

LANTDIV Comments
 CTO-0160 Draft Interim RA RI/FS
 OU#10, Site 35-Camp Geiger Area Fuel Farm
 MCB Camp Lejeune

K. Landman, 5/6/94

RI REPORT

1. Executive Summary, Page ES-1, Paragraph 4
 Last sentence is not clear. Are you addressing just O&G results for soil samples taken, all soil results (which included lead analysis), or something else?
2. Page 1-1, Section 1.0, Paragraph 2 (also Page 2-4, Section 2.5)
 The last sentence refers to a former No. 2 Fuel Oil UST (removed) adjacent to Bldg. TC480. This UST was an unregulated heating oil tank that was apparently removed (your report, page 2-4 says it was removed in January 1994 - this is news to me - I am confirming with Mark Spangler of Camp Lejeune). Text indicates that there is an investigation underway under a different program (presumably the UST program) for this location; to my knowledge, there is no separate investigation pertaining to this former UST. (Again, I am confirming with Mark Spangler. If you have other info pertaining to additional studies at this location, please call me.) To date, I am aware only of the abandoned No. 6 Fuel Oil tank adjacent to the former Mess Hall Heating Plant that is undergoing a separate investigation (report on investigations at this site just published April 13, 1994 - I mailed you a copy).
3. Page 2-3, Section 2.2, Paragraph 1 and Figure 2-1
 First sentence refers to 3 temporary wells. These wells were permanent, not temporary. Also, Site Summary Report referred to these wells as 35GW4, 35GW5, and 35GW6, respectively. Text states that VOCs were not detected in these locations; however, Site Summary Report specifically states that VOCs were found. (Law's 1992 CSA also states that VOCs were found in all 3 wells, including the upgradient). Also, the legend of Figure 2-1 shows these wells as being installed in 1983. Both text on page 2-1 and Site Summary Report refer to installation of these wells in 1986.
4. Page 3-1, Section 3.1, Paragraph 2
 Typo, 1st sentence, 'corner of "D" Street'. Typo, sentence 4, "SB-33 and SB-34 were drilled".
5. Page 4-1, Section 4.1, Paragraph 2
 Table 4-1 shows that 2-hexanone in SB3405 was 12000 J $\mu\text{g}/\text{kg}$, not 23000 $\mu\text{g}/\text{kg}$ as indicated in sentence 5.
6. Page 4-1, Section 4.1, Paragraph 3
 Typo in last sentence, extraneous word - "...attributed to sources other than *the* those at Site 35".
7. Page 4-9, Section 4.1, Paragraph 2, and Figure 4-1
 Naphthalene was reported at 7100 J $\mu\text{g}/\text{kg}$ in SB3003 according to Table 4-1 (as opposed to 7100 $\mu\text{g}/\text{kg}$ as reported in text). Also see comment 9.
8. Page 4-8, Figure 4-1
 - a) Figure 4-1 lists naphthalene at 71.0 J mg/kg in SB3003, but Table 4-1 shows 7100 J $\mu\text{g}/\text{kg}$, which is 7.1 J mg/kg .
 - b) Figure 4-1 omits fluorene from SB3005D, but Table 4-1 reports 13000 J $\mu\text{g}/\text{kg}$ (13.0 J mg/kg).
 - c) Figure 4-1 shows acetone at 0.018 J mg/kg for BCSB01, but Table 4-1 reports 180 J $\mu\text{g}/\text{kg}$, which is 0.180 J mg/kg .
 - d) Figure 4-1 does not report results for BCSB03D, but Table 4-1 reports:

bis-(2-ethylhexyl)phthlate	350 J $\mu\text{g}/\text{kg}$
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di-n-octylphthalate

290 J µg/kg

e) Figure 4-1 shows di-n-octylphthalate at 0.21 J mg/kg but Table 4-1 reports 200 J µg/kg.

