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Letter Report
Pre-Remediation at Depth Sampling for Site 13, Defense Property Disposal Office Yard (OU-5)

NAVAL WEAPONS STATION EARLE
Colts Neck, New Jersey

Engineering Field Activity Northeast
Naval Facilities Engineering Command
Contract Number N62472-03-D-0057
Contract Task Order 033

August 2005

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LETTER REPORT
PRE-REMEDIATION AT DEPTH SAMPLING
FOR
SITE 13, DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5)

NAVAL WEAPONS STATION EARLE
COLTS NECK, NEW JERSEY

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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Environmental Department, Code EV2
Naval Facilities Engineering Command
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TABLE OF CONTENTS

SECTION **PAGE NO.**

ACRONYMS ..... **v**

1.0 INTRODUCTION **1**

2.0 PRE-REMEDIATION SAMPLING ACTIVITIES **2**
2.1 Pre-remediation Sampling Objectives 2
2.2 Sample Areas 2
2.3 February/March 2005 Sampling Methodology 2

3.0 PRE-REMEDIATION SAMPLING RESULTS **5**

4.0 EVALUATION OF SAMPLE DATA **7**
4.1 Review of Excavation Boundary Determination 7
4.2 Proposed Excavation Depths 8

5.0 PROPOSED POST EXCAVATION SAMPLING **9**

6.0 POST EXCAVATION SAMPLING RESULTS **10**

REFERENCES **R-1**

APPENDICES

A FIELD NOTES
B FIELD FORMS
C DATA VALIDATION LETTERS

TABLES

NUMBER

1 February/March Sample Summary
2 Comparison of Subsurface Results with Screening Criteria presented in the Work Plan
3 Summary of Hexavalent Chromium and Total Chromium Results
4 Comparison of Subsurface Results with NJDEP Soil Cleanup Criteria
5 Summary of Analytical Results, Sediment Sampling – June 2005

FIGURES

NUMBER

1 Proposed Excavation Areas
2 Sample Locations Landfill Washout Area
3 Sediment Sample Locations Ditch Area

ACRONYMS

bgs	below ground surface
DPDO	Defense Property Disposal Office
FS	Feasibility Study
GPS	global positioning system
mg/kg	milligrams per kilogram
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
PCB	polychlorinated biphenyl
QAPP	Quality Assurance Project Plan
ROD	Record of Decision
SA	Sample Area
SD	Sediment
TAL	Target Analyte List
TCL	Target Compound List
TMSSS	Technical Memorandum – Sediment Sampling Summary
TtNUS	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This letter report provides a summary of the samples results collected from Site 13 as part of a pre-remediation sampling investigation. The purpose of the pre-remediation sampling investigation was to determine the required excavation depths within the two excavation areas located outside the limits of the proposed Site 13 cap limits. The horizontal limits of the excavation areas were established in a Technical Memo titled "Technical Memorandum, Sediment Sampling Summary – 2003 Sampling Events (TMSSS), Site 13 Defense Property Disposal Office (DPDO) Yard, Colts Neck, New Jersey, Naval Weapons Station Earle" dated December 2004 (TtNUS, 2004). Based on that document it has already been decided that the top foot of materials in the excavation areas will be excavated and placed under the landfill cap at Site 13. The purpose of this investigation was to determine the required excavation depth (greater that one foot).

The samples were collected to estimate the excavation depth in February 2005. A limited number of additional samples were collected in March 2005 to confirm certain February 2005 results. This report summarizes the results from both field events and proposes excavation depths for the two excavation areas.

The February and March field events were accomplished using a compressed schedule. The work plan for this investigation was included as Appendix F to the Quality Assurance Project Plan for Pre-Design Investigation Sediment Sampling (TtNUS, 2005). Appendix F was issued as an addendum to the QAPP in the beginning of February 2005. Since remediation at this site was to begin in the spring of 2005, a compressed schedule was used to accomplish the field work prior to the start of remediation. The field work began three weeks after the draft addendum to the QAPP was issued. The Navy elected to begin sampling prior to receiving comments from regulatory agencies. Subsequent to the sampling, the New Jersey Department of Environmental Protection (NJDEP) commented on the draft addendum, and indicated that composite samples would not be acceptable because the New Jersey Administrative Code (NJAC) requires discrete sampling.

