are no soil/sediment VOC samples anticipated during the remedial design.

Response Comments to Draft Health and Safety Plan

Response to Comment No. 1

1) A sound level meter is not anticipated to be needed because previous experience dictates that one drill rig, drilling one well, outdoors, does not reach occupational hearing exposure limits described in Table D-2 of 29CFR1926.52. The 3rd paragraph on page 15 has been revised to explain this point.

2) Page 20, 2nd paragraph will be revised to incorporate EPA's comment.

Response to Comment No. 2

Section 4.4, all site activities that involve entry into the exclusion zone will be performed by a work team with no fewer than two people (Buddy System).

Response to Comment No. 3

Page 21, Section 5.2 last paragraph, if carbon monoxide levels > 35 ppm, work will stop.

Response to Comment No. 4

Page 22, first paragraph, if hydrogen sulfide levels > 10 ppm, work will stop.

Response to Comment No. 5

Page 23, Table 3 will be revised as requested.

Response to Comment No. 6

Page 25, Section 6.1, the level of protection table will be revised as requested, by deleting a self-contained breathing apparatus from the required equipment for level D+.

Response to Comment No. 7

Section 6.3 on page 26 has been edited and Attachment A, Section 2.0, Respiratory Protection Program, has been removed.

Response to Comment No. 8

Page 28, waterproof boots will be worn with the decontamination procedures listed.

Response to Comment No. 9

Page 36, the location of the Emergency Eyewash Station will be noted.

Response to Comment No. 10

Page 40, Section 8.12, The reference to level C or higher protection will be deleted.

Response to Comment No. 11

Attachment A, Section 2.0 (Respiratory Protection Program SOP) will be removed. Section 1.0 (Confined Space Entry Program SOP) will remain because confined space entries are anticipated for the Sewer Capacity Study (See Section 5 of the RDWP).

Response to Comment No. 12

Attachment B, MSDS sheets for Benzene, 1,2-dichloroethylene, and trichloroethylene will be included in the Draft Final HASP.

Baker trusts that these revisions will be acceptable to LANTDIV. Please contact me at (412) 269-2064 if you have any questions or comments. These revisions have been incorporated into the Draft Final version of the project plans dated December 2, 1992.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Raymond P. Wattras for

Don P. Joiner, P.E.
Project Manager

DPJ/nd

Attachment

cc: [redacted]
Mr. Byron Brant, P.E., Code 1823

ATTACHMENT A

EPA Comments to the
Draft Remedial Design Project Plans
Dated 11/16/92

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

NOV 16 1992

4WD-FFB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Linda Berry
Department of the Navy - Atlantic Division
Naval Facilities Engineering Command
Code 1822
Norfolk, Virginia 23511-6287

RE: Marine Corps Base Camp Lejeune NPL Site
HPIA Shallow Aquifer
Jacksonville, North Carolina

Dear Ms. Berry:

EPA has reviewed the document titled "Draft Interim Remedial Design Project Plans for the Shallow Aquifer at the Hadnot Point Industrial Area Operable Unit". The word "Interim" should be omitted from the title of the document. Comments on the draft document are enclosed.

If you have any questions or comments, please call me at (404) 347-3016.

Sincerely,

Michelle M. Glenn

Michelle M. Glenn
Senior Project Manager

Enclosure

cc: Jack Butler, NCDEHNR
George Radford, MCB Camp Lejeune

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL
# of pages ▶ 13

To Linda Berry	From Michelle Glenn
Dept./Agency LANTDIV	Phone # 404 347-3016
Fax # (804) 445-6662	Fax # 404 347-5205

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

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COMMENTS
ON
DRAFT WORK PLAN
REMEDIAL DESIGN

GENERAL COMMENTS

Although titled as Draft Interim Remedial Design Project Plans, the Project Plans focus primarily on the proposed sampling and analysis activities pertaining to the treatability study and are deficient in addressing other elements of the remedial design. A more specific discussion on the design criteria and assumptions is required.

