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(804) 445-8637

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CERTIFIED MAIL RETURN RECEIPT REQUESTED

Waste Management Division
United States Environmental Protection Agency,
Region IV
Attn: Ms. Michelle Glenn
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: MCB Camp Lejeune; Responses to EPA Region IV Comments on the Draft RI/FS Project Plans for Operable Unit No. 1 (Sites 78, 21, and 24)

Dear Ms. Glenn:

We have received the EPA Region IV comments (letter dated November 17, 1992) to the subject draft documents. The Navy/Marine Corps responses to these comments are enclosed.

Any questions concerning these responses should be directed to Ms. Linda Berry at (804) 445-8637.

Sincerely,

L. A. BOUCHER, P.E.
Head
Installation Restoration Section
(South)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Encl:
Response to EPA Region IV Comments on Draft RI/FS Project Plans for Operable Unit #1 via letter dated 11/17/92

Copy to:
NC DEHNR (Mr. Peter Burger)
MCB Camp Lejeune (Mr. George Radford)

Blind copy to:
182
1823 (LGB)(2 copies w/encls)
1812
18S, LGBDoc:RIFSEPA

Response to Comments Submitted by the US Environmental Protection Agency, Region IV on the Draft RI/FS Work Plan and Sampling and Analysis Plan for Operable Unit No. 1 MCB Camp Lejeune, North Carolina Comment Letter Dated 11/18/92

Response To General Comments

1. Summary tables have been included in the appendices. All previous groundwater data can be found in the appendices. Isopleth maps are now included in Section 2.

2. Boring logs have not been included: these logs can be found in other reports which EPA has obtained. However, a monitoring well summary has been included which indicates the depth of the well and the screened interval. A cross section, taken from a report prepared by ESE, Inc., has now been included. Groundwater gradients are presented in Section 2.2.4. An estimate groundwater velocity has also been included in Section 2.2.4.

3. TCL organics and TAL inorganics will be analyzed for all groundwater samples collected from newly-installed monitoring wells. The existing wells have been sampled and analyzed for full TCL organics and TAL inorganics on more than one occasion. No contaminants other than inorganics and volatile organics have been detected; therefore, only volatiles and inorganics will be analyzed on samples collected from the existing monitoring wells. Ten percent of the existing wells will be analyzed for full TCL organics and TAL inorganics for purposes of evaluating human health and environmental risks.

   Soil samples collected as a result of the soil gas survey will be analyzed for full TCL organics and TAL inorganics. Soil samples collected at the various areas of concern (underground storage tanks that reportedly stored solvents) will only be analyzed for the suite of contaminants that are expected to be detected (e.g., volatile organics will be analyzed for samples collected near an UST that was used to store TCE). Ten percent of all soil samples will be analyzed for full TCL organics/TAL inorganics.

4. A table summarizing well construction data has been included. Water supply wells are highlighted on the appropriate figures.

5. One soil sample will be collected from each shallow monitoring well borehole below the water table. If additional deep boreholes are augered, more than one subsurface soil sample (below the water table) will be collected. More than one sample will be collected if elevated readings are detected with an HNu during drilling.

6. Summary tables have been included in the Appendices.

7. Background surface water/sediment data have been collected from this stream during the investigation of Site 6. This data will also be used to represent background surface water/sediment conditions when appropriate.

8. Waste disposal areas within Site 78 can not be readily identifiable due to the nature of the area. Underground storage tank areas identified during the geophysical survey will be investigated. Waste disposal areas within Site 21 and 24 will be delineated using aerial photographs (EPIC Report) and surveying techniques. Samples will be collected within these areas as already proposed (see Sections 5.3.2 and 5.3.3).

9. Background samples will be collected for soil (west of the site), sediment (already collected), surface water (already collected), and groundwater (proposed monitoring well 24GW7). The background soil samples will be collected from an area similar to the HPIA (i.e., an area surrounded by administrative buildings, roadways, etc.).

Response to Specific Comments

1. Wetland maps have been obtained and were used to identify and classify wetland areas. The area near Cogdells Creek was the only area classified as a wetland.

2. The Work Plan has been revised to delete statements which suggest that there are separate shallow, intermediate, and deep aquifers. Based on the site geology/hydrogeology, there is only one aquifer with the possibility that flow and characteristics (e.g., hydraulic conductivity, gradients, etc.) differ at various depths. Although it is likely that contaminants may migrate downward along water supply well boreholes, contaminants are also likely migrating downward under natural conditions since there are no continuous, impermeable geologic formations across the HPIA and much of Camp Lejeune. The closure of the supply wells will be considered in the feasibility study.