The Navy therefore proposed and performed additional sampling completed during the remediation to address regulatory concerns with the composite sample methodology used during the February and March 2005 sampling events. The additional sampling methodology was presented in the draft version of this report and was accepted by NJDEP. The remediation sampling was performed on June 6, 2005. Section 6.0 of this report presents the results of the remediation sampling.

2.0 PRE-REMEDIATION SAMPLING ACTIVITIES

2.1 Pre-remediation Sampling Objectives

The objective of this sediment sampling investigation was to obtain sufficient data to determine the depth of excavation (greater than 1 foot) required within the sediment excavation areas associated with the proposed Site 13 Remedial Action Design. Based on comments from the NJDEP some discrete samples were required during remediation to confirm whether the residual contamination following excavation is acceptable. The discrete sample results are discussed in Section 6.0.

2.2 Sample Areas

The remedial design for Site 13 identified two areas from which contaminated sediments were to be excavated. These excavated sediments will be consolidated with the landfill materials within the proposed Site 13 cap system limits. The excavation areas are described below and are presented in Figure 1.

Excavation Area 1: (Landfill Washout Area) Excavation area 1 is approximately 0.92 acres in size and is located adjacent to the Site 13 landfill, northwest of an area where erosion events have washed landfill material and associated soils from the landfill toward the delineated wetlands.

Excavation Area 2: (Ditch Area) Excavation area 2 is approximately 220 square feet in size and is located at the outfall of a 15-inch diameter reinforced concrete culvert located southwest of the landfill. This area is located adjacent to a stream that conveys flow toward the Site 13 Landfill. This stream eventually receives overland flow from the area where the Site 13 landfill is located.

2.3 February/March 2005 Sampling Methodology

The purpose of this sediment sampling event was to estimate the required depth of excavation within the two excavation areas (deeper than 1 foot). The sampling characterized the soil within defined areas at specific depth intervals down to the water table.

The sampling approach was based on USEPA guidance (USEPA, 1996) for screening soil during a site characterization and was modified to make it more applicable to confirmation sampling. The sampling approach used at Site 13 divided the excavation areas into relatively small 1/12th of an acre sample areas (SAs). A composite sample consisting of two randomly located grab samples was collected from each SA at each depth interval (deeper than 1 foot down to the water table).

Figures 2 and 3 present the 12 SAs areas for Excavation Area 1 (11 SAs) and Excavation Area 2 (one SA).

Sample Locations:

In order to provide unbiased grab sample locations, each grab sample location within each SA was randomly located using a random number generator. Grab sample locations are presented on Figures 2 and 3. The grab sample locations were located in the field using a hand held global positioning system (GPS) and by locating the grab sample locations relative to existing sample stakes from previous sampling activities. The actual locations were then surveyed by a New Jersey licensed surveyor. Both the plan locations and the actual surveyed locations are shown on Figures 2 and 3. As can be seen from Figures 2 and 3 several of the surveyed locations differed somewhat from the intended locations due to the accuracy of the GPS unit and the difficulty of determining an exact location in an area with few reference points. The significance of the actual locations will be discussed with the evaluation of the sample results.

Sample Collection Procedure:

At each grab sample location, sediment samples were collected at one foot depth intervals starting from one foot below ground surface (bgs). Grab samples were collected from each interval until reaching the groundwater table. Groundwater was found in all SAs between two and three feet bgs. Because the surface of the two proposed excavation areas have already been sampled and characterized, samples were not be collected from the 0 to 1 foot bgs depth interval. Samples were then collected from the 1 to 2 foot bgs interval and from the 2 to 3 foot bgs interval in all SAs.

Sample Nomenclature/analyses

Table 1 presents a list of the samples collected during this sediment sampling event. Each sample identifies the site from which the sample was collected, the SA from which the sample was collected, and the depth from which the sample was collected. As an example, sample identification number 13SA09-SD0102 indicates that the sample was collected from Site 13 (13) Sample Area 9 (SA09), was a sediment sample (SD), and was collected from a depth interval of 1 to 2 feet bgs (0102). The samples were analyzed for Target Compound List (TCL) polychlorinated biphenyl (PCBs) and Target Analyte List (TAL) metals.

