TETRA TECH

PITT-12-7-046

December 19, 2007

Project No. 112G0109

Mr. Howard Hickey
NAVFAC MW
201 Decatur Avenue
Building 1A, Code EV
Great Lakes, Illinois 60088

Subject: CLEAN Contract N62467-04-D-0055
Contract Task Order No. 0467

RE: ***Final***
Responses to United States Environmental Protection Agency (EPA) Comments Dated November 9, 2007 on Quality Assurance Project Plan (QAPP) Addendum No. 4 for Interim Measures at Solid Waste Management Unit (SWMU) 9 (Pesticide Control / R-150 Area)

Dear Mr. Hickey:

Enclosed are the subject responses to EPA's November 9, 2007 that incorporate Navy comments that were received via e-mail on December 13, 2007. To facilitate the submittal process, an electronic copy of the responses will be e-mailed to you.

Please contact me at (412) 921-8308 (e-mail Ralph.Basinski@TetraTech.com) or Valerie Plachy at (412) 921-8389 (e-mail Valerie.Plachy@TetraTech.com) regarding any questions you may have to the information provided.

Sincerely,

Ralph R. Basinski
Task Order Manager

VJP:RRB/mlg
Enclosure

cc: Mr. Tom Brent, NSWC Crane (letter and enclosure)
Ms. Lee Anne Rapp, NAVFAC Atlantic (PDF copy of letter via e-mail)
Ms. Bonnie Capito, NAVFAC Atlantic (PDF copy of letter via e-mail)
Mr. Jim Goerdt, Tetra Tech (letter and enclosure)
Mr. Todd Carmichael, NWRS (letter and enclosure)
Mr. John Trepanowski, Tetra Tech (letter and enclosure)
Mr. Kim Turnbull, Tetra Tech (letter and enclosure)
Mr. Garth Glenn, Tetra Tech (letter only)
Mr. Tim Smith, Tetra Tech (letter only)
Ms. Valerie Plachy, Tetra Tech (letter only)
Project File – CTO 0467

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# ENCLOSURE 1

# RESPONSE TO USEPA COMMENTS DATED NOVEMBER 9, 2007 (E-MAIL) ON DRAFT QAPP ADDENDUM NO. 4 FOR SWMU 9 – PESTICIDE CONTROL AREA

December 19, 2007

**RESPONSE TO USEPA COMMENTS DATED NOVEMBER 9 AND 11, 2007**
**RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) ADDENDUM NO. 4**
**TO THE QUALITY ASSURANCE PROJECT PLAN (QAPP)**
**FOR SWMUS 8, 15, 18, 19, 20 AND THE OLD GUN TUB STORAGE LOT**
**FOR INTERIM MEASURES AT SWMU 7 (OLD RIFLE RANGE), SWMU 8 (BUILDING 106 POND), SWMU 13 (MINE FILL B), SWMU 17 (PCB BURIAL/POLE YARD), AND SWMU 9 (PESTICIDE CONTROL AREA)**
**NSWC CRANE**
**CRANE, INDIANA**

EPA comments are shown in bold font. Navy responses to each comment are shown in regular font. Text changes to the QAPP are shown in italic font enclosed in quotation marks within the response.

**EPA-1(11-09-07). Generally this QAPP document is a little confusing as to when NWRS collects samples vs. TetraTech's responsibilities. However my understanding is that NWRS is handling all field operations regarding contamination samples and clean fill samples, and that all of NWRS's samples will be delivered to STAT, and that TetraTech's confirmation samples will only be sent to Laucks. I'm not suggesting the necessity of any textual changes here, unless my understanding is incorrect (but see comment no. 2, below).**

Response to EPA-1(11-09-07): Correct, the EMAC (NWRS) will collect samples for waste characterization of backfill (i.e., "clean fill"), and Tetra Tech will collect confirmation samples. NWRS collected samples will be analyzed by STAT Analysis Laboratory and the Tetra Tech confirmation samples will by analyzed by Laucks Laboratory, Inc.

No change has been made to the SWMU 9 QAPP Addendum No. 4 in response to this comment.