   Please note that recent sampling of water supply wells have indicated only low levels of contamination in the supply wells. This decrease may be associated with the shut down of these wells several years ago. After the wells were shut down, contaminant levels have significantly decreased. The operation (and pumping) of these wells may have resulted in downward migration of contaminants from the shallow groundwater zone to deeper groundwater zones.

3. The exact sampling locations are unknown.

4. The sampling locations were not accurately represented in existing documents; therefore, the locations could not be shown on Figure 2-4.

5. The comments have been addressed previously under General Comments No. 1 and No. 2.

6. This section has been revised to indicate the parameters, along with the survey method.

7. A broader range of contaminants will be used during the soil gas survey (TCE, vinyl chloride, BTEX, and 1,2-DCE).

8. Ten borings were drilled at Building 1202 during a previous investigation. Soil samples were collected for full TCL organic and TAL inorganic analysis. Limited contamination was detected (acetone and methylene chloride were detected, which are known laboratory contaminants). Additionally, groundwater contamination in this area is limited. The contamination that was detected (primarily lead) is most likely a result of the fuel farm located to the north of building 1202. No additional soil sampling is warranted since it is not believed that this building is a source of existing groundwater contamination.

   With respect to Building 1709, monitoring wells in this area are primarily contaminated with low levels of TCE and benzene. The contamination in these wells are most likely due to horizontal migration from a source near the 1600 building area and not from building 1709. No soil sampling near this building is warranted since the building is not considered a source area. Geophysical investigations performed around this building to located a suspected underground storage tank did not identify such a tank.

9. Groundwater flow directions have been provided.

10. Method 601/602 will provide lower detection levels to allow a comparison against very low Federal and State ARARs associated with groundwater protection or groundwater consumption.

11. The methods for purgeable organic compounds (EPA 624), base/neutral and acid extractables (EPA 625), and pesticides/PCBs (EPA 608) are cited from the USEPA Contract Laboratory Program Statement of Work for Organic Analysis. The appropriate methods of extraction for water and soil matrices are described in these methodologies. However, the methods of extraction are based upon SW-846 Methods 8240 (for volatile organics) and 3510/3550 (water/soil semivolatile organics, pesticides, and PCBs). Extraction procedures for herbicides and BTEX compounds are provided in SW-846 methods 8150 and 8020, respectively. The metals arsenic, selenium, thallium and lead will be extracted according to SW-846 method 3020. All other metals will be extracted according to SW-846 method 3010.

    The table has been revised to indicate the extraction procedure when appropriate.

12. Wells HPGW1 and 29 are at the boundary of the existing plume which originates around the 1600 Building area. These wells exhibit limited contamination. Wells to the southwest would not provide significant information to either assess human health risks or formulate remedial alternatives. No areas of concern were identified southeast of these wells. Wells may be installed southwest of wells HPGW1 and 29, and southeast of GW16 based on the soil gas survey.

    Well GW20 exhibited lead. This well is also located at or near the western boundary of a lead plume (it is uncertain at this time whether the lead is due to a contaminant source or whether it is due to suspended particulates in the samples). No wells west of GW20 are proposed since additional information in this area would not significantly contribute to assessing the extent of contamination, estimating health and environmental risks, or formulating remedial alternatives. The stream west of well HPGW20 will be sampled to estimate potential migration (discharge) of groundwater contaminants.

    The area southeast of well HPGW16 will be studied during the soil gas survey. Additional wells may be installed based on these results (these wells will be analyzed for full TCL organics and TAL inorganics). At present, well HPGW16 only exhibited the contaminant lead above the standards. As mentioned above, lead and other inorganic contaminants were detected in numerous wells above standards. Some of these wells are located upgradient from potential source areas, such as the fuel farm. The presence of lead in groundwater must be evaluated with caution: only one round of samples have been analyzed for TAL inorganics. Additional data are required to better evaluate whether there is a problem.

13. This correction has been made.

14. The referenced documents have been updated.

15. Quick turnaround will not be required for these wells since sufficient numbers of offsite wells and deep groundwater wells are already available (these wells are associated with Site 78).

16. The justification for using PVC has been satisfied (see the SAP, attachment to Section 5.0).

    The comment about full TCL organics/TAL inorganics was previously addressed under General Comment No. 3.

