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DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1510 GILBERT ST
NORFOLK VA 23511-2699

TELEPHONE NO.

(804) 322-4818

IN REPLY REFER TO:

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08 AUG 1995

CERTIFIED MAIL RETURN RECEIPT REQUESTED

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

Re: MCB Camp Lejeune Draft Treatability Study
Work Plan, OU Number 14, Site 69 Response to Comments

Dear Ms. Townsend:

Navy/Marine Corps responses to your comments on the subject document are attached. These comments are being incorporated into the Final version of the documents which are to be issued following final resolution of all comments with both EPA Region IV and the State of North Carolina.

A meeting to discuss these responses and other outstanding issues has been scheduled for 9:00a.m. on Friday, August 11, 1995, at the Wilmington Regional Office of NCDEHNR. Your attendance at this meeting is requested. The topics for discussion will be the Proposed Plan at OU Number 4, Site 41, the Treatability Study at OU Number 14, Site 69, and the Proposed Plan OU Number 10, Site 35. An agenda for the meeting is attached.

Please direct any questions to Ms. Katherine Landman at (804) 322-4818.

Sincerely,

A handwritten signature in black ink, appearing to read "L. G. Saksvig".

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

Re: MCB Camp Lejeune Draft Treatability Study
Work Plan, OU Number 14, Site 69 Response to Comments

Attachments

Copy to:

NC DEHNR (Mr. Patrick Watters)

MCB Camp Lejeune (Mr. Neal Paul)

Baker Environmental, Inc. (Mr. Matt Bartman, Mr. Ray Wattras,
Mr. Gordon Ruggaber)

Activity Admin Record File .

**Response to USEPA Region IV Comments
Draft Treatability Study Work Plan
Marine Corps Base (MCB) Camp Lejeune, North Carolina
Site 69 (Operable Unit No. 14)**

General Comments

1. SBP has modified the SOPs (Appendix D) to comply with the USEPA Region IV ECBSOPQAM, February 1991 document.
2. The horizontal hydraulic conductivity and gradient were taken from the Draft Remedial Investigation (RI) Report (Baker, September 1994). Recalculated aquifer parameters, based on new data in the Draft Final RI Report (Baker, June 1995), have been used in the Final Treatability Study Work Plan. A reference to the Draft Final RI Report has been added to the text.
3. Control samples were collected as part of the RI sampling efforts. Therefore, collection of additional control samples during the Treatability Study is not warranted.
4. SBP has modified the SOPs (Appendix D) to comply with the USEPA Region IV ECBSOPQAM, February 1991 document.
5. Appendix G has been added which contains five publications that describe the theory of operation and modeling of groundwater circulation wells.
6. The UVB technology and associated references were evaluated as part of the Feasibility Study (FS) effort (Baker, October 1994). Inclusion of such reference and cost information is appropriate for the FS but is beyond the scope of the Treatability Study Work Plan.
7. This discrepancy has been corrected in the text.
8. SBP has modified the SOPs (Appendix D) to comply with the USEPA Region IV ECBSOPQAM, February 1991 document.
9. Comment noted.

