

N50092.AR.000285
JEB FORT STORY, VA
5090.3a

LETTER TRANSMITTING RESPONSE TO COMMENTS FOR FINAL WORKS PLAN FOR
REMEDIAL INVESTIGATIONS FORT STORY VA
12/20/1994
MALCOLM PIRNIE

December 20, 1994

Mr. Steve Cho
USAED - Baltimore
10 South Howard Street
Room 10040
Baltimore, MD 21203-1715

Re: Response to Comments - Final Work Plan
Fort Story, Virginia
Contract DACA31-94-D-0017
Delivery Order Nos. 17, 20 and 24

Dear Mr. Cho:

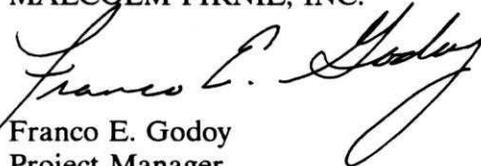
Malcolm Pirnie is pleased to provide to the U.S. Army Corps of Engineers (USACE), Baltimore District our **Response to Comments** for the Final Work Plan for Remedial Investigations at Fort Story, Virginia in support of the USACE's Installation Restoration Program.

A response to each comment is provided in Enclosure No. 1 to this letter. A copy of the comments sent by USACE and Fort Eustis are attached as Enclosure No. 2.

If you have any questions or comments concerning our responses, please contact Tony Pace or me. It has been a pleasure to provide this document to the USACE. We look forward to further discussions relative to this project.

Very truly yours,

MALCOLM PIRNIE, INC.



Franco E. Godoy
Project Manager

cl
0285-588-170

Enclosures

c: Dan Musel, Fort Eustis, w/encl

FGL1220.WPF/3.1

ENCLOSURE NO. 1

RESPONSE TO USACE AND FORT EUSTIS COMMENTS

RESPONSES TO COMMENTS BY DELLACAMERA (USACE)

Response to Comment No. 1. Further discussions on the use of the piezocone are provided in Section 3.2 (page 3-5) of the FIP.

Response to Comment No. 2. The statement that piezocone data will be used to determine sample depth has been deleted from Section 3.2 (page 3-6) of the FIP.

Response to Comment No. 3. Reference has been changed on page 3-6 of the FIP.

Response to Comment No. 4. First paragraph of Section 3.3 of the FIP explains the term "continued monitoring of groundwater" and states why these temporary well points are not being sampled.

Response to Comment No. 5. A discussion of Virginia well construction standards and further description of monitoring well installations are provided on page 3-8 of the FIP. Sediment trap has been removed from Figure 3-4.

Response to Comment No. 6. A discussion of well development requirements is provided on page 3-9 of the FIP. A statement indicating that sampling will begin no sooner than 14 days after development has been added on page 3-11 of the FIP.

Response to Comment No. 7. Reference changed on page 3-13 of the FIP.

Response to Comment No. 8. Symbols for DPWS and permanent wells were changed on all figures in the FIP, CDAP, and SSHP. The locations of new wells will not be selected until a review of on-site GC screening data is available.

Response to Comment No. 9. Groundwater column has been renamed DPT Groundwater for Table 4-1 of the FIP.

Response to Comment No. 10. The order and methodology of sample collection has been added to pages 4-1 and 4-2 of the FIP.

Response to Comment No. 11. This was explained in the response to Comment No. 4. These points will be installed at locations where DPT samples were collected. They will be used for future monitoring at the sites to determine migration and trends analysis.

Response to Comment No. 12. Symbols were revised for all figures in FIP.

Response to Comment No. 13. Same reason as for Comments No. 4 and 11.

Response to Comment No. 14. Same response as Comment No. 8 and 12.

Response to Comment No. 15. Number of samples in text and Table 2-1 were coordinated to show that three groundwater wells will be located at the site, one existing and two newly installed.

Response to Comment No. 16. There will be three well points installed at the Auto Craft site, however, their location will be selected in the field and therefore, they are not placed on Figure 4-3 in the FIP.

Response to Comment No. 17. Additional procedures were deleted from CDAP.

Response to Comment No. 18. Reference was changed on page I-3 of the CDAP.

Response to Comment No. 19. Same response as Comment No. 8.

Response to Comment No. 20. Same response as Comment No. 11.

Response to Comment No. 21. Reference was changed on page I-4 of the CDAP.

Response to Comment No. 22. Reference was changed on page I-5 of the CDAP.

Response to Comment No. 23. Reference was changed on page II-3 of the CDAP.

Response to Comment No. 24. Same response as Comment No. 13.

Response to Comment No. 25. Same response as Comment No. 8.

Response to Comment No. 26. Reference was changed on page II-4 of the CDAP.

Response to Comment No. 27. Reference was changed on page II-5 of the CDAP.

Response to Comment No. 28. Same response as Comment No. 14.

Response to Comment No. 29. Paragraph revised to show that groundwater depth is 8 to 10 feet below grade. Referenced has been changed on page III-2 of CDAP.

Response to Comment No. 30. Number of groundwater wells has been coordinated.

Response to Comment No. 31. Depth to groundwater has been coordinated as 8 to 10 feet below grade for Attachment III and referenced has been corrected.

Response to Comment No. 32. Reference has been corrected.

RESPONSES TO COMMENTS BY WARMINSKI (USACE)

Response to Comment No. 1. Fort Eustis reference has been changed to Fort Story on Employee Acknowledgements page of CDAP.

Response to Comment No. 2. Phrase has been changed on page 1-1 of CDAP.

Response to Comment No. 3. CLP methodologies have been changed to SW-846 methods throughout the CDAP.

Response to Comment No. 4. Only the primary (Savannah lab) and one alternative (Tallahassee lab) have been listed on page 3-5 of CDAP. Savannah Labs has been notified of their certification expiration and are seeking recertification.

Response to Comment No. 5. Decon procedures in page 4-1 of CDAP have been modified to include nitric acid rinse for metal sampling.