17. This comment was previously addressed under General Comments (see Response No. 3).

18. The use of PVC has been justified (see Section 5 of the SAP).

19. This comment was previously addressed (see Response No. 10).

20. The air pathway was not listed since the likely exposure pathways are already listed under soil (inhalation of particulates) and groundwater (inhalation of volatiles). Dermal contact with groundwater has been included.

21. The reporting lines between LANTDIV, EPA Region IV, and the North Carolina DEHNR have been included.

Comments to the Draft Sampling and Analysis Plan for Operable Unit No. 1 (Sites 21, 24, and 78)

Response to General Comments

1. Well construction details (summary table and figure) of the proposed wells have been included in Sections 3.1.4, 3.2.3, and 3.3.4.

Response to Specific Comments

1. The DQO level has been changed to Level II.

2. EPA Region IV field methods will be followed. A statement has been added to Section 5.0 (Introduction).

3. The methods for purgeable organic compounds (EPA 624), base/neutral and acid extractables (EPA 625), and pesticides/PCBs (EPA 608) are cited from the USEPA Contract Laboratory Program Statement of Work for Organic Analysis. The appropriate methods of extraction for water and soil matrices are described in these methodologies. However, the methods of extraction are based upon SW-846 Methods 8240 (for volatile organics) and 3510/3550 (water/soil semivolatile organics, pesticides, and PCBs). Extraction procedures for herbicides and BTEX compounds are provided in SW-846 methods 8150 and 8020, respectively. The metals arsenic, selenium, thallium and lead will be extracted according to SW-846 method 3020. All other metals will be extracted according to SW-846 method 3010.

   The table has been revised to indicate the extraction procedure when appropriate.

4. The bottommost sample will be collected from just above the water table.

5. If deep groundwater monitoring wells are installed, the well will be constructed to a depth where a confining layer is encountered, or to a maximum depth of 100 feet (if no layer is encountered). Well screens will then be set just above this layer. The presence of DNAPL will be difficult to determine. Based on the concentrations detected to date, it is debatable whether DNAPLs are present, or could be detected during well sampling. All shallow monitoring wells will be screened at the water table.

   A permanent mark will be made on each newly-installed monitoring well casing for purposes of surveying and measuring groundwater elevations.

6. The use of PVC well casing and screen has been justified. See Section 5 of the SAP.

7. There is no surface water/sediment control station. A drainage ditch is being sampled. Control stations are used when performing ecological assessments. Background surface water/sediment samples from this drainage ditch will be collected.

8. The device is described in Section 5.5. Decontamination procedures are described in Section 5.6.1.2.

9. Samples will be collected of the drilling water, drilling mud, bentonite, and sand as a QA/QC check. A summary table has been provided in Section 3.4.

10. One preservation blank will be submitted at the beginning of the field program.

11. Samples from the backhoe bucket will be collected from the center portion of the bucket to avoid contact.

12. Eight-inch augers will be used.

13. The grout thickness will be at least 24 inches unless groundwater conditions (near the ground surface) are encountered. The SAP has been revised to reflect this specification.

14. The specifications identified in the comment will be better defined in the SAP. Wells installed at Camp Lejeune have generally followed this specification for concrete protective pads.

15. This figure has been added.

16. The EPA Region IV procedure referenced in the comment will be followed during well development.

17. Preservation is performed by the laboratory. The pH of each sample is checked in the field prior to sample packaging. If the sample pH needs adjustment (above a pH of 2 or below a pH of 12), additional sample preservation can be performed in the field.

18. Glass or teflon inserts would most likely be damaged due to obstructions such as rocks, etc. Stainless steel does not permit the field personnel to ensure that a subsurface sediment sample was obtained, nor does it permit the field personnel to determine whether enough sample was obtained for analysis. Baker has been using plastic inserts at other investigations. No phthalates or other contaminants have been observed in sediment samples or in rinsate samples. A rinsate of the coring device will be collected. Baker uses "new" inserts for each sample as opposed to resusing (i.e., decontaminating the inserts) the inserts.

19. The statement that the procedures are from the EPA document have been removed.

20. The section has been revised to discuss the following. Drums encountered during test pitting will be removed and placed in a roll-off box if already crushed, destroyed, or leaking. If the drums still contain material, the material will be sampled. Soils excavated during the test pit operation will be placed in a separate roll-off box. If intact drums are encountered, the drums will be removed, sampled, overpacked, and identified. The drums will then be placed in a secure area managed by the Environmental Management Division at Camp Lejeune.