9. Page 4-9, Section 4.2, Paragraph 2
Potassium is listed twice in sentence 1.
10. Page 4-10, Table -2
Vanadium entries for SB3305 and SB3405 use the qualifier "BL". There is no qualifier "B" described in the first paragraph of section 4.2 on page 4-9.
11. Page 4-12, Section 4.2, Paragraph 2
Beryllium was detected in 2 samples according to Table 4-2: in SB3203 @ .08 L mg/kg, and in BCSB03 @ 0.11 L mg/kg.
12. Page 4-12, Section 4.3, Paragraph 2
Sentence 6 has a typo: "which *all* no detections of TPH" - ?
13. Page 4-15, Figure 4-2
Entry for BCSB3D (0-1) is incorrectly labeled as SB3005 DUP (8-10).
14. Page 4-20, Figure 4-5
Monitoring well MW-27 was not installed until October of 1992, so groundwater elevation could not have been measured in August of 1991.
15. Page 5-1, Section 5.0, Paragraph 2
Typo in fourth sentence - should read "unnamed drainage *channels* north of Brinson Creek".
16. Page 5-4, Table 5-1
Patrick Watters of NCDEHNR has previously asked me about Camp Lejeune base-specific background levels. Is there a actual compendium of background data specific to Camp Lejeune, or are the values in this table just prepared from a general review of previous studies at this & other sites? If Baker has prepared an actual compendium for general purpose comparisons, I'd like to get a copy (Patrick would like to have one too).
17. Page 5-3, Section 5.4, Paragraph 3
In the discussion of SB30 results for 4-6ft bgs, it is notable that the depth to water table for MW-21, which is adjacent to SB30, is about 6ft bgs. This indicates that even this particular sample (your "one exception") could still be classified as being just above the water table.
18. Page 5-11, Table 5-3
The Depth to Water Table measurements listed for SB30 and SB34 do not appear to coincide with water table levels presented in Section 4 (Figure 4-4) and Table 5-2 for nearby wells. SB30 is near well MW-21, which had a static water level of about 6ft bgs; however, the table shows 8ft bgs. SB34 is near MW16 which had a static water level of about 10ft bgs; however, the table shows 4ft bgs. Please explain or correct.

In addition, the last footnote to Table 5-3 has a typo - static water level measurements were inferred from *nearby* wells.
19. Page 6-4, Section 6.2.1, Paragraph 1
The 1st sentence indicates that acetone was detected at a maximum concentration of 1300 µg/kg. According to Table 4-1, acetone was detected at a maximum concentration of 1300 J µg/kg.

20. Page 6-5, Section 6.2.1, Paragraph 1

The 3rd sentence refers to di-*n*-butyl phthalate detected at 290 J ug/kg. Table 4-1 indicates that the compound detected is di-*n*-octyl phthalate.

21. Page 6-6, Table 6-1

a) The Region III RBC (using Jan 94 list) shows residential soil RBC = 46 mg/kg for bis(2ethylhexyl) phthalate. Table 6-1 shows 120 mg/kg.

b) The Region III RBC (using Jan 94 list) shows commercial/industrial RBC = 100,000 mg/kg for aluminium (after reducing to HI of 0.1). Table 6-1 indicates 300,000 mg/kg (from 1st qtr 93 table). Please verify the accuracy of the number from the first qtr 1993 table used.

c) The Region III RBC (using Jan 94 list) for manganese shows commercial/industrial RBC = 510 mg/kg and residential RBC = 39 mg/kg (after reducing to HI of 0.1). Table 6-1 shows industrial RBC = 5100 mg/kg and residential RBC = 390 mg/kg (from 1st qtr 93 table). Please verify the accuracy of the number from the first qtr 1993 table used. This presents an interesting situation if the value reported here is indeed the actual value - this would indicate that manganese is present in excess of the 0.1 HI protective level. This is even more interesting since manganese is considered a common soil element - why is there an RBC at all? This would also affect the statement on page 6-5, section 6.2.1, paragraph 2, that all metals were "well below their respective RBC values for residential soil."

d) Nickel had 3 positive detections according to Table 4-2. Table 6-1 indicates that there were only 2.

22. Page 6-5, Section 6.2.2, Paragraph 1

a) Trichloroethene was detected at a maximum concentration of 7 J ug/kg.

b) Acetone was detected at a maximum concentration of 51 J ug/kg.

c) Toluene was detected at a maximum concentration of 190,000 J ug/kg.