Response to Comment No. 6. Table 4-1 of CDAP has been revised to show nitric acid.

Response to Comment No. 7. Table 4-2 of CDAP has been revised to show septa cap use for TCL volatile sampling.

Response to Comment No. 8. Sentence added on page 4-2 of CDAP that says QC replicates/splits will be approximately 10 percent of the field samples.

Response to Comment No. 9. Trip blank discussion revised on page 4-3 of CDAP to more accurately state that a trip blank will be in each cooler containing aqueous VOC samples.

Response to Comment No. 10. Additional sampling procedures have been deleted from CDAP.

Response to Comment No. 11. Typo on page 5-1 of CDAP has been corrected.

Response to Comment No. 12. A sample COC is included in Appendix A of CDAP.

Response to Comment No. 13. Sentence on gel pack use added to page 5-5 of CDAP.

Response to Comment No. 14. Same response as Comment No. 3.

Response to Comment No. 15. Same response as Comment No. 3.

Response to Comment No. 16. Frequency of field duplicates changed to 10 percent on page 6-5 of CDAP.

Response to Comment No. 17. Laboratory control standard added to bullet No. 3 of Section 6.6.1 of CDAP. Cooler receipt form not used by laboratory.

Response to Comment No. 18. Term "validation" changed to "assessment/evaluation" on page 7-1 of CDAP.

Response to Comment No. 19. Copy of USACE Laboratory Validation Letter included in Appendix A of CDAP.

Response to Comment No. 20. Reference changed on pages I-3, II-3 and III-3 of CDAP.

Response to Comment No. 21. Discussions of GC screening are provided in Sections 2.2, 4.3.9, 6.1.2, 6.2.5, 6.3.3, 6.4.3, and 6.6.4 of the CDAP.

Response to Comment No. 22. CLP methods changed to SW-846 throughout FIP.

Response to Comment No. 23. Additional discussion of VOC sampling added to first paragraph on page 3-11 of FIP.

Response to Comment No. 24. Additional discussion of VOC sampling added to first paragraph on page 3-12 of FIP.

Response to Comment No. 25. Reference changed at top of page 3-13 of FIP.

Response to Comment No. 26. Same response as Comment No. 5.

Response to Comment No. 27. Rationale explained in second paragraph on page 4-3 of the FIP.

Response to Comment No. 28. Rationale explained in second paragraph on page 4-5 of the FIP.

Response to Comment No. 29. Rationale explained in last paragraph on page 4-6 of the FIP.

RESPONSES TO COMMENTS BY MARSH (USACE)

Response to Comment No. 1. Discussion on potable water expanded on page 1-2 of CDAP.

Response to Comment No. 2. NGVD of 1929 has been added to page 2-2 of CDAP.

Response to Comment No. 3. Statement added that USTs were removed in October 1994 has been added to page 2-7 of FIP.

Response to Comment No. 4. Discussion of trigger levels added to page 2-8 of FIP.

Response to Comment No. 5. Information unavailable to Malcolm Pirnie.

Response to Comment No. 6. Hydraulic conductivity corrected on page 2-13 of FIP.

Response to Comment No. 7. Discussion of piezocone was expanded in last paragraph of page 3-5 of FIP.

Response to Comment No. 8. This section is generic in nature and is not meant to describe site-specific activities. Site-specific data such as sample locations and numbers are provided in Section 4 of the FIP.

Response to Comment No. 9. Same response as Dellacamera Comment No. 4. See first paragraph in Section 3.3 of FIP for discussion.

Response to Comment No. 10. Reference to USACE well document included on page 3-8 of FIP. The need for groundwater remediation is unknown at this time with no indication that pumps are required in wells so 4-inch design not called for. Resources have been allocated based on labor and expense costs reflective of installation of 2-inch monitoring wells. Screen sizes of 0.010 inch are specified on page 3-8 of FIP.

Response to Comment No. 11. Same response as Comment No. 8.

Response to Comment No. 12. Length of screen identified as 10 feet long with 8 feet below water table interface on Figure 3-4 and throughout text in FIP. DPT sampling in deeper zones has been added to determine the vertical extent of contamination.

Response to Comment No. 13. Redox potential added to groundwater sampling sections of FIP.

Response to Comment No. 14. Monitoring parameters have been coordinated in Section 3.6 of FIP.

Response to Comment No. 15. Purge and development water and soil cuttings will be collected during the field investigations.

Response to Comment No. 16. PPE will be placed in plastic bags and discarded as normal refuse.

Response to Comment No. 17. Fort Story GIS unavailable. Horizontal locations will be based on permanent on-site structures.

Response to Comment No. 18. Discussion of survey procedures for surface water and sediment locations provided on page 3-15 of FIP.

Response to Comment No. 19. Groundwater flow directions have been put on all figures in FIP, CDAP and SSHP. Sample points will not be labeled with a sampling number in these plans. Sample numbers will be determined later. Rationale for layout discussed in Sections 4.2.1, 4.2.2, and 4.2.3 of FIP.

Response to Comment No. 20. Location of upgradient and downgradient points were revised, however, one upgradient point will be located at each of the four areas of concern for the FTA. DQO levels deleted from Table 4-1.

Response to Comment No. 21. The soil samples are already identified for each of the areas of concern for the FTA site as stated on pages 4-2 and 4-3 of the FIP.

Response to Comment No. 22. Deep DPT sampling will be conducted at each site to determine the vertical extent of contamination as discussed in Section 4.0 of the FIP. The last bullet on page 4-2 states that a 24-hour water level measurement study will be conducted to determine the tidal influences at each site. The first paragraph in Section 3.3 of the FIP discusses the purpose of the temporary points.

Response to Comment No. 23. Same response as Comment No. 19 for groundwater flow direction, grid pattern and sample point labelling. Text added to top of page 4-6 to state that the production well will be sampled.

Response to Comment No. 24. There is one current upgradient well for this site. MW-118 on Figure 4-2 of FIP is upgradient of the site. Table 4-1 has been revised to reflect this. DQO levels deleted from Table 4-1.