**EPA-2(11-09-07). On pp. 1-4, and 1-5 (see notes at end of table), there are references to herbicides analysis under confirmation sampling. However, later portions of the QA document (e.g. Tables 3-3 to 3-5) imply that herbicides testing will only be performed by STAT as part of waste and clean fill testing.**

Response to EPA-2(11-09-07): Herbicide sampling will not be conducted because significant concentrations of herbicides have not been detected. For clarification, the 1st sentence in the 1st paragraph of Section 1.2.1, Subsection Confirmation Sampling has been modified to eliminate the reference to herbicide sampling as follows:

> *"Following soil excavation, samples will be collected from the soil remaining on the excavation floors and sidewalls to verify that residual PCB, DRO, and/or pesticide concentrations in the exposed soils are acceptable."*

Additionally, the following changes have been made:

"Herbicides" has been removed from the table within the text in last paragraph of Section 1.2.1. The 1st sentence in the 1st paragraph of Section 1.2.1 Subsection, Confirmation Sampling; has been revised as follows:

> *"Following soil excavation, samples will be collected from the soil remaining on the excavation floors and sidewalls to verify that residual PCB, pesticide, and DRO concentrations in the exposed soils are acceptable."*

Finally, Laucks Laboratory SOP LTL-3011 (Extraction Method for Chlorinated Herbicides in Soils) has been deleted because it is not relevant to this project.

**EPA-2(11-09-07) (continued). Referring to the last paragraph of the 'Confirmation Sampling' section, what is Tetra Tech's criteria to determine whether sampling below decon pads, storage areas, and temporary roads is needed?**

Response to EPA-2(11-09-07) (continued): Sampling will always take place at the decon pads, storage areas, and temporary roads. The 1st sentence in the last paragraph of Section 1.2.1, Subsection Confirmation Sampling has been revised as follows:

> *"Following completion of soil removal, Tetra Tech will also collect samples from beneath Environmental Multi-Award Contractor (EMAC) North Wind Remediation Services, Inc. (NWRS) support facilities (decontamination pads, materials storage areas, and temporary access roads), to verify that surface soils below these facilities were not inadvertently contaminated during remediation activities."*

**EPA-3(11-09-07). Rationale for selection of the few compounds mentioned in the table on pp. 1-4 and 1-5 should be at least incorporated by reference.**

Response to EPA-3(11-09-07): The 6th paragraph of Section 1.2.1 has been revised as follows:

> *"The following is a listing of chemicals of concern (COCs) as identified in the RFI Report that are present at each of the three excavation areas."*

**EPA-3(11-09-07) (continued). It seems though that the actual chemicals to be reported by the laboratory are those indicated in Table 3-2, which is a more expansive list than the COC list. How does the Navy plan to use the information on the chemicals reported by the lab beyond those listed as COCs?**

Response to EPA-3(11-09-07) (continued): The list of pesticides in Table 3-2 have been modified to reflect only those pesticides identified as COCs. The revised Table 3-2 is presented in Attachment 1 to this comment response document.

**EPA-4(11-09-07). Typo on p. 1-6.... see "building 50" in last line of 3rd par., which should perhaps be 'building 150.'**

Response to EPA-4(11-09-07): Agreed. This typographical error has been corrected.

**EPA-5(11-09-07). In figure 2-1, the reference to Project QA Advisor Ed Sedlmyer in the bottom right of the figure should probably be changed to Kelly Carper, per page 2-7 of the QA document. (Sedlmyer's duties are already accounted for in another portion of the diagram.)**

Response to EPA-5(11-09-07): Figure 2-1 has been updated to reflect Kelly Carper as the Project QA Advisor.

**EPA-6(11-09-07). Section 3.1, 1st par. indicates how the SWMU 9 QA document is linked to a former approved QAPP for SWMUs 8 and 15. We are unclear as to how a QAPP for another SWMU became 'parent' to an addendum for a completely different SWMU.**

Response to EPA-6(11-09-07): The elements that were utilized from the source QAPP are associated with analytical quality assurance (QA) and quality control (QC), which are independent of the Solid Waste Management Unit. Therefore, it was appropriate to utilize the SWMUs 8 and 15 QAPP as the source QAPP for this project.