21. Investigation derived wastes (IDWs) will be containerized and handled accordingly based on analytical results. This section has been revised to reflect recent (1991) EPA guidance (EPA Publication 9345.3-03FS).

22. All IDWs will be containerized and sampled for subsequent treatment/disposal options.

23. This comment has been addressed (see Response No. 3).

Comment Responses to the Draft Quality Assurance Project Plan for Operable Unit No. 1 (Sites 21, 24, and 78)

1. The photoionization detector will only be used to monitor vapors during drilling activities and groundwater sampling activities (purging, well development, sampling, etc.). Headspace analysis of soil samples collected in the field will not be performed.

2. Temperature will be measured in the field. This has been noted in the QAPP.

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

NOV 17 1992

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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Byron Brant
Department of the Navy - Atlantic Division
Naval Facilities Engineering Command
Code 1822
Norfolk, Virginia 23511-6287

RE: Marine Corps Base Camp Lejeune NPL Site
Sites 21, 24 and 78
Jacksonville, North Carolina

Dear Mr. Brant:

EPA has reviewed the document titled "Draft Remedial Investigation and Feasibility Study Work Plan for Operable Unit No.1 (Sites 78, 21 and 24) and associated documents. Comments on the draft documents are enclosed.

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

Sincerely,

Michelle M. Glenn
Senior Project Manager

Enclosure

cc: Peter Burger, NCDEHNR
George Radford, MCB Camp Lejeune

COMMENTS
DRAFT WORK PLAN
Operable Unit One
(Sites 78, 21 and 24)

GENERAL COMMENTS

1. Due to the large number of solid waste management units (SWMUs) at Operable Unit No. 1, the groundwater data collected from previous sampling investigations should be summarized to show areas of high contaminant concentrations and potential trends so that the locations of proposed groundwater monitoring wells can be assessed more clearly. Analytes selected from the groundwater data from previous investigations should be presented on isopleth maps which include the surficial, intermediate and deep aquifer zones.

2. The hydrogeology section has not presented sufficient detailed information pertaining to the site-specific characteristics of the geology and hydrogeology for Operable Unit No. 1. The site-specific hydrogeology should include boring logs, detailed cross sections, horizontal and vertical hydraulic gradients and groundwater velocities. The aquifer zones' thickness and screened intervals will need to be presented to determine if the quality of the groundwater data is accurately represented.

3. The first round of ground water and soil samples for each site should be analyzed for the full Target Compound List/Target Analyte List (TCL/TAL) group of possible contaminants. This comprehensive sampling is necessary because the number of soil samples are limited. TCL/TAL analysis should be performed on new and existing shallow, intermediate and deep wells that have not had a full scan analysis performed to date.

4. Well construction data should be provided for all existing wells at each site. Water supply wells should be plotted on a figure with the monitoring wells.

5. Soil samples that are collected during well installation should extend below the water table. A soil sample should be collected from the interval that the monitoring well will screened. Analysis from the soil ground water samples can be utilized to help establish soil/water partitioning coefficients. This type of sampling was proposed for sites 2 and 74 but not for the Hadnot Point area sites.

6. A table should be devised that summarizes ground water analyses for all monitoring wells at site 78. The table should include all constituents that were detected above method detection limits.

7. The locations proposed for surface water/sediment samples are adequate for determining potential pathways of contaminant migration from the sites at Hadnot Point. A background surface water/sediment sample should be collected at a location where no potential exists for site impact. An appropriate location would be north of the Hadnot Point in the Bearhead Creek.

8. Where waste disposal areas can be delineated, some samples must be collected directly from these areas.

9. No mention was made of background samples. At least two background samples are needed in each media to draw any conclusions about background concentrations.

SPECIFIC COMMENTS

1. Page 2-4, Section 2.1.3 - The wetlands and other natural resources on the base should be classified and delineated on site figures. The statement that the wet soil areas are not wetlands is not sufficient.

2. Page 2-15, Section 2.2.5.2 - The contamination in the abandoned supply wells is very high. Given that these wells are screened in a confined (or semi-confined) aquifer, this suggests that the well boreholes themselves are the contamination conduit. EPA strongly recommends that these wells be evaluated to determine whether or not they are adequately sealed and if not they should be properly abandoned as soon as feasible. This recommendation would also apply to any monitoring wells screened in this aquifer.