Response to Comment No. 25. First paragraph on page 3-12 of FIP has been revised to show that total inorganics are being collected also.

Response to Comment No. 26. No upgradient soil samples are being collected at the LARC site. Background soils data for the Fort Story installation will be available from other sampling at different sites and can be utilized for assessing impacts to soil at this site.

Response to Comment No. 27. The screen size has been modified to a 10 foot length. These points will be installed at locations where DPT samples were collected. They will be used for future monitoring at the sites to determine migration and trends analysis.

Response to Comment No. 28. See response to Comment No. 19.

Response to Comment No. 29. DQO levels deleted from Table 4-1.

Response to Comment No. 30. Same response as Comment No. 27.

Response to Comment No. 31. Each individual performing a specific task may have a log book such as the geologist installing wells while another individual who is sampling surface soil and sediment will maintain a log of their activities. The Daily Site Log Book will be used by the Field Manager to record activities performed on the site and other general activities. It's use is quite different that the log book used by field personnel.

Response to Comment No. 32. Changes made to Section 6.4 of FIP to reflect the turnover of data to the USACE at end of project.

Response to Comment No. 33. Figures in Appendix A are legible in final plans.

RESPONSES TO COMMENTS BY HESTER (USACE)

Response to Comment No. 1. Lamp changed to 11.7 eV for Photovac Microtip on page 10-2 of SSHP. Colorimetric tubes may be used if generic action level is exceeded to determine which chemicals are present and in what concentration. Chemical-specific action levels for organics have been added to Tables I-2, II-2 and III-2 in the SSHP. The generic action level of 5 ppm has been changed to 1 ppm in Table 10-2. The generic action level of 1 ppm above background will be used as the initial level for stopping of operations until further definitive analysis is conducted as with colorimetric tubes or an OVA. Table 10-2 has been revised to state that a more definitive analysis of the type and concentration of VOCs will be conducted prior to any upgrade in PPE.

Response to Comment No. 2. Same response as Comment No. 1.

Response to Comment No. 3. Paragraph 3 of Sections I-2.2.1, II-2.2.1 and III-2.2.1 has been added to discuss heavy metal exposures and dust suppression measures.

RESPONSES TO COMMENTS BY FORT EUSTIS

CDAP Comments:

Response to Comment No. 1. Plans are considered generic especially the SSHP and CDAP except for attachments which provide site-specific information. Site names are provided on inside covers rather than outside covers.

Response to Comment No. 2. Site numbers have been changed in all plans.

Response to Comment No. 3. All references to the LARC Maintenance Area has been changed to LARC 60 Maintenance Area in all plans.

Response to Comment Nos. 4 - 7. Table of Contents revisions made.

Response to Comment Nos. 8 and 9. Section numbers revised.

Response to Comment Nos. 10 - 16. Table of Contents revisions made.

Response to Comment No. 17. Reference to waste collection is provided in Section 3.9 of the FIP. No changes made to CDAP on this issue.

FIP Comments:

Response to Comment No. 1. Same response to CDAP Comment No. 1.

Response to Comment No. 2. Same response to CDAP Comment No. 2.

Response to Comment No. 3. Same response to CDAP Comment No. 3.

Response to Comment No. 4. Executive Summary was added to FIP.

Response to Comment No. 5. List of acronyms added to all plans.

Response to Comment No. 6. Table of Contents revision made.

Response to Comment No. 7. The Scopes of Services for the three sites have been included as Appendix A to the FIP.

Response to Comment Nos. 8 - 11. These tables have been pulled out from the text and given table numbers.

Thursday November 10, 1994

Page: 1

Auto Shop, LARC, & FTA RI Work Plans

File: P:\ARMS\FTSTORY\RIWP.DBF

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
1	DELLACAMERA	CENABEN-GG	FIP3-6	GEO	
2	DELLACAMERA	CENABEN-GG	FIP3-6	GEO	
3	DELLACAMERA	CENABEN-GG	FIP3-6	GEO	
4	DELLACAMERA	CENABEN-GG	FIP3-7	GEO	
5	DELLACAMERA	CENABEN-GG	FIP3-7	GEO	
6	DELLACAMERA	CENABEN-GG	FIP3-10	GEO	
7	DELLACAMERA	CENABEN-GG	FIP3-11	GEO	

3.2 Soil Borings: It is unclear how exactly the piezocone will be used in conjunction with the sampling devices. Will the piezocone be used at all of the subsurface boring and groundwater sampling locations? Please clarify.

3.2 Soil Borings (para 4): This section indicates that the piezocone will be used to determine soil sampling depths, however, section 4.0 Site-Specific Field Investigation provides specific sampling intervals. Please coordinate.

3.2 Soil Borings (para 8): Reference to procedure for sample homogenization in Section 3.1.1 is incorrect. Please correct.

3.3 Temporary Well Installation: Please clarify "continued monitoring of groundwater". According to section 4.0 Site-Specific Field Investigations, all of the temporary direct push well points are being installed but not sampled. Why install these wells if they are not going to be sampled?

3.4 Monitoring Well Installation: Monitoring well construction must comply with state (Virginia) requirements. Please include.

Please also include a description of the installation procedure to include drilling method, placement of filter pack, annular seal, etc.

Figure 3-4: Sediment traps should not be used with monitoring wells. Please delete.

3.6 Groundwater Sampling: Please include well development requirements. Also recommend that sampling begin no sooner than 14 days following completion of well development. This allows time for the new well to equilibrate with its new environment thereby increasing the probability of obtaining a sample which is representative of the host aquifer.

3.7 Surface Water and Sediment Sampling (para. 3): Reference to procedure for sample homogenization in Section 3.1.1 is incorrect. Please correct.