**EPA-7(11-09-07). On p. 3-2, there is mention made of sample tags, which would not be required for this project.**

Response to EPA-7(11-09-07): Agreed. References to sample tags has been removed form the QAPP. The 1st sentence in the 4th paragraph of Section 3.2 Subsection, Confirmation Sampling has been revised as follows:

> *"The sampling time recorded on the chain-of-custody form and labels for duplicate samples will be 0000 so that the samples are 'blind' to the laboratory."*

**EPA-8(11-09-07). On p. 3-5, it is stated that field rinsate blanks shall not be collected for this project, which goes against the grain and spirit of quality assurance. Further rationale is needed why TetraTech intends to forego use of this conventional QC sample type. (Also see p. 3-10.)**

Response to EPA-8(11-09-07): Rinsate blanks will be collected for the confirmation sampling. The 3rd sentence in the 2nd paragraph of Section 3.5.1, Subsection Confirmation Sampling has been revised as follows:

> *"Decontamination source water blanks, however, will not be collected because contaminant concentrations in the source water are not anticipated to be present at levels that will influence excavation decisions."*

Additionally, the 1st sentence of the last paragraph in Section 3.6 has been modified as follows:

> *"Equipment rinsate blanks (rinsate blanks) will be collected to ensure that cross-contamination of confirmation samples and waste disposal samples does not occur."*

**EPA-9(11-09-07). In the 2nd par. of p. 3-5, it is stated that quick one-day turnaround analyses are very relevant to this project. Therefore, beyond simple notation on the COC document, this matter should be reflected on Table 3-1 as it evidently is a project requirement. (See Maximum holding time column.)**

Response to EPA-9(11-09-07): Table 3-1 footnote 1 has been revised as follows:

> *"1 All holding times for analysis are from date of collection. Minimum turnaround times will be requested from the laboratory. Minimum turnaround is based upon the analytical method; however, one-day turnaround from laboratory receipt of samples is preferred."*

**EPA-10(11-09-07). As stated in the last par. on p. 3-7, important field decisions will apparently be made around the total PCB target level of 1 ppm for surface soils. But how many "< 1 ppm" Aroclor field sample results are needed before issuing a directive to end excavation? Or is this decision solely based on a set number of confirmation results for total PCBs?**

Response to EPA-10(11-09-07): The initial decisions to haul excavation will be based on field test kit analysis results. Samples will then be collected and sent to the fixed-base laboratory for verification of these results. If the fixed-based laboratory results confirm the field test kit results, excavation is complete. Otherwise, further excavation will take place until the field test kit results are confirmed. The decision on when to stop excavation will be solely based on the fixed-base laboratory confirmation sample results, not on the field test kit results.

No change has been made to the SWMU 9 QAPP Addendum No. 4 in response to this comment.

**EPA-11(11-09-07). Could the last par. in section 3.5.3.3 be expanded somewhat so USEPA can understand why existing 'historical' data mentioned here is reliable, as well as the implications of that data? If this information is already incorporated into the workplan then a simple reference could be made to those corresponding sections.**

Response to EPA-11(11-09-07): The data was collected in accordance with addendums to the approved work plan (Tt, 2000) for RCRA Facility Investigations at SWMUs 4, 5, 9, and 10 with addendums that were specific to sampling activities at SWMU 9. The analytical results for SWMU 9 are included in Appendix A of the SWMU 9 Interim Measures Work Plan (TtNUS, 2007).

The existing RFI Report data has been evaluated by the disposal facilities for the Fire Training Area and the Building 150 soils. The disposal facility has determined that no further waste characterization sampling is required for the excavation associated with these areas.

The 3rd paragraph in Section 3.5.3.3 has been revised as follows:

> *"The existing RFI Report data, presented in Appendix A of the SWMU 9 IMWP (Tetra Tech, 2007) has been evaluated for SWMU 9 fire training area, Building 150 area, and Building 55 area. The disposal facility determined that the RFI Report data for the fire training area and the Building 150 soils was sufficient for waste characterization profiling and stated that no further characterization sampling was required."*

**EPA-12(11-09-07). Referring to section 3.5.2.5, what are the requirements for 'clean fill' reuse? And what is meant exactly by a fill 'type.' (See 3rd par.)**

Response to EPA-12(11-09-07): Clean fill requirement are specified in Section 3.2.7 of the IMWP. For clarification, the following has been added to the end of the 1st paragraph of Section 3.5.3.5:

*"The backfill material must satisfy the following requirements:*

- *Total Petroleum Hydrocarbons (TPH), DRO - Less than 1 ppm*
- *TPH, gasoline range organics (GRO) - Less than 1 ppm*
- *Sum of benzene, toluene, ethylbenzene, and xylenes - Less than 1 ppm*
- *Characteristic waste determination (ignitability, corrosivity, reactivity, and toxicity) - shall not fail the test for characteristic waste*
- *Total PCBs - Less than 1 ppm*
- *4,4'-DDD - Less than 3.2 ppb*
- *4,4'-DDE - Less than 3.2 ppb*
- *4,4'-DDT - Less than 3.2 ppb*
- *Dieldrin - Less than 3.2 ppb*
- *Heptachlor - Less than 1.5 ppb*
- *Alpha-chlordane - Less than 1.5 ppb*
- *Gamma-chlordane - Less than 1.5 ppb"*

The "type" refers to common fill verses topsoil as stated in the 1st paragraph of this Section.