Specific Comments

1. A list of abbreviations and acronyms has been added to the report.
2. The legend has been corrected in Figure 1-3.

3. The text states that SBP represents the sole source of the UVB/KGB technologies, which are in-well aeration technologies. However, they are distinctly different in design and operation when compared to the other in-well aeration technologies referenced by the reviewer.
4. SBP will follow procedures outlined in the USEPA Region IV ECBSOPQAM, February 1991 document for well development.
5. The UVB circulation cell will be established entirely within the Castle Hayne Aquifer, which is located beneath the retarding layer (i.e., upper screen of the UVB well will be located beneath sandy clay layer). The KGB circulation cell will be established between a depth of 4 feet and 12 feet below grade. Therefore, the vertical permeability across the retarding layer is not a critical parameter for the treatability study. As a conservative estimate, the vertical conductivity of the Castle Hayne Aquifer has been estimated as 1/10 of the horizontal conductivity. The results of the study will enable a better estimation of the vertical conductivity to be made.
6. This discrepancy has been corrected in the text.
7. The text has been modified to indicate that the standard circulation configuration will be used.
8. The system has been in operation for only six months, and no such data are available at this time. Furthermore, inclusion of such information, which is more appropriate for an FS, is beyond the scope of the Treatability Study Work Plan.
9. No specific performance goals, such as a minimum zone of influence, have been established at this time. Performance goals for contaminant removal have not been set because a significant degree of contaminant removal is not expected to occur over the 6-month period. The main purpose of the treatability study is to determine the "radius of influence" (ROI) for each system. The ROIs determined from the study will be used in the FS to develop cost estimates for full-scale in-well aeration systems. The advantages/disadvantages of using in-well aeration at Site 69 will be compared to other technologies in the FS, and the rationale for the selected remedy will be presented in the Proposed Plan.
10. The water will be tested once at the beginning of the study for volatiles using Method EPA 8260.
11. The typographical error has been corrected.
12. The PVC monitoring well screens and risers proposed for the treatability study are consistent with the type of monitoring wells that have been constructed throughout the Base under the Installation Restoration Program.

13. SBP has corrected this in the revised figures.
14. SBP will follow procedures outlined in the USEPA Region IV ECBSOPQAM, February 1991.
15. SBP will follow procedures outlined in the USEPA Region IV ECBSOPQAM, February 1991.
16. The UVB well casing will be constructed of PVC. The text has been revised accordingly.
17. The figure is correct, and the text has been modified accordingly.
18. Figure 4.9 has been revised accordingly.
19. The text has been revised to correct the discrepancies.
20. The text has been modified to indicate the correct screen intervals.
21. SBP will follow procedures outlined in the USEPA Region IV ECBSOPQAM, February 1991.
22. Figure 4.10 has been revised to indicate the stagnation points.
23. The distance $5H$ has been determined as the minimum distance required from the UVB/KGB in order to eliminate any distortion effects caused by the circulation cell at the point where dimensions of B_b and B_t are calculated. Section 4.3.3 has been revised accordingly.
24. Refer to Herrling 1991, 1992 (Appendix G) for details on how to determine stagnation points and the significance of A/H . Revised graphs have been included that show data within the range of graphical solution.
25. Refer to Herrling 1991, 1992 for details on calculating $Q/H^2 * V$ and a/H .
26. Revised graphs have been included.
27. The term radius of influence (ROI) is used for the case where the gradient is zero. For most cases where there is a gradient, the term zone of influence (ZOI) is used. The text has been modified to indicate ZOI instead of ROI. Calculations to determine the ZOI are discussed in Section 4.3.3. Refer to Herrling 1991, 1992 in Appendix G for details on calculations.

28. The horizontal hydraulic conductivity and gradient were taken from the Draft Remedial Investigation (RI) Report (Baker, September 1994). Recalculated aquifer parameters, based on new data in the Draft Final RI Report (Baker, June 1995), have been used in the Final Treatability Study Work Plan. A reference to the Draft Final RI Report has been added to the text.
29. Text has been added to Section 4.3.4 indicating that the treatability study will be conducted for a period of six months.
30. All materials of construction comply with USEPA Region IV ECBSOPQAM, February 1991 in that they will not leach chlorinated compounds into the groundwater.
31. The vacuum range of 45-65 millibars is recommended by the manufacturer for proper operation. This point has been added to the text.
32. SPB and IEG have had no problems with the existing "bird cage" design on other projects and anticipate no problems with the Site 69 treatability study.
33. The bullets have been replaced with letters in Section 4.3.4.
34. SBP/IEG contact numbers have been included in Section 12.0, Management and Staffing.
35. The typo has been corrected.
36. The text has been modified to clarify operation of the support pump.
37. Moderate iron and scaling build-up is removed via high pressure water/steam washing. Extensive iron and scaling build-up is removed by dilute acid treatment. This text has been included in Section 4.3.4 (bullet Q).
38. Figure 4.9 has been revised to show details of the double-case screen. The statement about distribution coefficients is a general statement. No such values have been used in any calculations. Consequently, it is irrelevant to show the table.
39. Charcoal packets will be attached to a disposable bailer and will be suspended in the well at the middle of the screen interval using a nylon rope. A divergent dye is the dye which moves away from the UVB to the outer perimeter of the circulation zone. This dye is injected in the innermost shallow wells for a standard flow UVB. A convergent dye is a dye that moves towards the UVB. This dye is injected in the outermost deep wells within the estimated circulation zone. Chlorinated organics do not interfere with these dyes. Tests have already been performed at the Letterkenny Army Depot Superfund Site, PA under a the supervision of the Army Environmental Center at Aberdeen Proving Ground, Maryland. This text will be added to Section

4.4.