In addition to the sediment samples collected, a rinse blank and field duplicate samples were also analyzed for these parameters for quality control purposes as outlined in the QAPP.

Each analytical sample was analyzed with a 3 day turn-around time.

3.0 PRE-REMEDIATION SAMPLING RESULTS

The pre-remediation sample results (i.e. February and March 2005) are summarized in Table 2. The parameters that were analyzed are listed across the top of the table and each sample is listed as a row. The data is presented this way so that data from each SA is presented in a manner that is similar to how it exists at the site (for instance, the result from a sample collected from the 1 to 2 foot bgs interval is presented directly above the results from a sample collected from the 2 to 3 foot bgs range. It is important to remember that all the results presented are subsurface and that the surface material (0 to 1 foot) in all SAs will be excavated.

The results of each composite sample were compared to the screening levels presented in Table F-3 of the Addendum to the QAPP (Appendix F) for this investigation. The levels in Table F-3 represent conservative screening values for soil and are the lower of either ecological based screening criteria or human health based screening criteria. If the criteria were below background then background was used as the criteria. The criteria was presented and used as part of the risk evaluation in the TMSSS. Exceedances of the criteria are shown on Table 2 as a bolded cell.

As can be seen from Table 2 at least one parameter for nearly all the samples exceeds the conservative screening criteria. Many of the higher metals concentrations were co-located with PCBs results. Also of interest was the detection of high chromium concentrations which were not detected before. Because the chromium was not detected prior at these levels, the Navy elected to collect additional samples for total chromium and hexavalent chromium. The purpose of these samples was to confirm the results and to determine if the chromium present was the more toxic hexavalent form.

On March 15, 2005, TtNUS collected six composite samples from Site 13 at locations that were previously sampled during February 2005 (that is, the grab locations were collected as close as possible to the February 2005 grab locations). This allowed a direct comparison to the results collected in February 2005. Three SAs were resampled for total chromium (SW-846 6010B) and hexavalent chromium (SW-846 7196B). SAs 02, 05, and 09 were chosen because these SAs covered the range of total chromium concentrations that were encountered in the February 2005 sampling event. The total chromium concentrations in these SAs were as follows with the first number being the 1 to 2 foot bgs range and the second number being the 2 to 3 foot bgs range; SA09 low range (57.3/104 - 82.6 mg/kg), SA05 medium range (952 - 267 mg/kg) and SA02, high range (2,150 – 1880 mg/kg). Samples were collected from the 0 to 1 foot bgs range and the 1 to 2 foot bgs range. The 0 to 1 foot bgs range was chosen because this is the most biologically active zone and because hexavalent chromium analyses were not performed prior on the surface materials. The 1 to 2 foot bgs range was chosen because the highest concentrations were found in this range. Table 3 presents a summary of the March 2005 sampling. The corresponding February 2005 sample results are also presented in Table 3. The total

chromium results from the March 2005 sampling event roughly corresponded to the February 2005 sample results. The hexavalent chromium results were all non-detect except for the surface sample in SA05 which had detection at 14.4 mg/kg. This would indicate that the majority of the chromium present at Site 13 is the less toxic trivalent form.

Appendix A presents copies of the field log book used during the sampling. Appendix B presents copies of the field log sheets and chain of custody sheets. Appendix C presents the data validation letters for all of the data from this investigation.

4.0 EVALUATION OF SAMPLE DATA

Table 2 shows the subsurface exceedances of the criteria that were presented in the work plan for this sampling effort. Although there are many exceedances, given the limited receptors to the subsurface in the excavation areas, the actual risk to the receptors would be low and excavation greater than 1 foot of all SAs with exceedances would not be warranted. In order to discuss the acceptability of the subsurface concentrations, it would be useful to review how the excavation footprint (surface) was determined.