3. Page 2-27, Section 2.3.5.2, paragraph 3 and 5 - The samples collected from previous investigations for Site 21 should be presented on Figure 2-4.

4. Page 2-32, Section 2.4.5, paragraph 1 - The samples collected from previous investigations for Site 21 should be presented on Figure 2-4.

5. Page 3-8, Section 3.1.1.1, paragraph 1 - The groundwater data for Site 78 should be presented on isopleth maps. Several of the major analytes Camp Lejeune has detected from previous sample investigations of the groundwater should be plotted for each of the aquifer zones (shallow, intermediate and deep).

   Specify the screened intervals for the existing monitoring wells. The geology section (2.1.6) needs to provide more detail as to the structural and hydrological characteristics of the lower aquifer units (See General Comment No. 3).

6. Page 5-2, Section 5.3.1.1 - Specific parameters for surveyed data are presented in the IFF. Some of the parameters include latitude, longitude, elevation in feet of mean sea level, accuracy and survey methods. These parameters should be included as part of the RI/FS process.

7. Page 5-4, Section 5.3.1.2 - Selecting 1,1,1-trichloroethylene (TCE) as the only analyte for soil gas surveys is not acceptable for Site 78. Previous sample investigations have shown volatile and semivolatile compounds which will go undetected if TCE is used as the only parameter. Additional justification is required to indicate why TCE can be shown to adequately delineate the area. A broader range of analytical parameters used to detect volatile compounds is recommended at this time.

8. Page 5-4, Section 5.3.1.3 - According to the text, soil samples will be collected at buildings 903, 1502, 1601, 1300, and 1103 because these areas are suspected UST locations. However, during the soil gas survey conducted in 1988, TCE vapors were detected at building 1202 and 1709 (page 2-18). Soil samples should be collected at these buildings as well.

   All surface soil samples should be analyzed for full scan TCL organics and TAL inorganics.

9. Pages 5-5 and 5-6, Figures 5-2 and 5-3 - Provide groundwater flow directions, even if inferred.

10. Page 5-9, Table 5-1 - Provide an explanation as to why the Target Compound List (TCL) volatile compounds are proposed to be analyzed by EPA Method 601/602.

11. Page 5-15, Table 5-1:

    a. SW-846 methods are incomplete without the appropriate extraction/preparation methods.

    b. Sources of the methods should be shown in footnotes.

12. Page 5-20, Section 5.3.1.3, 1st paragraph - The text states that based on the results of the soil gas survey, additional wells may be installed at the site. It should be noted that based on the contaminant concentrations of existing wells, additional shallow wells are necessary to delineate the extent of the contaminant plume in the surficial and Castle Hayne Aquifers. Based on the concentrations from existing monitoring wells, appropriate surficial aquifer well locations are: wells southwest of HPGW1 and HPGW29, a well west of HPGW20, a well southeast of HPGW16, and a background well northeast of HPGW25.

    The results from the soil gas survey may indicate ground water sampling locations are necessary in addition to the ones listed above to delineate the extent of the plume. Once the soil gas survey results are obtained, it may be more time and cost effective to delineate the extent of the contaminant plume by collecting shallow ground water samples with a hydrocone instrument.

13. Page 5-20, Section 5.3.1.3, 3rd paragraph - The second sentence which states that all groundwater samples will be analyzed for TCL volatile inorganic compounds should be changed to Target Analyte List (TAL) inorganic compounds.

    All ground water samples for the first round should be analyzed for full scan TCL organics and TAL inorganics. It should be mentioned that filtered sampling data is not acceptable for use in the risk assessment.

14. Page 5-23, Section 5.4 - Documents for data validation need to be updated to "National Functional Guidelines for Organic Data Review," USEPA, 1991, and "National Functional Guidelines for Inorganic Data Review," USEPA 1988.

15. Page 5-27, Section 5.3.2.2 - A statement should be added to this section to clarify why the analytical data from the monitoring wells will undergo quick turn around. The primary purpose of quick turn around data is to provide real time input into an ongoing field investigation, or, to provide needed information in a situation which is believed to pose an immediate and/or substantial threat to human health and/or the environment. Neither of these situations would seem to apply here.

All surface soil samples should be analyzed for full scan TCL organics and TAL inorganics.