Chapter 4.0 - Aquifer Pump Test

The aquifer tests to be conducted will utilize existing 2 inch diameter monitoring wells as pumping wells. The maximum proposed pumping rate for the 72 hour test is only 6 gpm. Pumping the aquifer at this rate will allow for calculation of the transmissivity and storage values near the well bore but will not provide sufficient data for determining other hydraulic parameters of the aquifer such as aquifer heterogeneity and boundary effects. By pumping the aquifer at such a low rate, ground water will likely reach steady state flow within an hour after pumping begins, hence the remaining two days of pumping would be useless.

Rather than conducting two aquifer tests of this nature, one aquifer test should be conducted that will significantly stress the aquifer. For example, a 4 or 6 inch diameter pumping well could be installed at a location where several monitoring (observation) wells exist. These existing wells could be monitored in addition to the two proposed piezometer locations. Designing the aquifer test with multiple observation wells will allow for drawdown and recovery to be measured in several directions and in several distances from the pumping well. Data from the these wells may indicate aquifer anisotropy and boundary effects. The location of the observation wells should be not closer than 1.5 times the saturated thickness of the aquifer. This rule of thumb will ensure that laminar flow exists in the observation wells during the test.

By using a larger diameter pumping well, (i.e. larger than 2 inch diameter) pumping rates selected for the step drawdown test could be as much as an order of magnitude greater than the pumping rates proposed. Results from the test will indicate the optimum pumping rate that are appropriate for conducting the constant rate test in the surficial aquifer.

SPECIFIC COMMENTS

1. Page 1-2, Section 1.1 - In the paragraph beginning "The project described here..." , the words "...is oriented to..." should be replaced with "will". Remove the word "recommended" from this sentence.

   In the next paragraph, remove "recommended" from the first line. On the third line add "...health and the environment from exposure...".

2. Page 1-2, Section 1.2 - In the first sentence please remove the word "action".

   The majority of the Remedial Design is the information included in Section 6.

   The Site Management Plan is a specific, primary document under the Federal Facilities Agreement. Please retitle the document referred to here to eliminate confusion.

3. Page 2-4, Section 2.1.3 - There appears to be a differential of 16-17 feet in water levels for the month of January 1991. Are the wells that were measured completed at different depths and screened into different water-bearing zones to account for these differences? Were the water levels referenced to mean sea level or the NGVD?

4. Page 2-4, paragraph 6 - Spell out "ESE."

5. Page 2-6, paragraph 4 - If benzene was a contaminant of concern in the shallow groundwater aquifer, as Table 2-1 indicates, then it should be included in this paragraph.

   "Based upon the results of the 1991 sampling, the following compounds were not identified...oil and grease". "[O]il and grease data is not included on Table 2-1 due to the fact that this analysis was not conducted on any of the 1991 samples". Please clarify this to remove the apparent contradiction.

6. Page 2-7, Table 2-1 - Provide a legend for the sample codes used in the table. For example, indicate from which monitoring well sample HPGW 24 was collected. Was it from well HPGW 24-1, HPGW 24-2, or HPGW 24-3?

7. Page 3-1, Section 3.1, 1st paragraph - The term "Interim Remedial Action of the Shallow Aquifer" makes no sense.

The statement "The purpose of this TSWP is to provide adequate planning and review of the Treatibility Study to ensure that the data generated are useful for evaluating the validity or performance of the technology proposed" indicates a lack of understanding of this stage of the process. We are past the point of "proposing" technology. The remedial alternative has been selected.

8. Page 3-2, paragraph 2 - The definition of flocculation is incomplete. Flocculation is a process in which very small suspended particles in a liquid medium collide and agglomerate into larger heavier particles or flocs and settle out.

9. Page 3-2, paragraph 5 - The last sentence of the paragraph describing carbon adsorption process is unclear and misleading. Adsorption capacity is proportional to surface area, a critical factor in the adsorption process. Activated carbon is used as an adsorbant because of its enormous surface area which is mainly due to its internal pore structure. It is estimated that one gram of commercially available activated carbon typically has a surface area of 1,000 to 1,400 square meters.