Auto Shop, LARC, & FTA RI Work Plans

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
8	DELLACAMERA	CENABEN-GG	FIG4-1	GEO	
9	DELLACAMERA	CENABEN-GG	FIP4-2	GEO	
10	DELLACAMERA	CENABEN-GG	FIP4-3	GEO	
11	DELLACAMERA	CENABEN-GG	FIP4-3	GEO	
12	DELLACAMERA	CENABEN-GG	FIG4-2	GEO	
13	DELLACAMERA	CENABEN-GG	FIP4-5	GEO	
14	DELLACAMERA	CENABEN-GG	FIG4-3	GEO	

FTAsite Map: Please use a unique symbol (different from the DPWS symbol) for the permanent monitoring wells. Also, please show the locations of the new monitoring wells (if those locations have been selected) and distinguish them on the figure from the existing wells.

Summary of Field Investigation Table: Column labeled Ground Water should be identified as DPT groundwater samples. Please revise.

Groundwater Samples: The work plan does not specify any order in which the work will be accomplished, but the results from the DPT groundwater sampling (in conjunction with previously gathered data) should be evaluated prior to determining need for, and location of, additional permanent monitoring wells. Please clarify the methodology to be used in order to characterize the groundwater situation at the site. Please also include an explanation of the order in which work will be performed in the field.

Groundwater Samples: What is the justification for installing 4 temporary direct push well points and then not sampling them. The work plan states that the well points "may" be used for "short-term groundwater monitoring". This statement is vague at best. If there is no sound reason for the existence of the well points, then they should not be installed. Please review and revise as necessary.

LARC Site Map: See comment #8.

Groundwater Samples: Please explain why the 3 new monitoring wells and 4 direct push well points are being installed but not sampled.

Auto Craft Site Map: Please use a unique symbol for monitoring wells and show the proposed locations of the new monitoring wells, if those locations have been selected.

Auto Shop, LARC, & FTA RI Work Plans

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
15	DELLACAMERA	CENABEN-GG	FIP4-6	GEO	
16	DELLACAMERA	CENABEN-GG	FIP4-7	GEO	
17	DELLACAMERA	CENABEN-GG	CDAP4-4	GEO	
18	DELLACAMERA	CENABEN-GG	I-3	GEO	
19	DELLACAMERA	CENABEN-GG	FIGI-2	GEO	
20	DELLACAMERA	CENABEN-GG	I-4	GEO	
21	DELLACAMERA	CENABEN-GG	I-4	GEO	
22	DELLACAMERA	CENABEN-GG	I-5	GEO	
23	DELLACAMERA	CENABEN-GG	II-3	GEO	

Groundwater Samples: There is a discrepancy between the number of permanent wells shown on the Summary of Field Investigation table, and the number of wells stated in the section on Groundwater Samples. The table indicated that there are a total of three wells and the text just indicates one existing well. Please coordinate.

Groundwater Samples: The text states there will be 3 temporary direct push well points, however, Figure 4-3 only shows the location of 2 well points. Please coordinate.

Additionally, see comment #11.

4.3 Sampling and Preservation Methods: This section contains a lot of procedures for sampling which will not be performed during the investigation of these three sites. Recommend these additional procedures be deleted.

I-2.2 Soil Samples: Reference in second paragraph to Section 3.3 is incorrect. Please correct.

FTA Site Map: See comment #8.

Groundwater Samples: See comment #11.

I-2.3 Sampling and Preservation Procedures: Reference in second paragraph to sample homogenization in Section 4.3.4.3 is incorrect. Please correct.

I-2.5 Filed Documentation: References to Section 5.4 and Section 4.7 are incorrect. Please correct.

Soil Samples: Reference in second paragraph to Section 3.3 is incorrect. Please correct.

Auto Shop, LARC, & FTA RI Work Plans

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
-----	------	--------	------------	------------	-----------

- | | | | | | |
|------------------------|---|------------|---|-----|--|
| 24 | DELLACAMERA
Groundwater Samples: | CENABEN-GG | II-3
See comment #13. | GEO | |
| 25 | DELLACAMERA
LARC Site Map: | CENABEN-GG | FIGII-2
See comment #8. | GEO | |
| 26 | DELLACAMERA
II-2.3 Sampling and Preservation Procedures: | CENABEN-GG | II-4
See comment #21. | GEO | |
| 27 | DELLACAMERA
II-2.5 Field Documentation: | CENABEN-GG | II-5
See comment #22. | GEO | |
| 28 | DELLACAMERA
Auto Craft Site Map: | CENABEN-GG | FIGIII-2
See comment #14. | GEO | |
| 29 | DELLACAMERA
Soil Samples: The second paragraph states that the water table interface is estimated to be 5 to 6 feet below ground surface, however, according to III-1.0, the groundwater depth is estimated at 8 to 10 feet. Please coordinate. | CENABEN-GG | III-3 | GEO | |
| Also, see comment #23. | | | | | |
| 30 | DELLACAMERA
Groundwater Samples: There is a discrepancy between the number of permanent groundwater monitoring wells in the Summary of Field Investigation table on page 4-6 of the Field Investigation Plan, and the number stated here in the text. Please coordinate. | CENABEN-GG | III-3 | GEO | |
| Also, see comment #16. | | | | | |
| 31 | DELLACAMERA
III-2.3 Sampling and Preservation Procedures: | CENABEN-GG | III-3
See comment #21 and comment #29. | GEO | |
| 32 | DELLACAMERA
III-2.5 Field Documentation: | CENABEN-GG | III-4
See comment #22. | GEO | |

RI for Fort Story, DRAFT CDAP and DRAFT FIP

File: K:\TECHDATA\ARMS\misc-mil\STORY1.DBF

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
1	WARMINSKI	NAB-EN-HT	-I-	CEM	PAR 2

The following comments pertain to the CHEMICAL DATA ACQUISITION PLAN (CDAP):

Employee Acknowledgements, 2nd paragraph, last line incorrectly lists Fort Eustis, which should be changed to Fort Story for this Work Plan.

2	WARMINSKI	NAB-EN-HT	1-1	CEM	SEC 1.1
---	-----------	-----------	-----	-----	---------

Purpose. In the second line of the first sentence, change the phrase "evaluation of data" to "evaluation of environmental samples."