4.1 Review of Excavation Boundary Determination

The boundaries of the excavation (shown on Figure 1) were documented through the TMSSS. The contaminants of concern for these two areas were silver and total PCBs based on ecological concerns as was discussed in the Feasibility Study (FS)(TtNUS, 2000). During the FS both of the excavation areas were thought to be in wetlands and were therefore considered sediments. As part of the pre-design investigation a wetland delineation was performed which determined that wetlands do not exist in excavation Area 2 and that only part of excavation Area 1 lies within the wetland. All samples were labeled as sediments since the original RI samples were considered sediments.

As part of a pre-design investigation, samples were collected in the two excavation areas to determine the boundaries of the excavation. The suspected method of contaminant transport was erosion from the landfill which would result in the contamination being located primarily in the surface materials. The pre-design investigations focused on the surface materials. Samples were analyzed for TAL metals and TCL PCBs.

The initial clean up goals for sediments were set at 3.7 mg/kg for silver (based on an ecological sediment screening number) and 1.0 mg/kg for total PCBs (based on an OSWER directive for human health but which had been used for PCB cleanups at other facilities). These values were written in the record of decision (ROD).

The results of the pre-design sediment sampling were presented in the TMSSS. The excavation boundary in the TMSSS was based on excavating PCBs and then evaluating the residual risk to ecological receptors. A comment on the TMSSS by NJDEP requested that the NJDEP soil cleanup criteria for direct residential contact (NJDEP, 1999) be considered for cleanup of materials outside the wetland. The excavation boundary outside the wetland was set to match the NJDEP soil cleanup criteria for PCBs of 0.49 mg/kg. Within the wetland, the excavation area was set at the 1.0 mg/kg total PCB line. The ecological risk after excavation was then evaluated based on the average residual concentration over the assumed home range of a shrew (1 acre). The ecological risk was evaluated with the screening criteria shown on Table 2 and with food chain models.

4.2 Proposed Excavation Depths

Based on the TMSSS the surface materials (0 to 1 foot bgs depth) will be excavated for Areas 1 and 2. It is proposed to base the depth of excavation (deeper than 1 foot) on the total PCB concentrations because PCBs are assumed to be the risk drivers and metals are not likely causing a significant risk to ecological receptors. The concentrations of PCBs and metals in several samples collected from 1 to 2 or 2 to 3 feet bgs were greater than the conservative ecological screening levels. As discussed in the TMSSS, the area with elevated PCBs and metals concentrations does not visually appear to be impacted so direct toxicity to plants and invertebrates is likely not a significant concern. Also, as discussed above, a minimum of the top 12 inches of soil will be removed from the entire excavation area and replaced with clean soil. This will lower potential risks to plants and invertebrates from chemicals at the site because the greatest exposure for most plants and invertebrates occurs in the top foot of soil, especially in wetland areas where the subsurface soil becomes saturated. Finally, as discussed in the TMSSS, potential risks to small mammals from PCBs and metals in the soil are expected to be low after excavation of the surficial soil.

With respect to human health in areas outside the wetland, Table 4 shows a comparison of the February subsurface sample results to NJDEP soil clean up criteria. As can be seen from Table 4 there are only some low level exceedances of thallium (maximum concentration of 4 mg/kg) while the NJDEP soil cleanup criteria is 2 mg/kg. Thallium was detected in the background soils at NWS Earle at 1.64 mg/kg therefore the detections of thallium are very close to both the criteria and background.

It should be noted that chromium concentrations are compared to the criteria for trivalent chromium (120,000 mg/kg) because the March sampling showed that the chromium was is in the trivalent form in all the March samples except one 13SA05-0001 (14.4 mg/kg) and that concentration was below the hexavalent criteria of 270 mg/kg.

Basing the excavation depth on total PCBs will match the methodology used to determine the excavation boundaries for the surface materials. That is, within the wetland area, total PCB concentrations above 1.0 mg/kg will be excavated and outside the wetland total PCB concentrations above 0.49 mg/kg will be excavated. It is proposed that SAs 03, 05, and 07 be excavated to the water table (to 3 feet) since the PCB concentrations in these areas are above the 0.49 mg/kg total PCB level. Excavation is also proposed in the 1 to 2 foot bgs range in SAs 08 and 09. Excavation deeper than 1 foot is not proposed in SA 02 because it is located primarily in the wetland and the total PCB concentration (0.55 mg/kg) was just over the soil PCB criteria of 0.49 mg/kg but below the sediment level of 1.0 mg/kg.

