



TETRA TECH

PITT-08-10-048

August 20, 2010

Project Number 112G02630

NAVFAC MID-ATLANTIC, Northeast IPT
Attn: Mr. Jim Gravette (Code OPTE3-1)
Bldg Z-144
9742 Maryland Avenue
Norfolk, Virginia 23511-3095

Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order WE57

Subject: Final Pre-Design Investigation Sampling and Analysis Plan and
Health and Safety Plan (HASP) for Soil at Lower Subbase
Naval Submarine Base-New London, Groton, Connecticut

Dear Mr. Gravette:

Please find enclosed two hard copies and two electronic copies (CDs) of the subject Sampling and Analysis Plan (SAP) and Health and Safety Plan (HASP) for your records. Hard copies and electronic copies of the documents were also distributed to the other members of the Naval Submarine Base – New London team, per the distribution list provided below, for their records.

To prepare the final SAP, changes were made to the draft final SAP, issued on July 27, 2009, to address comments received from the Environmental Protection Agency (EPA) on August 9, 2010. The changes were made in accordance with the attached August 11, 2010 response-to-comment document. The EPA concurred with the response-to-comment document via email on August 11, 2010. The Connecticut Department of Environmental Protection (CTDEP) did not provide additional comments on the draft final SAP and issued a concurrence email to that affect on August 4, 2010.

The primary focus of the field work associated with the SAP is to collect and analyze additional soil samples to address gaps in the soil database for Zones 1 through 7 at the Lower Subbase. Installation Restoration Program Sites 10, 11, 13, 17, 19, 21, 22, 24, and 25 are located in these zones. Tetra Tech will initiate the field work for this project on August 23, 2010. If you have any questions regarding the enclosed SAP, please contact me at (412) 921-8984.

Sincerely,

Corey A. Rich, P.E.
New London Base Coordinator/Project Manager

CAR/clm

Enclosure(s)/Attachment



TETRA TECH

- c: Ms. Kimberlee Keckler, EPA Region 1 (2 copies/2 CDs)
- Mr. Mark Lewis, CTDEP (1 copy/1 CD)
- Mr. Richard Conant, NSB-NLON (3 copies/3 CDs)
- Mr. Jon Tucker, NAVFAC Atlantic (1 CD)
- Mr. Peter Golonka, Gannett Fleming (2 copies/2 CDs)
- Mr. Garth Glenn, Tetra Tech-Norfolk (letter only)
- Mr. Glenn Wagner, Tetra Tech-PITT (1 copy/1 CD)
- Ms. Nina Balsamo, Tetra Tech-PITT (1 CD)
- Mr. Keith Simpson, Tetra Tech-PITT (1 copy/1 CD)
- Mr. Charlie Warino, Tetra Tech-PITT (1 copy/1 CD)
- Ms. Kate Zaleski, Katahdin (1 CD)
- Mr. Dave Dunlap, Test America (1 CD)
- CTO WE57 – File Copy (1 copy/1 CD)

**RESPONSES TO THE EPA AUGUST 9, 2010 COMMENTS
DRAFT FINAL SAMPLING AND ANALYSIS PLAN
FOR THE PRE-DESIGN INVESTIGATION FOR SOIL AT LOWER SUBBASE
NSB-NLON, GROTON, CONNECTICUT**

INITIAL ISSUE: AUGUST 11, 2010

GENERAL COMMENTS – Cover Letter

General Comment (GC) 1:

The footer CTO number was not updated beyond Worksheet #1.

Response: Agree. The footer on all of the Word document pages will be changed to say "CTOs WE24 and WE57".

GC2:

The revision number in the header was not updated beyond Worksheet #2.

Response: Agree. The draft sampling and analysis plan (SAP) was REV 0 and the draft final SAP was REV 1; therefore, all headers in the final SAP will be changed to REV 2.

GC3:

Owner number on the drawings does not match the revised CTO number in the text.

Response: Agree with clarification. The CTO number has changed throughout the course of the project, and the figures were initially prepared prior to work being conducted under CTO WE57. However, revising the CTO number on numerous figures would be an unnecessary expense that would not improve the technical quality of the SAP; therefore, no changes will be made.

GC4:

The drawing reveals that minor re-location of several sample points occurred. Is the relocation based on field inspection of the proposed sample locations?