3	WARMINSKI	NAB-EN-HT	2-2	CEM	SEC 2.2
---	-----------	-----------	-----	-----	---------

Site Data Quality Objectives. The 3rd sentence in this paragraph states that CLP methodologies will be used. This is not the preferred analytical methods to be used on USACE HTRW projects. Unless specifically mandated by EPA, the preferred analytical methods to use shall be from SW-846, Test Methods for Evaluating Solid Waste, 3rd Edition (Including all revisions and updates).

4	WARMINSKI	NAB-EN-HT	3-5	CEM	SEC 3.2
---	-----------	-----------	-----	-----	---------

Laboratory Qualifications. Instead of listing five additional laboratories that Savannah Laboratories & Environmental Services have, please list only one alternate laboratory which may receive samples if the laboratory located in Savannah, Georgia is not able to handle the workload. The USACE's validation shall be expiring on 21 December 1994 for the laboratory located in Savannah, Georgia. Please ensure this lab's validation is submitted for renewal as soon as possible to the USACE Missouri River Division, through the USACE Project Manger.

The Savannah Laboratories located in Mobile, Alabama and New Orleans, Louisiana are not on the list of USACE Validated Laboratories, therefore do not list them as such. Validation status is either pending or expired.

5	WARMINSKI	NAB-EN-HT	4-1	CEM	SEC 4.1
---	-----------	-----------	-----	-----	---------

Field Equipment, Containers And Supplies. The decontamination procedure listed in the bullet items does not specify a dilute Nitric Acid rinse when sampling for metals contaminants. This should be included in metals are a know or suspect contaminant which is being sampled and tested for.

6	WARMINSKI	NAB-EN-HT	NONE-LISTED	CEM	TABLE 4-1
---	-----------	-----------	-------------	-----	-----------

Field Equipment Requirements. In the listings for Decontamination Solutions, please list Hexane, and possibly Dilute Nitric Acid (if sampling for metals).

RI for Fort Story, DRAFT CDAP and DRAFT FIP

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
7	WARMINSKI	NAB-EN-HT	NONE-LISTED	CEM	TABLE 4-2
Sample Container, Preservation And Holding Time Requirements. The containers listed for TCL Volatiles, add to the 40ml glass vial entry that septa caps are to be used.					
8	WARMINSKI	NAB-EN-HT	4-2	CEM	4.2
General Information And Definitions/Quality Control (QC) Samples. Include a sentence at the end of this section stating QC replicates/splits shall be approximately 10% of the field samples.					
9	WARMINSKI	NAB-EN-HT	4-3	CEM	4.2
Trip Blank. State or make it clear that each cooler containing aqueous VOC samples for shipment to the laboratory will have a trip blank packed and sent with that cooler.					
10	WARMINSKI	NAB-EN-HT	4-19 TO 4-25	CEM	VARIOUS
From the Scope of Services and the Sampling Objectives at these various sites, it is my understanding that the following types of sampling are not planned for this project: Sewer Sampling (Section 4.3.8), Drum Sampling (Section 4.3.10), Wood Chip Sampling (Section 4.3.11), Wipe Sampling (Section 4.3.12), and Screened Auger Sampling (Section 4.3.14). Each of these sections should be deleted if those types of sampling activities will not be conducted.					
11	WARMINSKI	NAB-EN-HT	5-1	CEM	SEC 5.1
Overview. In the 3rd sentence, 4th line, change the typo error from "where mode..." to "which mode..."					
12	WARMINSKI	NAB-EN-HT	5-4	CEM	SEC 5.2.2
Chain-of-Custody Record. A sample copy of the COC should be provided in the appendix.					

DRAFT

Friday November 25, 1994
Last Sort Type = None

Page: 5

RI for Fort Story, DRAFT CDAP and DRAFT FIP

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
26	WARMINSKI	NAB-EN-HT	3-12	CEM	SEC 3.8
Decontamination Procedures. In the bullet items, add a dilute nitric acid rinse after the deionized water rinse when sampling for metal contaminants has occurred. Check on disposal requirements for methanol, it may have to be treated as a listed hazardous waste.					
27	WARMINSKI	NAB-EN-HT	4-2	CEM	SEC 4.2.1
Firefighter Training Area (Site 4). First paragraph on this page. Why is TAL analysis only being conducted on 20% of the soil and groundwater samples? Which ones will be chosen for TAL analysis? Explain your rationale.					
28	WARMINSKI	NAB-EN-HT	4-4	CEM	SEC 4.2.2
LARC Maintenance Area (Site 6). First paragraph on p. 4-4. See comment No. 27					
29	WARMINSKI	NAB-EN-HT	4-6	CEM	SEC 4.2.3
Auto Craft Building Area (Site 7). First paragraph on p 4-6, see comment No. 27.					
1	MARSH	NAB-EN-HT	2-1	ENV	2.1.1
Since you have started talking about the potable water supply you should expand upon the effect (or lack of) the installation contamination has on it.					
2	MARSH	NAB-EN-HT	2-2	ENV	2.1.2
Specify NGVD 29 or 83.					
3	MARSH	NAB-EN-HT	2-7	ENV	2.4.1
Executive Summary- The Underground Fuel Storage Tanks are mentioned in this section, however, nothing regarding what actions were taken. Included what action swere taken					
4	MARSH	NAB-EN-HT	2-8 & 2-9	ENV	2.4.1
Several of the sections on this page mention "trigger actions", however, there is no mention as to what the levels are, or which agency limits are being considered (EPA, VADEQ, etc.). Please specify.					
5	MARSH	NAB-EN-HT	2-10	ENV	2.4.1
Fifth bullet- Indicat how the recovery trench is performing.					