5.0 PROPOSED POST EXCAVATION SAMPLING

Comments received on Appendix F to the Quality Assurance Project Plan for Pre-Design Investigation Sediment Sampling (the work plan for this investigation) from NJDEP indicate that the New Jersey Administrative Code only allows the use of composite sampling for waste characterization. Although the use of composite samples for cleanup verification has been accepted is other jurisdictions by state and federal agencies, the Navy proposed to collect discrete samples following excavation to confirm the results of the composite samples. It was proposed that 25% of the SAs be sampled discretely as a quality control. In addition, as was discussed earlier, the actual surveyed sample locations varied somewhat from the planned sample locations. In order to confirm that the sample results were still representative of each particular SA, the SAs where the actual grab sample locations varied the most were targeted for discrete sample following excavation. It was proposed that SAs 03, 04, and 11 be sampled discretely following excavation. One discrete sample was collected from the center of each SA. Given the relatively small area of each SA (1/12th of and acre) and the previous composite samples collected, it was felt that one discrete sample would be adequate. Since the total PCBs were to be used for the clean up, the discrete samples were only analyzed for PCBs.

6.0 POST EXCAVATION SAMPLING RESULTS

The NJDEP reviewed and agreed to the proposed discrete sampling approach. As part of the first remediation tasks discrete samples were collected from the center of each of SAs 03, 04, and 11. The samples were collected at the bottom of the excavation depth indicated where it would be expected that the soil would be clean. In order to facilitate construction, the discrete sample was collected by digging to the desired depth with a back hoe and the sample was then collected from the desired depth. The samples from SAs 04 and 11 were collected from 1 to 2 feet bgs and the discrete sample from SA 03 was collected from 3 feet bgs. A field duplicate was also collected from SA 11. The samples were analyzed for TCL PCBs. The discrete sample results are presented in Table 5. As can be seen from Table 5, all sample results were non-detect for PCBs. Since the results were non-detect, the discrete results confirmed the composite results and the proposed excavation depths did not need to be revised from those presented in Section 4.2. The discrete sample data was validated and the data validation letter report is included in Appendix C.

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TtNUS, 2005. Addendum to the Quality Assurance Project Plan for Pre-Design Investigation Sediment Sampling at Site 13 Defense Property Disposal Office (DPDO) Yard (Appendix F), Naval Weapons Station Earle, Colts Neck, New Jersey prepared for Engineering Field Activity Northeast, Naval Facilities Engineering Command, King of Prussia, Pennsylvania, February.

United States Environmental Protection Agency (USEPA), 1996. Soil Screening Guidance: User's Guide EPA/540/R-96-018, Office of Solid Waste and Emergency Response, Washington, DC. April.