10. Page 3-2, Section 3.4 - Once again, the statements in this section indicate a lack of understanding of the Remedial Design Stage of the CERCLA process. The treatibility studies are not performed to determine compliance with the nine criteria. This was done in the FS and in the ROD. These studies are to provide supporting data for the Remedial Design.

11. Page 3-3, 1st paragraph - The site-specific cleanup goals for the HPIA Operable Unit are not presented in Table 3-1. If they are the same as the MCLs, please make that clear.

12. Page 3-3, Section 3.5.1 - The objective is not to determine if the selected alternative is an "appropriate remediation technology". That was the whole point of the RI/FS and Record of Decision.

Specify how and where a representative groundwater sample will be collected to conduct the bench-scale treatability testing. The treatability test results should be compared to the site-specific clean-up goals rather than the Federal Maximum Contaminant Levels to determine whether the treatment processes are appropriate for the groundwater remediation at the site. Also, the referenced table should be Table 3-1, not Table 3-2.

The MCLs are the goal for the aquifer. Often the goal for the treated water is the NPDES permit or ambient water quality criteria depending on how the treated water is to be disposed of. This distinction should be made here.

13. Page 3-4, Table 3-1 - The MCLs for antimony, beryllium, and nickel are 6 ppb, 4 ppb, and 100 ppb, respectively. These criteria became effective July 1992.

14. Page 3-6, paragraph 6 - The use of terms in the definition is inconsistent, such as the use of "water" and "liquid" in this case.

15. Page 3-8, paragraphs 1 and 3 - The text refers to "dissolved" metals. MCLs apply to unfiltered samples reporting results as "total" metals. Please correct the text.

16. Page 3-8, 2nd paragraph - All six oil and grease (O&G) tests should be conducted in duplicate for quality assurance/quality control (QA/QC) purposes.

17. Page 3-10, 2nd paragraph - The MCLs are the goal for the aquifer. Often the goal for the treated water is the NPDES permit or ambient water quality criteria depending on how the treated water is to be disposed of. This distinction should be made here.

18. Page 3-13, 1st paragraph - Clarify what is meant by "appropriately preserved sample bottles."

19. Page 3-13, 4th paragraph - Specify the construction material of the carbon column.

20. Page 3-18, Section 3.5.5 - The Treatibility Study Report will not make "conclusions concerning the appropriateness of the treatment operations studied". The Report should provide information for the authors of the Remedial Design Report to use in "fine-tuning" the design.

21. Page 3-20, 3rd paragraph - Analytical data for the carbon polishing effluent should be presented for completeness regardless of whether breakthrough occurs.

22. Page 3-21, paragraph 5 - Include the information on preservatives on the sample label.

23. Page 3-23, 4th paragraph - The sludge residuals generated during the bench-scale testing must be tested to determine whether they are nonhazardous before they can be disposed of as nonhazardous waste. As the groundwater samples to be used in the treatability tests are expected to contain numerous heavy metals, the resulting sludge may be hazardous and it may not be permissible for it to be "disposed by conventional means".

24. Page 3-23, Section 3.10 - This document presents a (somewhat inaccurate) summary of community relations activities conducted for this activity in the past. This section should discuss the need for revisions to the Community Relations Plan and the requirement for a fact sheet at the completion of the Remedial Design Report per 40 CFR Section 300.435 (c).

25. Page 4-1, paragraphs 4 and 5 - Please provide an explanation as to how and why monitoring wells HPGW 24-1 and HPGW 9-1 have been selected for the combined purposes of aquifer pump tests and groundwater composite sample collection. (The contaminants of concern were detected at much greater concentrations in two nearby monitoring wells HPGW 23 and HPGW 10.) Factors such as aquifer characteristics and groundwater flow direction, migration of contaminants and required treatment of extracted groundwater prior to discharge should also be taken into consideration in the selection process.