DRAFT

Friday November 25, 1994
Last Sort Type = None

Page: 6

RI for Fort Story, DRAFT CDAP and DRAFT FIP

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
6	MARSH	NAB-EN-HT	2-13	ENV	3.6
Second paragraph- This section indicates a hydraulic conductivity of approximately 8.2 centimeters per second, this is much greater than previously stated. Coordinate.					
7	MARSH	NAB-EN-HT	3-5	ENV	3.2
Third paragraph, fourth sentence- This sentence appears to be a duplication of effort and contradicts what was previously stated. Coordinate.					
8	MARSH	NAB-EN-HT	3-6	ENV	3.2
Fisrt paragraph- There needs to be more quantative and definative information on location, number and depth of samples.					
9	MARSH	NAB-EN-HT	3-7	ENV	3.3
Explain why the temporary well are going to be installed. They appear to be unnecessary and can be deleted.					
10	MARSH	NAB-EN-HT	3-8	ENV	3.4
1. Include US Army Corps of Engineers Engineering and Design, Monitoring Well Installation at Hazardous and Toxic Waste Sites EM 1110-7-XX (FR) as guidance.					
2. Recommend installing 4-inch wells if pumps are to be installed later from sampling or remediation.					
3. Specify 0.010 or 0.0020 inch screens.					
11	MARSH	NAB-EN-HT	3-8	ENV	3.5
There needs to be some estimated quantity of samples to be collected. The way it is written is to general.					
12	MARSH	NAB-EN-HT	FIGURE 3-4	ENV	
1. Identify the length of screen below the water table.					
2. If DNAPLs are a contaminant of concern this well will not sufficiently characterize the plume due to the fact that they are "sinkers". Coordinate.					
13	MARSH	NAB-EN-HT	3-9	ENV	3.6
Recommend including Redox (Eh-1) potential if possible.					

DRAFT

Friday November 25, 1994
Last Sort Type = None

Page: 7

RI for Fort Story, DRAFT CDAP and DRAFT FIP

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
-----	------	--------	------------	------------	-----------

14	MARSH	NAB-EN-HT	3-10	ENV	3.6
----	-------	-----------	------	-----	-----

There are several discrepancies regarding monitoring parameters in this section. Coordinate.

15	MARSH	NAB-EN-HT	3-12	ENV	3.9
----	-------	-----------	------	-----	-----

All investigation derived waste (IDW) is to be handled on, unless there is specific guidance from the State/EPA directing otherwise. We do not want to containerize IDW unless absolutely necessary.

16	MARSH	NAB-EN-HT	3-13	ENV	3.9
----	-------	-----------	------	-----	-----

Similar to the above comment, we do not want to containerize unless necessary. PPE and other disposable equipment will not be placed in drums, but will be placed in plastic trash bags and handled as solid waste in the installation's dumpster.

17	MARSH	NAB-EN-HT	3-13	ENV	3.10
----	-------	-----------	------	-----	------

What does the sentence "The Fort Story GIS will be used if available." mean. Either it is available or it isn't.

18	MARSH	NAB-EN-HT	3-14	ENV	3.10
----	-------	-----------	------	-----	------

How will the locations of sediment and surface water be determined? Specify.

19	MARSH	NAB-EN-HT	4.2.1	- ENV	FIG 4-1
----	-------	-----------	-------	-------	---------

1. Indicate the direction of groundwater flow.

2. Identify/label all elements.

3. Based on the data provided (especially Appendix A) it is not very clear the rationale for the layout. Clarify.

20	MARSH	NAB-EN-HT	4-2	ENV	TABLE
----	-------	-----------	-----	-----	-------

1. The number of upgradient groundwater samples seems quite high, they could be better served as downgradient samples.

2. The DQO Level specified (III) conflicts with 3.1.1. Coordinate.

21	MARSH	NAB-EN-HT	4-2	ENV	PARA 2
----	-------	-----------	-----	-----	--------

Soil Samples- Identify which samples will be which (ie., FTP, northern, solvent).

DRAFT

Friday November 25, 1994
Last Sort Type = None

Page: 8

RI for Fort Story, DRAFT CDAP and DRAFT FIP

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
22	MARSH	NAB-EN-HT	4-3	ENV	PARA 1

Groundwater- 1. Since DNAPLs are contaminants of concern, collecting samples from just the upper 5 feet of the aquifer will not be adequate to characterize the plume. Coordinate.

2. Has the tidal influence been considered? There has been no mention of it to this point.

3. The installation of temporary wells seems unnecessary. Justify why they are needed, or delete them.

23	MARSH	NAB-EN-HT	FIGURE 4-2	ENV	
----	-------	-----------	------------	-----	--

1. Indicate the direction of groundwater flow.

2. Label/indentify all elements.

The grid pattern selected appears to duplicate JMM's. This doesn't appear to meet one of the objectives of this investigation, which is to identify the horizontal and vertical extent of contamination. JUstify the selected pattern.

4. Has the existing production well been sampled with regards to the contamination? If not has it been considered?

24	MARSH	NAB-EN-HT	4-4	ENV	TABLE
----	-------	-----------	-----	-----	-------

1. Indicate why there are no upgradient samples.

2. The DQO levels conflict with 3.1.1. Coordinate.

25	MARSH	NAB-EN-HT	4-4	ENV	PARA 1
----	-------	-----------	-----	-----	--------

On page 3-10 it indicates that samples are being filtered, however, this section indicates that both total and dissolved compounds are going to be analyzed. Coordinate.

26	MARSH	NAB-EN-HT	4-4	ENV	PARA 2
----	-------	-----------	-----	-----	--------

Soil samples- This section indicates that one upgradient sample will be collected, however, the summary table above indicates that no upgradient samples will be collected. Coordinate.