40. The perched water zone where the KGB will be installed (4-12 feet below grade) and the lower Castle Hayne Aquifer where the UVB will be installed (approximately 35-80 feet below grade) are separated by a confining layer and are not hydraulically connected. Consequently, the UVB and KGB systems should not affect one another and can be independently evaluated at the same time.
41. The following reference is for dye selection and dye quantities to be used in the tracer study: Tom Aley and Malcolm Field. "A Practical Manual of Groundwater Tracing with Fluorescent Dyes and Particles." In press under contract from USEPA, Office of Research and Development, Washington, D.C. This reference will be added to Section 4.4.3.
42. SBP will follow procedures outlined in the USEPA Region IV ECBSOPQAM, February 1991.
43. SBP will follow procedures outlined in the USEPA Region IV ECBSOPQAM, February 1991.
44. The requested information is not relevant to the treatability study.
45. The requested design calculations are not relevant to the treatability study.
46. In addition to total dissolved solids (TDS), total suspended solids (TSS) have been added to the sampling plan for inorganics.
47. The decontamination procedure has been added to the text.
48. Table 6.1 has been corrected.
49. The document title has been included in the text.
50. The text has been modified to indicate the number of samples.
51. The text has been modified to include the additional Chain-of-Custody information.
52. A new legible Chain-of-Custody form has been included in Appendix C.
53. Sample holding times have been included in the text.
54. Although the QAPP does not follow the specific EPA-recommended format, the critical QA/QC information needed for quality assurance (i.e., chain-of-custody, sample preservation, holding times, QA/QC samples) is contained in Sections 6.0 and 7.0 in

the Work Plan and in the SOPs. Laboratory Resources, Inc., which will be performing the volatiles analysis, is a NEESA-certified laboratory with Navy-approved QA/QC procedures.

55. Background and control samples were collected as part of the RI effort and are discussed in the Draft Final RI Report (Baker, June 1995). Collection of additional background and control samples was deemed unnecessary for the treatability study.
56. The text will be revised to indicate the required equipment blank collection frequency.
57. The procedures outlined in Section 8.1 for handling and disposing of soil IDW have been approved by EPA Region IV and the NC DEHNR and are consistent with those used during previous investigations at Site 69 and throughout the Base.
58. The procedures outlined in Section 8.2 for handling and disposing of groundwater IDW have been approved by EPA Region IV and the NC DEHNR and are consistent with those used during previous investigations at Site 69 and throughout the Base.
59. SBP will follow procedures outlined in the USEPA Region IV ECBSOPQAM, February 1991.

AGENDA

MCB Camp Lejeune/DEM Meeting

August 11, 1995

Date: August 11, 1995

Time: 9:00am

Location: NCDEHNR Wilmington Regional Offices
127 Cardinal Drive
Wilmington, NC (910) 395-3900

Topics: **Proposed Plan at Site 41, Treatability Study at Site 69, and Proposed Plan at Site 35**

Host: Charles Stehman, NC DEHNR

Chair: Patrick Watters, NC DEHNR

Participants:

Charles Stehman	NC DEHNR	Groundwater Supervisor
Rick Shiver	NC DEHNR	Regional Supervisor, Env. Mgmt.
Bruce Reed	NC DEHNR	Hydrogeologist
Jack Butler	NC DEHNR	Remediation Branch Head
Patrick Watters	NC DEHNR	Environmental Engineer
Neal Paul	MCB Camp Lejeune	Director, Installation Restoration
Gena Townsend	EPA Region IV	Remedial Project Manager
Katherine Landman	LANTDIV	Remedial Project Manager
Matt Bartman	Baker Environmental	Activity Coordinator
Gordon Ruggaber	Baker Environmental	Project Manager, Site 69
Dan Bonk	Baker Environmental	Project Manager, Site 35

Meeting Goals:

Note that goals outlined here are interdependent. Some later goals may no longer apply following decisions made to reach earlier goals.