26. Page 4-1, 5th paragraph - The term "development" used in the context should be replaced by the term "purging." Monitoring well developing and purging involve two separate operations. Well development is conducted as the initial stage after well installation and must be continued until the groundwater is turbidity-free. Effective well development may require the removal of much more than five well volumes of groundwater and include reversals or surges in flow to dislodge bridging particles in the screen sand pack. Purging is performed after a well has been properly developed and prior to sample collection and requires removal of a minimum of three to five well volumes of groundwater from the well. Measurement of field parameters such as temperature, pH and specific conductivity should stabilize before groundwater sampling.

27. Page 4-2 - Why won't the observation piezometers be developed?

28. Page 4-3 - How will water level measurements be made?

29. Page 4-5 - Groundwater samples for VOC analysis should not be composited.

30. Page 5-1, paragraph 3 - Indicate the design capacity of the sewer lines.

31. Page 5-1, 4th paragraph - Health and Safety procedures should be implemented when entering manholes.

32. Page 6-1, 2nd paragraph - Indicate the design capacity of the proposed groundwater treatment system.

33. Page 6-2, 3rd paragraph - A description of the Hadnot Point Sewage Treatment Plant is not found in Section 2.0.

COMMENTS
DRAFT SITE MANAGEMENT PLAN
REMEDIAL DESIGN

This part of the project plans must be renamed. The "Site Management Plan" is a specific primary document required under the Federal Facilities Agreement. The use of that name here will create unnecessary confusion. I suggest this document be retitled "Project Management Plan" or something along those lines to eliminate the potential confusion.

COMMENTS
DRAFT SAMPLING AND ANALYSIS PLAN
REMEDIAL DESIGN

GENERAL COMMENT

In the Sampling and Analysis Plan (SAP), rationale should be provided for selecting the existing groundwater monitoring wells for the aquifer pump test and for treatability study sample collection. This is critical to the site-specific evaluation of the appropriateness and treatment efficiency of the proposed remedial technology. Important factors, such as aquifer characteristic and contaminant migration, should be taken into consideration in the selection process. Treatment and disposal of the extracted groundwater to comply with surface discharge standards should also be addressed. The SAP contains incorrect or incomplete methods and procedures for collecting groundwater samples for volatile organic analyses and for decontamination of large machinery and equipment. These provisions should be modified in accordance with EPA Region IV's SOPQAM.

SPECIFIC COMMENTS

1. Page 3-1, Section 3.1 - Will the groundwater sample composites alluded to here be analyzed individually per well or will all well composites eventually be composited into one single sample?

   Specify the name and location of these two extraction wells.

   Groundwater samples for VOC analysis may not be composited.

2. Page 3-2, top of page - Unfiltered samples must also be collected. Cleanup criteria and MCLs apply to unfiltered samples.

3. Page 3-3, Section 3.3 - Only organic-free deionized water should be used to prepared QA/QC blank samples which include trip blanks, equipment rinsate blanks and field blanks.

   Trip blanks should also be taken for soil/sediment VOC analysis, not just water.

4. Page 3-4, 1st paragraph - This paragraph contains unclear statements and should be rewritten. A split sample is a sample which has been portioned into two or more containers from a single sample container or sample mixing container, whereas duplicate samples are two or more samples collected

simultaneously from the same source under identical conditions and placed in separate containers. In addition, soil samples collected for volatile organic compound (VOC) analyses are placed in 4-ounce glass jars, not 40-millimeter glass vials.

5. Page 3-4 - Preservative blanks should be collected for all preservatives used in the field.

6. Page 4-1, 3rd paragraph - The example sample number should be 78-GW-20-1-D.

7. Page 5-1, 4th paragraph - Specify the VOC level at which respiratory protection is required.

8. Page 5-2, item #6 - Field measurements should be made for each purge volume, not just the 3, 4 and 5 well volumes.

9. Page 5-2, item #7 - Specify the construction material of the bailer. A bailer for groundwater sampling should be made of stainless steel or Teflon.