23. Page 6-8, Table 6-2

a) The Region III RBC (using Jan 94 table) indicates for xylenes, the industrial RBC = 100,000 mg/kg after reducing to 0.1 HI). Table shows 200,000 mg/kg. Please verify the accuracy of this value from the first qtr 1993 table used.

b) see comment 21c.

c) see comment 21a.

d) Max concentration for iron was 2500 J mg/kg.

e) Magnesium had 3 positive detections.

23. Page 6-9, Table 6-3

a) 2-Hexanone was detected 3 times, with a max concentration of 12.0 J ug/kg.

b) Toluene was detected at a max concentration of 190 J ug/kg.

c) see comment 23a.

d) see comment 21c.

e) see comment 21a.

- f) Magnesium had 4 positive detections and a max concentration of 186 L mg/kg.
24. Page 1-3, Figure 1-1
The road identified as River Drive is actually called Main Service Road.
25. Page ii, Table of Contents
Section 1.2.2 Site History starts on page 1-4, not 1-2.
26. Section 4.0, Analytical Results
Soil samples were also analyzed for RCRA characteristics (i.e. ignitability, corrosivity, reactivity, and full TCLP) to aid in classification of the impacted soil as either hazardous or non-hazardous. Where are these results presented?

FS REPORT

1. Page ES-9, Paragraph 1
a) In sentence 2, it is not clear what is meant by the inclusion of RAA 2 in this sentence: "although RAA 4 is estimated to be the lowest cost option it is, *along with RAA 2 (Source Removal and Off-Site Landfill Disposal)*, the alternative most likely to face objections from USEPA and NC DEHNR."
b) In sentence 4, I think you are talking about RAA 4 not RAA 2.
2. Page 1-4, Section 1.2.5, Paragraph 1
The last sentence refers to further investigation necessary to confirm the relationship between the odor at Site 35 and the water table fluctuation. If this issue is to be addressed in the full RI/FS, a reference to this fact should be included here.
3. Page 1-7, Section 1.2.6, Paragraphs 4 & 5
Page 6-29 of the RI report states that the ICR is 3×10^{-6} . Page 1-7 says 6×10^{-6} . Also, page 6-29 of the RI report states that the HI is 0.05. Page 1-7 says 0.006.
4. Page 2-3, Section 2.2, Paragraph 2
This paragraph discusses the reasons for classification of the soil as non-hazardous. What about the results of the TCLP/RCRA characteristics analyses? (See comment 26 of RI report).
5. Page 2-3, Section 2.3, Paragraph 1
Typo in last sentence, should be "3700 cubic yards..."
6. Page 2-8, Section 2.3, Paragraph 2
Typo in first sentence, should be "Based on the remediation..."
7. Page 3-1, Section 3.1, Paragraph 1
I believe that the fuel farm is scheduled to be dismantled in the near future. Inclusion of this fact (and the current schedule for action) would be appropriate here. If you are not aware of the details, we can get this info from Tom Morris - let me know if you need assistance in this. Also applies to Page 4-2, Section 4.1.2.1 and section 4.2 under Implementability sections.
8. Page 3-13, Section 3.3.5.1, Paragraph 2
Typo - "primarily" should not be capitalized.
9. Section 4.1

For each alternative involving excavation and off-site treatment/disposal, provisions for replacement of excavated soil with clean soil (to include both clean soil from the excavation and any additional soil supplied from off-site/elsewhere on base) should be included. Note that each section identified as "Excavation and Staging" or "Excavation, Staging, and Backfill Activities" (Sections 4.1.2.2, 4.1.3.2, 4.1.5.2) implies use of the clean soil as backfill, but these sections do not specifically address the backfill operation or the need to bring in additional clean soil to replace the removed contaminated soil.

10. Section 4.2

For each alternative involving excavation, the Implementability sections describe the staging area as likely being a plastic sheeting laid atop a flat soil surface. Since the Appendix calculations identify the probable use of the concrete pad at the former mess hall, it would be appropriate to mention this in the text.