TABLE 1

FEBRUARY/MARCH SAMPLE SUMMARY
SITE 13 NWS EARLE
COLTS NECK, NEW JERSEY

SAMPLE NUMBER	SAMPLE DATE	MATRIX	SAMPLES ANALYTE LIST		
			TCL PCBs	TAL METALS	HEXAVALENT & TOTAL CHROMIUM
13SA01-SD0102	2/22/2005	SD	x	x	--
13SA01-SD0203	2/22/2005	SD	x	x	--
13SA02-SD0001	3/15/2005	SD	--	--	x
13SA02-SD0102	2/22/2005	SD	x	x	--
13SA02-SD0102	3/15/2005	SD	--	--	x
13SA02-SD0203	2/22/2005	SD	x	x	--
13SA03-SD0102	2/22/2005	SD	x	x	--
13SA03-SD0203	2/22/2005	SD	x	x	--
13SA04-SD0102	2/23/2005	SD	x	x	--
13SA04-SD0203	2/23/2005	SD	x	x	--
13SA05-SD0001	3/15/2005	SD	--	--	x
13SA05-SD0102	2/23/2005	SD	x	x	--
13SA05-SD0102	3/15/2005	SD	--	--	x
13SA05-SD0203	2/23/2005	SD	x	x	--
13SA06-SD0102	2/23/2005	SD	x	x	--
13SA06-SD0203	2/23/2005	SD	x	x	--
13SA07-SD0102	2/23/2005	SD	x	x	--
13SA07-SD0203	2/23/2005	SD	x	x	--
13SA08-SD0102	2/23/2005	SD	x	x	--
13SA08-SD0203	2/23/2005	SD	x	x	--
13SA09-SD0001	3/15/2005	SD	--	--	x
13SA09-SD0102	2/23/2005	SD	x	x	--
13SA09-SD0102	3/15/2005	SD	--	--	x
13SA09-SD0203	2/23/2005	SD	x	x	--
13SA10-SD0102	2/23/2005	SD	x	x	--
13SA10-SD0203	2/23/2005	SD	x	x	--
13SA11-SD0102	2/23/2005	SD	x	x	--
13SA11-SD0203	2/23/2005	SD	x	x	--
13SA12-SD0102	2/24/2005	SD	x	x	--
13SA12-SD0203	2/24/2005	SD	x	x	--
RINSATE-1	2/24/2005	BLANK	x	x	--
FD022305-1	2/23/2005	DUP	x	x	--
FD022305-2	2/23/2005	DUP	x	x	--
FD022405-3	2/24/2005	DUP	x	x	--

SD Sediment
DUP Field Duplicate
TAL Target Analyte List
TCL Target Compound List

TABLE 2

COMPARISON OF SUBSURFACE RESULTS WITH SCREENING CRITERIA PRESENTED IN THE WORK PLAN
SITE 13 NWS EARLE
COLTS NECK, NEW JERSEY