16. Page 5-31, Section 5.3.2.3, paragraph 1 - Utilizing polyvinyl chloride (PVC) for construction of monitoring wells is not in compliance with the ECB SOPQAM. PVC is not acceptable for monitoring organic compounds because of its sorption and leaching properties. The ECB SOPQAM recommends that the well casing and screen be constructed of stainless steel (304 or 316) or Teflon unless otherwise approved.

    All ground water samples for the first round should be analyzed for full scan TCL organics and TAL inorganics. It should be mentioned that filtered sampling data is not acceptable for use in the risk assessment.

17. Page 5-35, Section 5.3.3.2 - All surface soil samples should be analyzed for full scan TCL organics and TAL inorganics.

18. Page 5-40, Section 5.3.3.3, paragraph 3 - Utilizing polyvinyl chloride (PVC) for construction of monitoring wells is not in compliance with the ECB SOPQAM. PVC is not acceptable for monitoring organic compounds because of its sorption and leaching properties. The ECB SOPQAM recommends that the well casing and screen be constructed of stainless steel (304 or 316) or Teflon unless otherwise approved.

19. Page 5-41, 2nd paragraph - Provide an explanation as to why the Target Compound List (TCL) volatile compounds are proposed to be analyzed by EPA Method 601/602.

20. Page 5-47, Section 5.6.1.4, 3rd paragraph - For completeness under the exposure scenarios, include the air pathway or an explanation as to why this exposure route will not be included. Dermal contact for groundwater should also be added to the fourth bullet.

21. Page 6-2, Figure 6-1 - Provide in the Project Organization Chart the reporting lines of authority between Baker, Camp Lejeune and EPA Region IV.

COMMENTS
Draft Sampling and Analysis Plan
Operable Unit One
(Sites 78, 21 and 24)

GENERAL COMMENTS

1. Please provide well construction details in the draft final document.

SPECIFIC COMMENTS

1. Page 2-22, Table 2-2 - The Data Quality Objectives (DQO) selected for some of the sampling criteria such as physical properties of soils and aquifers may not be possible to obtain with the field equipment. DQO Level III for water level elevations, hydraulic conductivity or transmissivity can usually only be considered as good as Level II. If higher DQO Levels are under consideration, propose the quality control measures or procedures which will be used.

2. Page 3-3, Section 3.1.3.1 - The document should make a clear statement that the field methods descried in the US-EPA, Region IV, Environmental Services Division, Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual (ECBSOPQAM), February 1, 1991, will be followed. These are the methods that should be referenced in this document. If additional guidance form other sources such as ASTM is desired, then it must be stated that where ASTM methods and ESD methods are in conflict, the ESD procedure will prevail.

3. Page 3-11, Table 3-1:

   a. SW-846 methods are incomplete without the appropriate extraction/preparation methods.

   b. Sources of the methods should be shown in footnotes.

4. Page 3-14, Section 3.1.3.1 - The text is unclear. At least one of the samples should be collected at the water table.

5. Page 3-19, Section 3.1.4 - Previous sampling has shown the deeper aquifer (Castle Hayne) to be contaminated. EPA recommends that wells downgradient of the various sites (and at least one control well) be installed in this unit. In addition, downgradient wells in the surficial aquifer should be paired to monitor DNAPLs, one well screen to be astride the water table, the other well screen to be at the top of the semi-confining unit.

6. Page 3-27, Section 3.2.3.1 - EPA recommends the use of stainless steel well casings and screens for this study. While the use of PVC materials may not significantly influence the data for this project, ESD does not feel it is the best choice. If PVC is used, however, it must meet the specifications of NSF Standard 14 in addition to ASTM Schedule 40. If the Navy declines to follow the EPA recommendation, all contaminants identified in the groundwater will be considered to represent the conditions of the aquifer. No cement grout should be used on PVC wells, all well grout used on PVC wells must be pure bentonite materials. PVC well casings and screens must not be steam-cleaned or solvent rinsed. If the PVC is cement grouted, steam-cleaned, solvent rinsed, or does not meet NSF Standard 14 wc, integrity and/or effectiveness of the wells for monitoring purposes may be compromised.

7. Page 3-30, Section 3.2.4.1 - The sample from the surface water and sediment control station should be collected first, if one exists.

8. Page 3-31, Section 3.2.4.2 - The coring device is not adequately described. Before recommendation for approval, the Navy should submit a description of the device including a clear drawing, list of materials of construction, and a description of how the device works and is decontaminated.