**EPA-13(11-09-07). The weblink indicated near the bottom of p. 3-10 should perhaps be expounded slightly as I am wholly unfamiliar with this data reporting software for data transferral. Why should USEPA trust it?**

Response to EPA-13(11-09-07): The reference does not refer to the data reporting software for transmittal of data from the laboratory. Rather, it refers to the internal system Naval Installation Restoration Information Solution (NIRIS) developed by the Navy for their data retention. This link is a Navy required web accessible data storage repository. It is appropriate to have the same

trust factor for this data as it is for other data that is supplied in documentation such as the SWMU 9 RFI Report. This data transfer and repository is a Navy project requirement.

No change has been made to the SWMU 9 QAPP Addendum No. 4 in response to this comment.

**EPA-14(11-09-07). Referring to the last par. in section 3.7.1, p. 3-11, a minimum of how many samples will be used to establish such correlations, and will correlations be updated on a 'running' basis? What is meant by 'estimating the equivalent laboratory concentration'; how will such estimating be useful?**

Response to EPA-14(11-09-07): Because this correlation was for informational purposes only and all remediation completion decisions will be based solely on the fixed base laboratory data, the last paragraph of Section 3.7.1 has been deleted.

**EPA-15(11-09-07). Although implied, please insert the word, 'written' into 'provide written monthly progress reports' in the last line on p. 3-13.**

Response to EPA-15(11-09-07): Agreed. The last sentence in the 1st paragraph of Section 3.13 has been revised as follows:

> *"The Tetra Tech PM and NWRS PM will provide written monthly progress reports to the Navy that address the project budget, schedule, accomplishments, planned activities, and QA/QC issues and intended corrective actions."*

**EPA-16(11-09-07). Figure 3-1 seems to have some mistakes. Should the references be instead to Table 3-3 instead of Table 3-6? And the points shown graphically don't seem to match the points in table 3-6.**

Response to EPA-16(11-09-07): Agreed. Figure 3-1 has been revised to be consistent with Table 3-6. The revised Figure 3-1 is provided as Attachment 2 to this comment response document.

**EPA-17(11-09-07). Presumably laboratory reporting limits for all COCs compare favorably with established target levels. I haven't consulted Laucks' SOPs for this information this time, but is the Table 1-5 from the 2004 QAPP still relevant to Lauck's current capabilities? A current comparison could be added to the SWMU 9 QA document. And does Table 1-5 from the 2004 QAPP represent specific project objectives associated with STAT's responsibilities, and the test kit field PCB analyses as well?**

Response to EPA-17(11-09-07): Yes, Table 1-5 from the base 2004 QAPP is still relevant to Lauck Laboratory's current capabilities but not the field test kits.

For detailed Method Detection Limits (MDLs) reporting limits for Laucks Laboratory and STAT Analysis Laboratory, see the Standard Operating Procedures (SOPs) presented in Appendices C and D, respectively.

No change has been made to the SWMU 9 QAPP Addendum No. 4 in response to this comment.

**EPA-18(11-09-07). I do not understand why 'waste disposal characterization requirements' cannot be established now. But then do such requirements even need to be accounted for in the corrective action QA document (where confirmation analyses are clearly emphasized)?**

Response to EPA-18(11-09-07): Agreed. Section 4.6.2 has been revised as follows:

***"4.6.2 Waste Characterization***

***"4.6.2.1 Laboratory Performance and Systems Audits***

*"This section presents the responsibilities, frequencies, and procedures associated with internal and external laboratory performance and system audits.*

***"4.6.2.1.1 Internal Laboratory Audits***

***"Internal Laboratory Audit Responsibilities***

*The Quality Assurance Director or appropriate designee of the laboratory performs routine internal audits of the laboratory. NWRS has no responsibility for such audits. Performance and system audits of laboratories are coordinated through STAT's Quality Assurance Director.*