11. Page 4-15, Section 4.2.4.2, Paragraph 3

This paragraph identifies some concerns associated with off-site disposal due to potential future liabilities. This is even more of an issue for the RAA-2 case where off-site disposal at a landfill is identified for all of the contaminated, untreated soil (for RAA-4 it is assumed that the soil will at least be partially treated by the aeration process). Section 4.2.2 (RAA-2) does not mention this issue - it would be appropriate to include mention of it. (While it is true that this is an issue for all off-site disposal/treatment options, the treatment options presumably carry lessened risk due to the fact that the soil is taken there to be treated as opposed to direct disposal.)

12. Page 5-3, Section 5.1.1.2, Short-Term Effectiveness paragraph

The paragraph indicates that the No Action option poses minimal risks to community or workers because not remedial activities are involved. While this is true based on the results of the risk assessment, the highway project will involve excavation that presumably would expose workers to the same VOC emissions that would occur during excavation activities identified under other remedial options later in this section. For this reason, it is not appropriate to exclude the No Action option from this scenario (i.e. compare this paragraph on page 5-3 with similar sections on page 5-5 for RAA-2).

13. Page 5-11, Section 5.1.4.2, Paragraph 1

Typo in last sentence - "...the remaining contaminated *soil* will need to be treated/disposed....".

14. Page 5-20, Table 5-6

a) Under Alternative 3, the Implementability line and the USEPA/State Acceptance lines both say "See Alternative 3". This is Alternative 3!

b) Related problems under Alternative 5 on the next page, where a references to Alternative 3 refer you back to Alternative 2, and a similar pattern exists for several line items for Alternative 6. Please be sure that the reference is appropriate to the technology and that there is only one layer of reference (i.e. don't send me from Alt. 6 to Alt 5 only to be sent to Alt 2!)

15. Page 5-21, Table 5-6

Under Alternative 4, for Overall Protection of HH&E line, typo - remove extraneous "not".

16. Page 5-23, Section 5.2.6

Typo in sentence 3 - " RAAs 4 and 6 involve on-site *treatment* which will be...". In sentence 4, clarify that the staging area applies to all 5 RAAs 2-6.

17. Page 5-23, Section 5.2.7

See comments 1a and 1b.

Comments to Draft Interim Remedial Action Remedial Investigation/Feasibility Study
Operable Unit No. 10, (Site 35 - Camp Geiger Area Fuel Farm)

Provided by: William Mullen
Technical Remedial Manager,
LANTDIV, NAVFACENGCOM

* handwritten notes by
K. Landman

Provided to: Ms. Katherine Landmen
Remedial Project Manager
LANTDIV, NAVFACENGCOM

Interim Remedial Action Remedial Investigation

ES-2

914, sentence 2

Sentence "Significant levels of fuel-related contaminants and TPH were not detected in these samples" should be reworded to "No significant levels of fuel-related contaminants and TPH were detected in surface soil or subsurface soil samples (if true) collected during the site investigation".

914 last sentence

Discussion of oil and grease sample results and possible natural sources of oil and grease should be enhanced so that both thoughts are connected and substantiated.

1-13

Additional hydrogeology information will be collected during the field work for OU-10 RI/FS. This information may provide definition of the confining unit and grain-size distribution of the sediments. The additional information should be included in later drafts of this report (if available).

4-1

Discussion in text and in Table 4-1 for compounds of concern analytical results is presented in $\mu\text{g}/\text{kg}$ while results presented in Figure 4-1 is in mg/kg . Please be consistent with data presentation or clearly note reason for changing scale.

What is source of the widespread distribution of Acetone in soil borings and surface soil samples? There is a later reference to possible lab or sampling contamination but this is not confirmed with results from lab blank. Please explain.

4-2

What is reason for very high minimum detection ranges for compounds of concern presented in Table 4-1?

Provide definition of U, J, UJ in notes for table.

4-10

Provide definition of L, R, U, UL, J, K in notes for table.