Site 41

- Identify and determine the effectiveness of remediation alternatives at Site 41.
- Determine the applicability of active remediation at Site 41.
- Determine the steps necessary to comply with State of NC ARARs as required by CERCLA at Site 41.
- Agree to a Final Remedy Selection that will lead to NCDEHNR concurrence with ROD.

Site 69

- Determine the applicability of remediation at Site 69.

AGENDA

MCB Camp Lejeune/DEM Meeting

August 11, 1995

Site 69 (cont'd)

- Determine the applicability of a treatability study at Site 69.
- Determine the applicability of UVB technology for a treatability study at Site 69.
- Identify and determine the applicability of alternatives to UVB technology at Site 69.
- Agree to an approach for the remaining phases of the Site 69 study leading to a ROD: Feasibility Study (including Treatability Study, as appropriate) through Final Remedy Selection).
- Determine the products of a Treatability Study that will be required to adequately determine the effectiveness of the demonstrated technology and applicability for full-scale implementation.

Site 35

- Determine the impact of decisions made for Site 69 on the Proposed Plan at Site 35.
- Agree to a Final Remedy Selection that will lead to NCDEHNR concurrence with ROD.

References:

The following documents will be used as references during the meeting. Participants should familiarize themselves with these documents prior to the meeting. Additional reference material may be provided at the meeting as needed.

Site 41

- Final RI Report, Operable Unit #4, Baker Environmental, May 8, 1995
- Final FS Report, Operable Unit #4, Baker Environmental, May 8, 1995
- Final PRAP, Operable Unit #4, Baker Environmental, May 8, 1995
- Final ROD, Operable Unit #4, Baker Environmental, June 22, 1995

Site 69

- Draft Final RI Report, Operable Unit #14, Baker Environmental, June 23, 1995
- Draft FS Report, Operable Unit #4 (as part of Sites 69, 74, and 41), Baker Environmental,
- Draft Treatability Study Work Plan, Operable Unit #14, Baker Environmental, April 5, 1995
- Letter to C. Stehman, NC DEM, from L. Saksvig, LANTDIV, dtd: July 7, 1995, subj: Operable Unit 14 (Site 69), Draft Final Remedial Investigation.
- Letter to P. Watters, NC Superfund, from L. Saksvig, LANTDIV, dtd August 4, 1995, subj: Draft Treatability Study, Site 69, Response to Comments.

Site 35

- Final RI Report, Operable Unit #10, Baker Environmental, May 31, 1995

AGENDA

MCB Camp Lejeune/DEM Meeting

August 11, 1995

Site 35 (cont'd)

- Final Interim FS for Surficial Groundwater, Operable Unit #10, Baker Environmental, May 31, 1995
- Final Interim PRAP for Surficial Groundwater, Operable Unit #10, Baker Environmental, May 9, 1995.
- Final Interim ROD for Surficial Groundwater, Operable Unit #10, Baker Environmental, June 28, 1995.

Meeting Format:

9:00am *Meeting Start-Up* P. Watters, NC Superfund

- Introductions
- Meeting Format
- Meeting Goals

Site 41

Overview of RI/FS Results M. Bartman, Baker

- Remedial Alternatives & Risk Assessment
- Risk Implications of Alternatives

Discussion (Goals) All

Review of Decisions P. Watters, NC Superfund

Break (as needed - approx. 15 min)

Site 69

Overview of RI/FS Results G. Ruggaber, Baker

- Remedial Alternatives & Risk Assessment
- Remedial Alternative Selection Process

Response to DEM Comments P. Watters, NC Superfund

Discussion (Goals) All

Review of Decisions P. Watters, NC Superfund

Site 35

Review of Proposed Plan & ROD Status D. Bonk, Baker

Discussion (Goals) All

Review of Decisions P. Watters, NC Superfund

Meeting Wrap-up P. Watters, NC Superfund

Review of Action Items

Schedule of Follow-up Activities

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