Response: Sample locations appear to have shifted slightly in relation to buildings and utilities because an updated Base map was used in the draft final SAP; however, samples will be located as necessary in the field based on utility clearances. As presented in previous responses to comments, no borings will be installed inside Building 29 because the basement floor is below the water table; therefore two samples points were relocated in Zone 1. An additional sample point was added in Zone 5 to address CTDEP concerns regarding the former UST. Finally, based on a suggestion made at the June 17, 2010 meeting, an informal check was done to confirm that SPLP sample locations address previous significant TCLP lead results. Based on a review of previous results, one Zone 1 sample and one Zone 4 sample were moved closer to previous samples with high concentrations. Specific changes to sample point locations are as follows:

Zone 1:

- Z1PDI-005 – Relocated from inside Building 29 to south of Building 29.
- Z1PDI-009 – Previous analyses and location was to address PAHs at a location with high uncertainty of passing PAH criteria, and to address SPLP lead near 13MW4. Z1PDI-009 was moved closer to 13MW4 to address a previous 13MW4 TCLP result

- of 1.7 mg/L at 6 to 8 feet bgs (below mean high water).
- Z1-PDI-014 – Relocated from inside Building 29 to an unpaved area south of Building 29.

Zone 4

- Z4PDI-001 – For the draft final SAP, this sample was relocated closer to WE4A and SPLP lead was added at 0 to 2 feet and 4 to 5 feet to address a previous TCLP lead result at WE4A of 143 J mg/L at 0 to 2 feet bgs. Mass lead analysis will be added to Z4PDI-001 at 0 to 2 feet and 4 to 5 feet in the final SAP to address a mass lead result at WE4A of 10,600 J mg/kg at 0 to 2 feet bgs.

Zone 5

- Z5-PDI-005 – This new sample location was added to address a CTDEP comment on the former UST.

GC5:

In Worksheet #18, many of the samples to be collected from the 4 to 6 foot depth (see depth columns) have sample IDs ending with 0405. While a note is provided in the depth column, this could confuse field personnel and it is not obvious why the IDs don't match the depth interval. Please clarify or correct.

Response: Agree the sample IDs should match the sample depth. Depths of samples to address PMC were determined based on an estimate of depth to mean high water. Throughout Worksheet 18, discrepancies will be corrected so that sample IDs and depths match.

GC6:

In Worksheet #18, language has been added to the depth column for many samples that states: *Or deepest interval above saturated soil or deepest petroleum-stained unsaturated interval*. This language has been used even when no organic samples are planned for that sample interval. The assumption is that, for samples with organic analytes, the priority would be the deepest stained interval. Is that also the Navy's intent when no organic analytes are required?

Response: The change noted was made to address EPA comment SC14 from April 13, 2010. "Or deepest petroleum-stained unsaturated interval" will be deleted in sample locations that will not be analyzed for TPH.

SPECIFIC COMMENTS – ATTACHMENT A

SCA 1: p. 85, §17.2.1.3

Regarding the last sentence in the first paragraph, isn't Z3PDI-005 also west of the excavation wall?

Response: Agree. The sentence will be edited to note that Z3PDI-005 is also west of the excavation wall.

SCA2: p. 88, §17.2.4

This section refers to Appendix A-9. Although Appendix A-9 is provided in the Draft Final PDI SAP, it is not listed in the TOC.

Response: Agree. Appendix A-9 will be added to the Table of Contents.

SCA3: p. 114, WS18

Add rationale (6) because sample Z7PDI-SO-001-0002 also addresses PMC with SPLP analyses.

Response: Agree. Suggested change will be made.

SCA4: p. 115, WS18

Add rationale (6) because sample Z7PDI-SO-002-0002 also addresses PMC with SPLP analyses.

Response: Agree. Suggested change will be made.

SCA5: p. 119, WS18

Sample Z7PDI-SO-008-0506 will be collected just above saturated soil for PMC comparison and the rationale identifies the need to address PMC. Please add lead SPLP.

Response: Agree. Suggested change will be made.

SCA6: p. 120, WS18

Please add rationale (6) because sample Z7PDI-SO-010-0002 also addresses PMC with SPLP analyses.

Response: Agree. Suggested change will be made.

SCA7: p. 125, WS18

Sample Z7PDI-SO-017-0405 is in a potential hot spot where antimony was detected at 1,820 mg/Kg and lead was detected at 9,770 mg/Kg both at 14 to 16 feet bgs. Antimony is a listed analyte presumably to bound the vertical extent of antimony contamination as well as the stated goal to address PMC. Please also add lead and lead SPLP because there is uncertainty for lead at this location.

Response: Agree. Suggested change will be made.

SCA8: p. 127, WS18

Please correct the format for Note #11.

Response: Agree. The final SAP will be formatted after tracked changes have been

accepted. Formatting was not attempted on the tracked change document.