10. Page 5-2, Section 5.1.2 - What is the purpose of the additional groundwater samples to be collected at 5 minutes, 4 and 8 hours?

According to the ECB SOPQAM, groundwater samples for VOC analyses should only be collected by using a stainless steel or Teflon bailer. Because the samples for the treatability study will subject to VOC analyses, they should be collected from the discharge line of the submersible pump.

11. Page 5-2, 8th paragraph - Clarify what is meant by "treated water." Gloves worn by sampling personnel should be nonpowdered latex or vinyl gloves, not PVC gloves.

12. Page 5-3, 1st paragraph - Temperature, pH, specific conductivity and dissolved oxygen of the groundwater should be measured prior to collecting samples.

13. Page 5-3, Section 5.3 - The tap water rinse was omitted after step 3.

14. Page 5-6, Section 5.3.1.6 - How will the inside of the hose be decontaminated?

15. Page 5-7, 1st paragraph - This paragraph should be rewritten to include a more detailed discussion on the methods and procedures to be used for the cleaning and decontamination of large machinery and equipment. These procedures should be consistent with the ECB SOPQAM. Refer to the ECB SOPQAM Appendix E, Section 9 for details.

16. Page 6-1, Section 6.2 - Will custody seals be placed on each individual sample container or just on the outside of the coolers?

16. Page 6-1, Section 6.3 - The field logbook should also be prenumbered.

COMMENTS
DRAFT HEALTH AND SAFETY PLAN
REMEDIAL DESIGN

1. Page 15, 3rd paragraph - A monitoring device for the purpose of measuring noise levels should be incorporated in this section for the determination of the need for hearing protection.

2. Page 20, 2nd paragraph - All entries made into the work zone (exclusion zone) should incorporate the use of the buddy system.

3. Page 21, 5th paragraph - This paragraph states that if the concentration of carbon monoxide is greater than the exposure limit (EL) of 35 ppm, then personnel will stop work or upgrade to level B protection. Page 18, Section 4.3, states that "activities requiring Levels C or B protection will not be conducted." Resolve this contradiction.

4. Page 22, 1st paragraph - Work should cease if hydrogen sulfide concentrations in the air exceed the EL of 10 ppm.

5. Page 23, Table 3 - This table states that a photoionization detector or a flame ionization detector will be used for monitoring the breathing zone. These two instruments are selective to several contaminants and should be used in conjunction with each other.

6. Page 25, 1st paragraph - A self-contained breathing apparatus should not be included as personal protective equipment for level D+.

7. Page 26, 2nd paragraph - Respiratory protection requirements do not need to be included in Attachment A. Refer to Page 18, Section 4.3.

8. Page 28, 1st paragraph - Waterproof boots must be worn with the decontamination procedures listed (i.e., boot and glove wash/rinse).

9. Page 36, 1st paragraph - The location(s) of the eyewash station(s) should be pointed out in this section.

10. Page 40, paragraph 7 - Level C or higher levels of protection should not be mentioned in this section as they are not intended to be used on this site. Refer to Page 18, Section 4.3.

11. Attachment A, Sections 1.0 and 2.0 - Omit these sections as previously stated on Page 18, Section 4.3.

12. Attachment B, Material Safety Data Sheets (MSDSs) - MSDSs for benzene, 1,2-dichloroethene and trichloroethene need to be included in this section.

COMMENTS
DRAFT QUALITY ASSURANCE PROJECT PLAN
REMEDIAL DESIGN

GENERAL COMMENT

A title page which includes the signatures of approving personnel should be included with the QAPjP. In addition, discussions of establishing data quality objectives (DQOs) and the relationship of DQOs to sampling methodologies should also be more site-specific.

SPECIFIC COMMENTS

1. Page 5-2, 4th paragraph - The discussion of DQOs should be more project-specific and include establishment of detection limits, criteria for accuracy and precision, sample representativeness and data comparability.

2. Page 11-1 - There is no mention of a QA/QC blank for soil/sediment VOC samples or a QA/QC blank for preservatives used in the field. These will be necessary.