Comments to Draft Interim Remedial Action Remedial Investigation/Feasibility Study
Operable Unit No. 10, (Site 35 - Camp Geiger Area Fuel Farm)

- Discuss reasons for rejected and biased (low and high) sampling analysis results for Aluminium, Antimony, Beryllium, Chromium, Potassium, Selenium, Sodium, and Vanadium.
- 4-12 Discussion of naturally occurring compounds does not include any range of concentrations normally detected for naturally occurring compounds that are detected by the oil and grease analytical method.
- 4-15 Sampling results presented on Figure 4-2 for SB3005 indicate 3 duplicate samples for the 8-10' depth interval. TCL analytical results indicate that only 2 duplicate samples were collected at that depth and location. Please clarify.
- See K. Landman
Comment # 13*
- Also, link shown for one of those duplicates connects to results presented for BCSB03 (0-1'). Is this correct?
- 4-19 Depiction of well screen construction of MW-19 indicates that the water level has been above the screened interval for the two periods of measurement presented. Clearly this well would not be useful for analysis
- 5-2 I do not agree that compounds detected commonly in soils during this field event (acetone and bis(2-ethylhexyl)phthalate) should be disregarded as laboratory contamination, ***especially considering lab blanks do not show the presence of these compounds.*** Acetone is a naturally occurring compound and its detection, at low concentrations, may not necessarily represent a release. Please revise discussion accordingly.
- 5-10 Could those background samples be associated with some other site and therefore not representative of true background. If that is the case, eliminating oil and grease from the consideration as a compound of concern would not be appropriate
- Can we support conclusion on pg 5-10 with OFG data from a "background" sample for some other site similar to Brinson creek area?*
- 6-1 If acetone and phthalates were detected in samples and not in lab blank, how is it those compounds were not considered Compounds of Concern and evaluated for risk to human health and the environment?

Comments to Draft Interim Remedial Action Remedial Investigation/Feasibility Study
Operable Unit No. 10, (Site 35 - Camp Geiger Area Fuel Farm)

- ES-3 Can oil and grease be excluded from remediation if it is detected in background samples? Isn't it still above acceptable state criteria?
- ES-7 Statement that no action alternative will not provide a decrease in volume and toxicity over time does not correspond to natural biodegradation and attenuation which has been shown to occur. Granted this gradual decrease in concentration/toxicity would be slower than other RAAs, it would still occur and should be noted.
- 1-4 See 2nd comment on page 4-1 of the RI.
- 1-6 and 2-7 See comment to page 5-10 of the RI.
- 5-24 Ranking of RAA's 2, 3, and 5 do not take into account potential future liability as a PRP for disposal of soil into a landfill. This could be a significant cost consideration and might need to be included (even if an actual cost can't be quantified for the liability). The liability for RAA 3 and 5 would be less if the final soil disposition is on Marine or Navy property.
- Appendix B Actual method of disposal and or treatment is not clear on the contact form in some cases. ?

**Atlantic Division
Naval Facilities Engineering Command
Environmental Quality Division
FACSIMILE TRANSMISSION**

TOTAL # OF PAGES: 9

DATE: 06 May 1994

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[REDACTED]
CLEJ Sites 35 (OU#10)

Dan,

Attached are comments from Bill Mullen and myself on the Draft RI/FS. (No comments on the PRAP - hopefully we'll get that Monday..?) I made a few notes on the comments from Bill Mullen. He makes a few comments on areas that I believe we have discussed in detail and decided to proceed differently that he suggests. Perhaps his comments indicate that some further explanation could be made that could clarify the thought processes that went into the decisions (for those that were not involved in the whole process). I'm open to suggestions.

My comments, although long-winded are mostly just picky corrections/clarifications. A few items might warrant a phone call to clarify the issue for me. I am most concerned about the ongoing adjacent UST investigations and the Fuel Farm demolition schedule - I am waiting for clarification on these from Camp Lejeune, and I have already spoken to you about this. My main concern is that the information in the RI is accurate. As usual, don't waste your time with formal responses to my comments. Just call me to discuss as needed.

Patrick Watters did get his copies of the PRAP. I left Gena Townsend a message to check if she got hers but did not hear back from her today. I guess we'll assume that she did get them until we hear otherwise. Patrick tells me that he will likely not have comments for the Draft RI/FS until 5/20 (2 weeks from today!). He'll try to expedite this. I do not know Gena's status at this time, but I imagine that she has a similar backlog. I also have not rec'd comments from Camp Lejeune yet, and have not been able to get a commitment for a submission date. Also, I do expect some additional comments from Sherri Eng, LANTDIV chemist. These will probably be available next week.

Have a good weekend,

-Kate