			Parameter																				
Location	QC Type	Depth Range	Total PCBs UG/KG	ALUMINUM MG/KG	ANTIMONY MG/KG	ARSENIC MG/KG	BARIUM MG/KG	BERYLLIUM MG/KG	CADMIUM MG/KG	CHROMIUM MG/KG	COBALT MG/KG	COPPER MG/KG	IRON MG/KG	LEAD MG/KG	MANGANESE MG/KG	MERCURY MG/KG	NICKEL MG/KG	SELENIUM MG/KG	SILVER MG/KG	THALLIUM MG/KG	VANADIUM MG/KG	ZINC MG/KG
SA01	NM	(1 - 2)	0	17000 J	6.8 J	16 J	11.6 J	1.2 J	3.8 J	1430 J	1.2 J	21.5 J	12400 J	202 J	10.6 J	0.29 J	20.9 J	16.9 J	15.2 J	4 J	98.8 J	57.4 J
	NM	(2 - 3)	0	7070 J	1.5 J	9.6 J	11.7 J	0.59 J	2.9 J	293 J	6 J	11.2 J	8190 J	54.9 J	6.9 J	0.11 UJ	29.4 J	2.8 J	6 J	2.5 J	197 J	32.5 J
SA02	NM	(1 - 2)	510	22600 J	10.9 J	16.6 J	19 J	0.95 J	4.8 J	2150 J	0.75 J	34 J	10800 J	209 J	11.8 J	0.23 UJ	15 J	25.2 J	18.3 J	3.4 J	66.8 J	54.1 J
	NM	(2 - 3)	360	21300 J	7.8 J	13.1 J	11.8 J	0.67 J	3.5 J	1880 J	0.59 J	24 J	7060 J	139 J	8.7 J	0.26 UJ	13.8 J	18 J	14.6 J	2.7 UJ	73.1 J	37.9 J
SA03	NM	(1 - 2)	2400	17800 J	5.9 J	11.5 J	20.4 J	0.73 J	9.7 J	1220 J	1.3 J	40.7 J	9530 J	222 J	13 J	0.48 J	16.9 J	12.4 J	30.9 J	1.8 UJ	53.1 J	188 J
	NM	(2 - 3)	1420	14500 J	3 J	9 J	14.4 J	0.8 J	5.8 J	761 J	0.83 J	33.5 J	7810 J	170 J	11.2 J	0.21 J	13.5 J	9.9 J	16.7 J	1.9 J	40.3 J	128 J
SA04	NM	(1 - 2)	0	24400 J	9.7 J	6.9 J	15.7 J	0.74 J	2.8 J	2360 J	0.43 J	20 J	1990 J	243 J	6.6 J	0.19 UJ	15 J	22.6 J	13.2 J	2.4 UJ	21.8 J	49.6 J
	NM	(2 - 3)	0	6410 J	4.7 J	4.7 J	6.4 J	0.32 J	0.34 J	1140 J	0.1 UJ	7.9 J	2810 J	47 J	4.3 J	0.095 UJ	2.8 J	10.7 J	4.2 J	1 UJ	19.9 J	8.4 J
SA05	NM	(1 - 2)	6900	15000 J	3.4 J	14.7 J	16.8 J	0.68 J	7.1 J	952 J	0.45 J	52.5 J	21600 J	245 J	17.4 J	0.54 J	10.4 J	8.6 J	34.7 J	1.8 J	57.7 J	107 J
	NM	(2 - 3)	2670	7160	1.9 J	8	10.3	0.52	2.9 J	267	0.5	20.6	13200	83.1 J	13.4 J	0.19 J	7.1	2.7 J	18.7 J	1.4 J	41	89.4 J
SA06	NM	(1 - 2)	44	1370	0.56 J	1.4	1.5	0.24	0.16 J	185	0.06 U	2.9	3180	5.3 J	2.2 J	0.05 UJ	0.73	0.9 J	1.4 J	0.6 U	12.3	8.1 J
	NM	(2 - 3)	43	1180	0.44 UJ	1.2	0.99	0.27	0.18 J	160	0.066 U	2.9	3330	6 J	2.7 J	0.049 UJ	0.65	0.88 UJ	1.5 J	0.66 U	11.5	6.2 J
	FD	(2 - 3)	56	1310	0.38 UJ	1.9	0.88	0.33	0.13 J	177	0.057 U	2.6	3770	9.3 J	4.3 J	0.057 UJ	0.66	0.96 J	1.6 J	0.61 J	14.2	6.5 J
SA07	NM	(1 - 2)	820	4930	0.47 J	9.1	16.2	0.45	2.2 J	59.6	0.41	42.1	14800	123 J	21.4 J	0.52 J	4.5	0.88 UJ	15.6 J	1.7 J	55.5	44.6 J
	NM	(2 - 3)	1690	14600 J	3.2 J	7.6 J	22.4 J	0.71 J	10 J	309 J	0.76 J	38.8 J	9740 J	182 J	14.6 J	0.36 J	20.8 J	6.3 J	21.4 J	1.5 UJ	60.5 J	133 J
SA08	NM	(1 - 2)	1320	4410	1.9 J	5.8	6.6	0.4	1.2 J	427	0.1	20.1	8350	47.2 J	5.8 J	0.06 UJ	2.3	0.95 UJ	9.9 J	0.71 U	27.3	22.9 J
	NM	(2 - 3)	290	2160	1.8 J	4.6	1.7	0.31	0.53 J	511	0.056 U	7.5	8050	21.8 J	4.9 J	0.062 UJ	1.5	0.75 UJ	4.8 J	0.56 U	24.7	12 J
SA09	NM	(1 - 2)	550	2880	0.41 UJ	3.5	1.7	0.37	0.52 J	57.3	0.11	9.6 J	8920	19.9	9.6 J	0.074 J	1.8	0.81 U	4.1 J	1 J	45.3	15.4 J
	FD	(1 - 2)	440	5490	0.42 UJ	7.8	9	0.7	1.1 J	104	0.26	22.3 J	17300	38.7	11.9 J	0.052 UJ	3	0.84 U	8.5 J	1.7 J	88.2	28.7 J
	NM	(2 - 3)	63	3890	0.46 UJ	2.6	1.8	0.37	0.73 J	82.6	0.13	5.5	5880	29.7	3.5 J	0.061 UJ	2.4	0.92 U	3.8 J	0.69 U	29.2	16 J
SA10	NM	(1 - 2)	93	1640	0.4 UJ	1.6	3	0.3	0.47 J	143	0.061 U	4.5 J	3650	10.9 J	2.6 J	0.057 UJ	1.1	0.81 U	2.1 J	0.92 J	11.8	10.7 J
	NM	(2 - 3)	0	1560	0.39 UJ	3	0.27	0.27	0.27 J	92.6	0.058 U	3.1 J	6560	6.3 J	2.4 J	0.052 UJ	0.8	0.78 U	2.9 J	0.88 J	19	7.5 J
SA11	NM	(1 - 2)	0	1250	0.43 UJ	0.64 U	1.6	0.19	0.13 J	19.8	0.064 U	2.4 J	1720	3.5 J	2.3 J	0.054 UJ	0.57	0.85 U	0.94 J	0.64 U	13.2	5.6 J
	NM	(2 - 3)	0	1990	0.4 UJ	1.4	2.2	0.33	0.14 J	33.5	0.061 U	2.8 J	3890	4.4 J	2.7 J	0.062 UJ	0.98	0.81 U	1.8 J	0.61 U	20.2	6.6 J
SA12	NM	(1 - 2)	390	5290	0.45 UJ	10.4	1.1	0.76	0.54 J	161	0.068 U	7.3 J	14600	25.6 J	5.4 J	0.052 UJ	2.3	0.91 U	7.9 J	1.7 J	82.5	52.5 J
	FD	(1 - 2)	380	5050	0.42 UJ	10	0.9	0.74	0.53 J	154	0.081	6.6 J	13800	24.4 J	5.5 J	0.054 UJ	2.2	0.84 U	7.2 J	1.6 J	79	50.8 J
	NM	(2 - 3)	288	3990	0.5 J	10.1	0.25	0.62	0.36 J	132	0.062 U	5.7 J	12500	16.7 J	4.1 J	0.053 UJ	1.7	0.82 U	6.4 J	1.2 J	73.2	27.6 J