SCA9: p. 129, WS18

a) Regarding duplicate samples, five should be provided for PAHs (49 samples) and two provided for antimony SPLP (nineteen samples).

b) The number of sample locations for the various parameters have not changed even though additions were made to WS18. Some of the numbers shown are obsolete. Please correct all the numbers, including revisions to the QC sample numbers, with consideration to the comments made herein that impact the planned analyses.

Response:

a) Agree, five duplicates should be provided for a set of 49 samples and two duplicates should be provided for a set of 19 samples (Worksheet 20).

b) The number of samples listed for each sample location, zone, and grand total were updated on Worksheet 18 in the draft final SAP and are correct. After the additional analyses listed in this document are added to Worksheet 18, the total number of analyses for each analytical group will be recalculated to update Worksheet 20. The number of quality control samples will be updated on Worksheet 20 as necessary.

SCA10: p. 134, WS23

Please clarify why Test America is analyzing for mass antimony and lead, while Katahdin is apparently doing the same. WS30 lists only chromium for ICP analysis by Test America.

Response: Tables will be corrected to indicate that TestAmerica will analyze for only chromium.

SCA11: p. 160, WS30

Delete the footnote as it is now obsolete.

Response: Agree. The footnote will be deleted.

SCA12: p. 161, WS30

Delete this blank page.

Response: Agree. The final SAP will be formatted after tracked changes have been accepted. Formatting was not attempted on the tracked change document.

SCA13: Table 11-1

The response stated that TPH would be identified as a CT COC but not a CERCLA COC. That was not done.

Response: Agree. The footnote added to Table 10-1 stated that TPH was not identified as a CERCLA COC, but as a contaminant evaluated under CTDEP RSRs. This footnote will also be added to Table 11-1.

SCA14: Figure 10-12

It is not apparent why Z4PDI-007 should be placed in pavement when there is a grassy area immediately adjacent to it that could have been impacted by runoff. Samples are proposed for 0-2 and 2-4, so it would just be a matter of adding mass lead for the 2-4 interval. That would better characterize this area.

Response: Although it was stated in the previous RTC document that Z4PDI-007 would be moved to the adjacent grassy area, it was determined that the grassy areas west of former Building 35 are to be paved, therefore no change was made.

SCA15: Figure 17-14

a) The offset for Z1PDI-005 is not correct. It was moved but was incorrect before it was moved (see previous comments and RTCs). Please correct.

b) Z1PDI-014 is missing. Please add it.

Response:

a) Agree. The offset for Z1-PDI-005 on Figure 17-14 will be corrected for the current sampling location.

b) Agree, Z1PDI-014 will be added to Figure 17-14.

SCA16: Figure 17-20

Please include sample Z5PDI-005 that was added to this zone.

Response: Agree, sample Z5PDI-005 will be added to Figure 17-20. In addition, two tags that were added for the Zone 5 residential scenario in the draft final FS will be added to Figure 17-20.

SCA17: Table Chromium 1

This table is on page 376 of 1207. Rather than selecting three samples from one sample boring (Z7PDI-005), select sample Z7PDI017 at the 4-6 foot depth interval for better areal heterogeneity (this location had the greatest chromium concentration but it was at a depth of 14-16 feet bgs). (Z7PDI017 also had high antimony and lead.) Delete Z7PDI-005 at 0-2 foot interval, the lowest chromium concentration at that location.

Response: Although the sample from 20TB4 at 14 to 16 feet bgs had the highest concentration of total chromium, the concentration of chromium at 0 to 2 feet bgs was low; therefore, the nearest PDI location (4 to 6 foot sample at Z7-PDI017) was not initially selected. However, the suggested change will be made for better areal heterogeneity.

SCA18: Appendix B-1

The discussion of kriging was revised and more detail was added to make the process used more transparent. However, it is not apparent that a sensitivity analysis was conducted. What is the effect of a point value of four versus six, or eight versus six? What other parameters could significantly impact the kriging results for this project? Answers to these questions will have more value when more data is available to evaluate. As discussed previously, EPA expects the next round of kriging to include appropriate sensitivity analyses.

Response: The decision to use six points was based on professional judgment (number of data points, spatial variability of data, and minimize use of data points from a clean area to estimate a more contaminated area). Regarding the sensitivity analysis, the kriging map will certainly be different if the number of samples allowed for kriging is different and new data are added to the database. Using more points during kriging should result in a smoother map, but may not increase the accuracy of the map. Because a parameter sensitivity analysis will not provide an asymptotic behavior that can be used to determine the most appropriate number of points, it is unlikely that a sensitivity analysis would be valuable during the next round of kriging. No changes are recommended.