***"Internal Laboratory Audit Frequency***

*"Internal audits are performed approximately annually at the laboratory. In addition, each laboratory department analyzes blind performance evaluation (PE) samples as described in their applicable SOPs and QA plans.*

***"Internal Laboratory Audit Procedures***

*"Internal systems audits are conducted to detect any problems in sample flow, analytical procedures, or documentation and to ensure adherence to laboratory SOPs. The internal audit procedures for STAT Laboratories are presented in applicable laboratory SOPs or the QA Plan.*

***"4.6.2.1.2 External Laboratory Audits***

***"External Laboratory Audit Responsibilities***

*"IDEM and U.S. EPA Region 5 may perform external audits at their discretion.*

*"The laboratory is also involved in various other external audits and performance evaluation studies throughout the year, as required, to maintain certifications and approvals by other regulatory agencies or programs.*

***"External Laboratory Audit Frequency***

*"IDEM or U.S. EPA Region 5 may conduct an external laboratory audit prior to or during sampling and analysis activities.*

***"Overview of the External Laboratory Audit Process***

*"External audit procedures are at the discretion of IDEM and U.S. EPA Region 5. External laboratory audits may include (but are not limited to) review of laboratory analytical procedures, laboratory on-site audits, and submission of PE samples to the laboratory for analysis."*

Additionally, Section 4.7.2 has been revised as follows:

> ***"4.7.2 Waste Characterization***
>
> *"Proper maintenance of laboratory instruments and equipment is essential. Depending on manufacturers' recommendations, maintenance intervals are established for each instrument. All instruments are labeled with a model number and serial number, and a maintenance logbook is maintained for each instrument. Personnel will be alert to the maintenance status of the equipment they are using at all times.*
>
> *"The use of manufacturer-recommended grades or better of supporting supplies and reagents is also a form of preventive maintenance. For example, gases used in the inductively coupled plasma (ICP) instruments will be of sufficient quality to minimize fouling of the instrument. The routine use of other supporting supplies from reputable manufacturers will help prevent unnecessary periods of instrument downtime."*

**EPA-19(11-09-07). Two possible typos on p. 4-5. See two references to 'NRS' which perhaps should be changed to 'NWRS.'**

Response to EPA-19(11-09-07): Agreed. The "NRS" typographical errors have been corrected to "*NWRS*."

**EPA-20(11-09-07). The example indicated in section 3.1.2 of SOP-CT0467-02 inconsistently refers to sampling location 003 labeled as "001" instead.**

Response to EPA-20(11-09-07): Agreed. The 1st sentence in the 1st paragraph of SOP-CTO467-02 Section 3.1.2 has been revised as follows:

> *"The first composite surface soil sample collected from SWMU 09, sampling location 001, at a depth of 2 feet would be labeled as '09SS001C0002.'"*

**EPA-21(11-09-07). Sample tags are mentioned on p. 4 of 4 in the SOP mentioned in comment 21, above, and on p.1 of 3 in SOP-CTO467-05. In the 'Attachment' to the latter SOP, what is meant exactly by the phrase, 'if applicable' down in the right lower box referring to MS/MSD? It would be applicable for this project.**

Response to EPA-21(11-09-07): Agreed. The 1st sentence in the last paragraph of SOP-CTO467-02 Section 3.3.1 has been revised as follows:

> *"The sampling time recorded on the Chain-of-Custody Form and labels for duplicate samples will be 0000 so that the samples are "blind" to the laboratory."*

Additionally, "Sample tags" has been removed from Section 2.0 of SOP CTO467-05.

**EPA-22(11-09-07). In section 3.11 of SOP-CTO467-06, the 72 hours sample shipment time frame should be reconciled with what is stated above in comment no. 10.**

Response to EPA-22(11-09-07): All samples will be shipped to the laboratory as soon as possible after collection. Laboratory sample turnaround time is dependent upon the test method; however, a preferred turnaround of one-day is being requested for all samples once the laboratory has received the sample.

No change has been made to the SWMU 9 QAPP Addendum No. 4 in response to this comment.

**EPA-23(11-09-07). In the test kit field PCB instructions for analysis, note that for soil the MDLs (probably not reasonably attainable) for each of the various Aroclors vary from 0.2 to 13.54 ppm. The LOQ values are roughly twice this value. How effectively will this tool allow field decisions to be made around the "< 1 ppm" level, as discussed above in comment no. 11.**

Response to EPA-23(11-09-07): Agreed. A result of less than or equal to 1 ppm by field test will always be confirmed by the fixed-base laboratory. Results of greater than 1 ppm by field test kit will indicate that the excavation should continue. See the response to EPA-10(11-09-07) for a discussion of how field text kits will be used during the excavation process.