9. Page 3-38, Section 3.4 - Field QC samples should include blanks of drilling materials such as drilling water or mud (if used), bentonite, and sand. In addition, EPA recommends that the Navy submit a table showing the numbers and types of field QC samples to be taken. Further, the Navy should be aware that USEPA may submit blind QA/QC samples for analysis as a check on the laboratory.

10. Page 3-39, Bullet 2 - Provide additional information as to number and frequency at which the preservation blanks will be analyzed.

11. Page 5-4, Section 5.1.3 - Care must be taken that sample material collected from the backhoe bucket has not been in direct contact with the bucket.

12. Page 5-5, Section 5.2 - The augers proposed for use are too small. Four inch I.D. wells will require eight inch I.D. augers to allow proper construction.

13. Page 5-6, Bullet 3 - The minimum thickness for the bentonite grout should be 24 inches, not 12 inches. Seals of insufficient thickness can cause premature failure of the well.

A notch or other permanent mark should be placed on the well casing as a survey and measurement point.

14. Page 5-7, Section 5.2 - The concrete pad should be a minimum of 4'x4'x6", extending two feet below the ground surface in the annular space and set two inches into the ground elsewhere. If water table conditions prevent having a 24 inch bentonite seal and the concrete pad as specified, the concrete pad depth should be decreased. Two weep holes must be drilled into opposite sides of the protective casing just above the concrete pad.

    "Flush" type wells should be installed into a sloped concrete pad such that the top of the cover is 4 to 6 inches above the finished grade of the surrounding pavement. These type wells should not be installed in areas prone to standing water.

15. Page 5-8, Figure 5-1 - This figure is missing.

16. Page 5-9, Section 5.2 - Monitor wells should be developed as specified in the ECBSOPQAM.

17. Page 5-11, Section 5.4 - Samples must be preserved in the field, with the exception of VOAs. Pre-preserved sample containers invite poor sample quality and erroneous analytical results.

18. Page 5-12, Section 5-5 - The use of clear plastic tube inserts for sediment coring devices is unacceptable. The ECB SOPQAM recommends either Teflon or glass inserts or the use of stainless steel coring devices.

19. Page 5-12 to 5-18, Section 5.6 - This section needs to be rewritten and resubmitted to EPA. In addition, it is unacceptable for the Navy to reword the EPA Region IV ECBSOPQAM such that QA/QC is greatly reduced and submitted for review as the original material. Section 5.6 contains the following statement: "The following decontamination procedures are taken from EPA IV Standard Operating Procedures (sic) (1991)". The reference is to the ECBSOPQAM, which contains the following statement (disk version):

The procedures described within the ECBSOPQAM may be modified as necessary (procedures for modification are described within the document), with the following proviso: If the procedures are changed they may no longer be referred to as the procedures described in this document. The Environmental Compliance Branch (which is an integral part of the document review and field overview process in Region IV) will strongly resist any attempt to modify these procedures and have them submitted for review as the original procedures.

EPA will be unable to approve this document until this situation is corrected. In addition, the Navy submitted the wrong procedures for review. Field sampling equipment should be cleaned as specified in Appendix b, Section B.8, other field equipment should be cleaned as specified in B.7, drill rigs and associated equipment are covered in Appendix E, Section E.9. The Navy must also specify grades of material to be used, as covered in Appendix B.

20. Page 5-19, Section 5.8 - The section for drum sampling should include how the contractor will handle the drums (e.g., storage, overpacking and leaking, among others).

21. Page 5-20 to 5-25, Section 5.9 EPA strongly recommends that IDW not be placed onto the ground. IDW should be containerized, characterized, and placed in a solid waste landfill or approved wastewater treatment facility if no contaminants are above Permit limits. If contaminant concentrations are too high to permit this, the material must be properly treated for disposal.

22. Page 5-22, Section 5.9.3.1 - The use of the photoionization detector is not acceptable for determining if the investigative derived waste (IDW) is hazardous or nonhazardous. The IDW needs to be containerized until analytical data confirms the status of the material.

23. Page 6-9, Table 6-1:

    a. SW-846 methods are incomplete without the appropriate extraction/preparation methods.

    b. Sources of the methods should be shown in footnotes.

QUALITY ASSURANCE PROJECT PLAN

1. If the photoionization detector is going to be used for head space analysis, the procedure for doing so should be provided.

2. Page 9-1, Section 9.1 - Temperature must also be measured in the field.

CERTIFIED

P 681 351 926

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