DRAFT

Friday November 25, 1994
Last Sort Type = None

Page: 9

RI for Fort Story, DRAFT CDAP and DRAFT FIP

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
27	MARSH	NAB-EN-HT	4-5	ENV	PARA 2
Groundwater Samples- 1. This section indicates that a 7' screen will be installed. Isn't this a bit unusual?					
2. This section indicates that the new wells will not be sampled as part of this effort. Is this correct? If so, it should be changed so that they are sampled.					
28	MARSH	NAB-EN-HT	FIGURE 4-3	ENV	
1. Inducate the direction of GW flow.					
2. Identify/ label all points.					
29	MARSH	NAB-EN-HT	4-6	ENV	TABLE
The DQO level conflicts with 3.1.1 (page 3-2). Coordinate.					
30	MARSH	NAB-EN-HT	4-7	ENV	
Justify why it is necessary to install temporary wells when permanent wells are going to be installed.					
31	MARSH	NAB-EN-HT	6-2	ENV	6.3
How is the field book any different than the daily site log book. There should only be one log book per site to eliminate confusion and "missing" data.					
32	MARSH	NAB-EN-HT	6-2	ENV	6.4
This paragraph is incorrect. At the completion of the project all documentation shall be turn over to the US Army Corps of Engineer project manager.					
33	MARSH	NAB-EN-HT	APPENDIX -A	ENV	
All figures in this appendix are extremely difficult to read. Please correct.					
34	MARSH	NAB-EN-HT	-	ENV	
The Remedial Investigation and Design POC for the environmental engineering comments is Russell Marsh at (410) 962-2227.					

RI for Fort Story, DRAFT CDAP and DRAFT FIP

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
20	WARMINSKI	NAB-EN-HT	ATCH I-III	CEM	VARIOUS
21	WARMINSKI	NAB-EN-HT	ALL-	CEM	SEC 4.0
22	WARMINSKI	NAB-EN-HT	3-2	CEM	SEC 3.1.1
23	WARMINSKI	NAB-EN-HT	3-9	CEM	SEC 3.6
24	WARMINSKI	NAB-EN-HT	3-11	CEM	SEC 3.6
25	WARMINSKI	NAB-EN-HT	3-11	CEM	SEC 3.7

On pages I-3, II-3, and III-3, in the paragraph with the heading "Soil Samples," Section 3.3 is referenced. The CDAP does not have a Section 3.3, please list the correct section.

On-Site Portable GC Analysis. The CDAP does not address the use of a Portable Gas Chromatograph (GC) for on-site sampling and analysis and associated QC performed with the instrument. In the Field Investigation Plan, Section 3.1.1 addresses the use of On-Site Portable GC Analysis. The use of this instrument should be detailed in the following sections of the CDAP: Section 2.2, Site Data Quality Objectives; Section 4.0, Field Activities; and Section 6.3, Calibration Procedures And Frequency. Discuss how the data retrieved from the field GC will be used for collection of other environmental sampling media and their locations.

The following comments pertain to the FIELD INVESTIGATION PLAN:

Site Data Quality Objectives. The 1st paragraph specifies that CLP methodologies will be used. Under the heading "Off-site Laboratory Analysis," the paragraph states analytical methods will follow the CLP Statement of Work. This is not the preferred methodologies to use on the project. See comment No. 3.

Groundwater Sampling. Under DPT Procedures, 2nd paragraph, 3rd sentence. Also state the 40ml vials are to be filled completely to the top, no air gaps or bubbles are to be present. The vial should contain acid preservatives for Aqueous Volatile sampling.

Monitoring Wells/Temporary DPT Wells subparagraph. At end of this section (at the top of p. 3-11) specify that acid preservative is to be added to the sample container after transferring the sample to the container.

Surface Water And Sediment Sampling. End of 3rd paragraph. The wrong Section is referenced. Change Section 3.1.1 to Section 3.5.

RI for Fort Story, DRAFT CDAP and DRAFT FIP

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
13	WARMINSKI	NAB-EN-HT	5-6	CEM	SEC 5.3
Sample Shipment. The bullet at the top of this page, if gel packs will be used always include some ice in the cooler, unless the sample bottles have been pre-chilled.					
In the paragraph of the middle of the page which discusses QA sample shipments to ACNED laboratory, include a statement that any samples being shipped to ACNED laboratory shall have written on the top of the Chain-of-Custody Form the ACNED laboratory assigned Project Identification Number. This ACNED Project Number should be available from the USACE Project Manager (if not yet received).					
14	WARMINSKI	NAB-EN-HT	6-1	CEM	SEC 6.1
Analytical Methods. The primary and preferred analytical methods to be used on the project shall be from SW-846, Test Methods for Evaluating Solid Waste, 3rd Edition. Not CLP Methods.					
15	WARMINSKI	NAB-EN-HT	NONE-LISTED	CEM	TABLE 6-1
Analytical Methods. Change the methods to be used for analysis to the following: TAL Metals, 6010 and appropriate 7000 series; TAL Cyanide, 9010 or 335.2, 335.1 from EPA Methods for Chemical Analysis of Water and Wastes; TCL Volatiles, 8240 or 8260; TCL Semivolatiles, 8270. If any other parameters will be added to this table, list the appropriate analytical method from the SW-846 manual.					
16	WARMINSKI	NAB-EN-HT	6-4	CEM	SEC 6.4
Internal Quality Control Checks. In Section 6.4.1 (Field Quality Control) change the frequency of the Field Duplicate Sample to 10%.					
17	WARMINSKI	NAB-EN-HT	6-5	CEM	SEC 6.6
Data Analysis And Reporting. In section 6.6.1 (Reporting), paragraph number 3, include Laboratory Control Standard (LCS) ran with each sample batch. In paragraph number 4, include also copies of Cooler (or Sample) Receipt Form (which document the condition of the samples when received at the contract laboratory), if this is used at the laboratory.					
18	WARMINSKI	NAB-EN-HT	7-1	CEM	SEC 7.2
Data Report To The Quality Assurance Laboratory. In the first sentence, change the term data "validation" to data "assessment/evaluation."					
19	WARMINSKI	NAB-EN-HT	NONE-LISTED	CEM	APPEN A
Laboratory Procedures. Include a copy of the USACE Laboratory Validation letter (as stated in paragraph 3.2).					