No change has been made to the SWMU 9 QAPP Addendum No. 4 in response to this comment.

**EPA-24(11-09-07). Based on recently submitted PE sample data, I judge STAT (Chicago) as having sufficient analytical capability for the tasks they are projected to perform for this investigation.**

Response to EPA-24(11-09-07): Comment noted.

**THE FOLLOWING EPA COMMENT WAS RECEIVED REGARDING RCRA ADDENDUM NO. 3 TO QAPP FOR SWMUS 8, 15, 18, 19, 20 AND THE OLD GUN TUB STORAGE LOT INCLUDING SAMPLING AT SWMU 9 (PESTICIDE CONTROL AREA). IT IS BEING ADDED IN THIS COMMENT RESPONSE DOCUMENT BECAUSE IT IS RELEVANT TO QAPP ADDENDUM NO. 4**

**EPA-4(11-11-07). Section 5.0/p.3: Rationale for why the cited 2004 QAPP is the 'parent' QAPP for Addendum no. 3 (& later also for no. 4) is noted on p.3. This should be reiterated into a relevant portion of the Addendum no.4...**

Response to EPA-4(11-11-07): A new 1st paragraph has been added to Section 1.2.1 Subsection, Confirmation Sampling as follows:

> *"Sample collection and analysis, handling of confirmation sampling derived waste, and decontamination procedures will be consistent with those described in the approved QAPP for SWMUs 8, 15, 18, 19, and 20 and the Old Gun Tub Storage Lot (Tetra Tech, 2004). The rationale for using this QAPP as the source QAPP is that it was prepared for similar field activities and analytical methods at NWSC Crane and was approved by EPA Region 5, which is also the lead regulatory agency for the SWMU 9 activities."*

ADDITIONAL NON-TECHNICAL CHANGES

1. Various miscellaneous typographical errors have been corrected.
2. The Acronym list has been updated to reflect this comment response document.

**ATTACHMENT 1**

**REVISED TABLE 3-2**

## TABLE 3-2

## COMPOUND LIST
## SWMU 9 QAPP ADDENDUM NO. 4
## NSWC CRANE
## CRANE, INDIANA

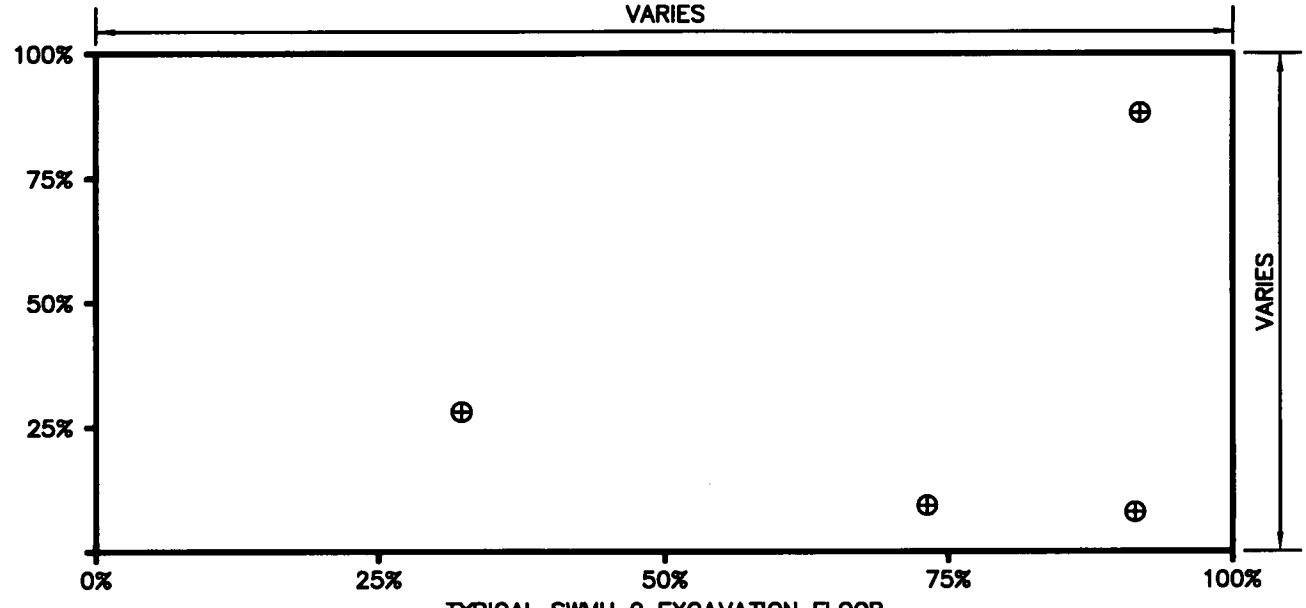
| PARAMETER | CASRN |
|---|---|
| **ORGANOCHLORINE PESTICIDES (SW-846 METHOD 8081A)** | |
| alpha-chlordane | 5103-71-9 |
| 4,4'-DDD | 72-54-8 |
| 4,4'-DDE | 72-55-9 |
| 4,4'-DDT | 50-29-3 |
| Dieldrin | 60-57-1 |
| gamma-chlordane | 12789-03-6 |
| Heptachlor | 76-44-8 |
| **POLYCHLORINATED BIPHENYLS (SW-846 METHOD 8082)** | |
| Aroclor-1016 | 12674-11-2 |
| Aroclor-1221 | 11104-28-2 |
| Aroclor-1232 | 11141-16-5 |
| Aroclor-1242 | 53469-21-9 |
| Aroclor-1248 | 12672-29-6 |
| Aroclor-1254 | 11097-69-1 |
| Aroclor-1260 | 11096-82-5 |
| **DIESEL RANGE ORGANICS (SW-846 METHOD 8015)** | |
| Diesel range organics | NA |