FTA, LARC 60 & Auto Craft Shop RIs

File: K:\TECHDATA\ARMS\mil\FTSTORY.DBF

Num	Name	Office	Page/Sheet	Discipline	Rm/Detail
1	HESTER	HTRW-RID	ATTACH -I	SAF	TABLE1-2
a. Justify use of 10.8 eV lamp for photoionization detection as described in the GSSHP Pg 10-2 Paragraph 10.3. Two contaminants, ie 1,1, dichloroethane and 1,1,1 trichloroethane, have ionization potentials which exceed 10.8 eV. How will these contaminants be monitored for? Of particular concern is that both these contaminants have low exposure limits. Recommend specifying a 11.4 eV lamp. Colorimetric indicator tubes, if available, are also recommended for specific contaminant identification.					
b. Include and justify in each attachment specific action levels. Four out of five of the organic contaminants listed in the hazard assessment have very low PELs (<5ppm). The action levels listed in the generic portion of the plan do not necessarily apply.					
c. Use of organic vapor respirators for the upgrade of personal protective equipment is not recommended since three of the four most toxic site contaminants listed have poor warning properties, i.e. the odor thresholds exceed the permissible exposure limits. Please include statement to this effect.					
2	HESTER	HTRW-RID	ATTACH -II	SAF	TABLEII-2
See comments 1. b and c.					
3	HESTER	HTRW-RID	ALL ATTACH-	SAF	
Include discussion of potential exposure to heavy metal laden dusts. Include monitoring procedures, if any, action levels, and dust suppression measures.					
4	HESTER	HTRW-RID	GENERAL-	SAF	
Point of contact for these comments is Ms. Gladys Hester, (410) 962-2217.					

REVIEW COMMENTS

DOCUMENT:	Draft - Field Investigation Plan / Remedial Investigation For Fort Story, Virginia		
PREPARED BY:	Malcolm Pirnie	DATE OF DOCUMENT:	October 1994
PROJECT:	RMIS No's. FTSTY-04, FTSTY-06, FTSTY-07	1383 NUMBER:	STOS930001 STOS930004 STOS930006
REVIEWED BY:	Dwight Hunt Dan Musel	DATE OF REVIEW:	3 November 1994

NO.	SECTION	PAGE	PARA.	COMMENTS
1				Cover should list sites studied and identify these sites by corresponding RMIS Nos. - Fire Training Area (FTSTY-04), LARC 60 Maintenance Area (FTSTY-06), & Auto Craft Shop (FTSTY-07)
2				Inside cover and throughout document should identify sites by RMIS Nos., not site nos.
3				Inside cover should identify LARC Maintenance Area as LARC 60 Maintenance Area.
4				Add an Executive Summary
5				Add a list of acronym
6	Table of Contents	i		Under Sec. 6.5 - Reporting is on pg. 6-3 not 6.2
7	1.2	1-1	1	Include the Scope of Services as an Appendix.
8	2	2-11	Table	Need to give this table a no. and identify in LIST OF TABLES pg. ii
9	4	4-2	Table	Need to give this table a no. and identify in LIST OF TABLES pg. ii
10	4	4-4	Table	Need to give this table a no. and identify in LIST OF TABLES pg. ii
11	4	4-6	Table	Need to give this table a no. and identify in LIST OF TABLES pg. ii

REVIEW COMMENTS

DOCUMENT: Draft - Chem. Data Acquisition Plan / Remedial Investigation For Fort Story, Va.				
PREPARED BY: Malcolm Pirnie			DATE OF DOCUMENT: October 1994	
PROJECT: RMIS No's. FTSTY-04, FTSTY-06, & FTSTY-07			1383 NUMBER: STOS930001 STOS930004 STOS930006	
REVIEWED BY: Dwight Hunt			DATE OF REVIEW: 8 November 1994	
NO.	SECTION	PAGE	PARA.	COMMENTS
1				Cover should list sites studied and identify these sites by corresponding RMIS Nos. - Fire Training Area (FTSTY-04), LARC 60 Maintenance Area (FTSTY-06), & Auto Craft Shop (FTSTY-07)
2				Inside cover and throughout documents should identify sites by RMIS Nos., not site nos.
3				Inside cover should identify LARC Maintenance Area as LARC 60 Maintenance Area.
4	Table of Contents	ii		Under List of Figures, Fort Story Location Map follows page 2-1 not 1-1 as noted.
5	Table of Contents	ii		Under List of Figures, FTA Site Map follows page 1-3 not 1-2 as noted.
6	Table of Contents	ii		Under List of Figures, LARC Site Map follows page 11-3 not 11-2 as noted.
7	Table of Contents	ii		Break out contents one step further, ie. under each section such as 4.3 please list 4.3.1 and so on. Not necessary to break out further.
8	4.3.15	4-25		ID for Sampling Equipment should be 4.3.15.1 not 4.13.15.1
9	4.3.15	4-26		ID for Sampling Procedures should be 4.3.15.2 not 4.13.15.2
10	ATCH I FTA	i		Under List of Tables, FTA Sample Summary follows page 1-4 not 1-3 as noted.
11	ATCH I FTA	i		Under List of Figures, FTA Site Map follows page 1-3 not 1-2 as noted.
12	ATCH II LARC 60	i		Under List of Tables and List of Figures, all descriptions should be LARC 60 not FTA as noted.
13	ATCH II LARC 60	i		Under List of Tables, LARC 60 Sample Summary follows page 11-4 not 11-3 as noted.
14	ATCH II LARC 60	i		Under List of Figures, LARC 60 Site Map follows page 11-3 not 11-2 as noted.
15	ATCH III AUTO CRAFT	i		Under List of Tables and List of Figures, all descriptions should be Auto Craft not FTA as noted.
16	ATCH III AUTO CRAFT	i		Under List of Tables, Auto Craft Sample Summary follows page 111-4 not 111-3 as noted.
17	Sampling Procedure			All sections referring to sampling procedures should state that all Investigative Derived Waste (IDW) will be placed in containers approved for that particular waste, properly labeled and taken to the Fort Story Hazardous Waste Facility for disposal.