CASRN - Chemical Abstract Registry Number.
NA - Not applicable
QAPP - Quality Assurance Project Plan.

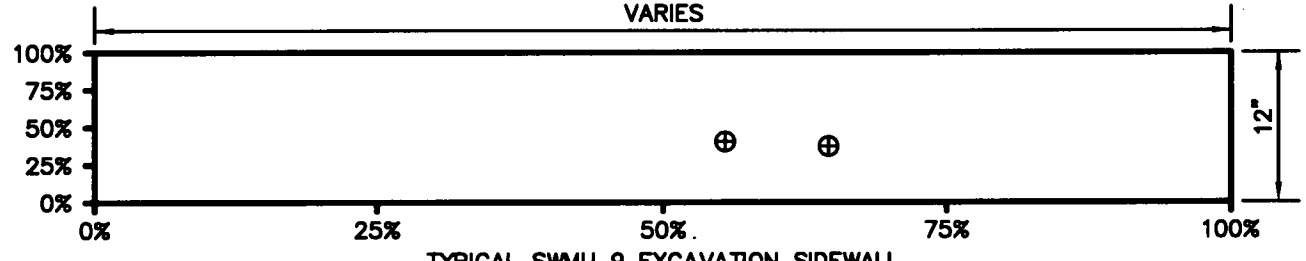
**ATTACHMENT 2**

**REVISED FIGURE 3-1**

ACAD: 0352CP09.dwg 11/16/07 MF PIT




TYPICAL SWMU 9 EXCAVATION FLOOR
LOCATION REPRESENTS SAMPLE SERIES 1, SET 1, ON TABLE 3-6




TYPICAL SWMU 9 EXCAVATION SIDEWALL
LOCATION REPRESENTS SAMPLE SERIES 2, SET 2, ON TABLE 3-6

**LEGEND:**

⊕ ALIQUOT SAMPLE LOCATION

0% PERCENT DISTANCE ALONG EXPOSED SURFACE

| | |
|---|---|
| DRAWN BY MF | DATE 11/16/07 |
| CHECKED BY | DATE |
| REVISED BY | DATE |
| SCALE NONE | |

NAVFAC

**SWMU 9 EXCAVATION**
**SAMPLE LOCATIONS EXAMPLE**
**INTERIM MEASURES QAPP ADDENDUM NO. 4**
**NSWC CRANE**
**CRANE, INDIANA**

| | |
|---|---|
| CONTRACT NO. 0467 | |
| OWNER NO. | |
| APPROVED BY | DATE |
| DRAWING NO. FIGURE 3-1 | REV. 0 |

FORM CADD NO. SDIV-AH.DWG - REV 1 - 9/10/98