Parameter	Criteria (1)	Units
PCB	371	ug/kg
Aluminum	6153	mg/kg
Antimony	78	mg/kg
Arsenic	13.4	mg/kg
Barium	330	mg/kg
Beryllium	2	mg/kg
Cadmium	32	mg/kg
Chromium	69.1	mg/kg
Cobalt	13	mg/kg
Copper	50	mg/kg
Iron	52403	mg/kg
Lead	115	mg/kg
Manganese	128	mg/kg
Mercury	0.18	mg/kg
Nickel	30	mg/kg
Selenium	1	mg/kg
Silver	2	mg/kg
Thallium	1.64	mg/kg
Vanadium	70.1	mg/kg
Zinc	50	mg/kg

NOTES:
1 Table F-3 TtNUS 2005
Not Included: Calcium, Magnesium, Potassium, Sodium (essential nutrients)
For inorganics, the selected criteria is the maximum of the background concentration and the soil screening criteria.
NM = normal sample
FD = Field Duplicate sample

TABLE 3

SUMMARY OF HEXAVALENT CHROMIUM AND TOTAL CHROMIUM RESULTS
SITE 13 NWS EARLE
COLTS NECK, NEW JERSEY

Sample ID	Sample Area (SA)	Depth	Hex. Chromium mg/kg 3/15/2005	Total Chromium mg/kg 3/15/2005	Total Chromium mg/kg 2/22/2005
13SA02-SD0001	SA02	0-1 foot	ND (11.6 UJ)	200 J	NA
13SA02-SD0102	SA02	1-2 foot	ND (20.6 UJ)	2430 J	2150 J
13SA05-SD0001	SA05	0-1 foot	14.4	31.8 J	NA
13SA05-SD0102	SA05	1-2 foot	ND (8.03 UJ)	351 J	952 J
13SA09-SD0001	SA09	0-1 foot	ND (4.63 U)	44.1 J	NA
13SA09-SD0102	SA09	1-2 foot	ND (4.54 U)	32.4 J	57.3

NA Not Sampled. The surface sediments were not sampled in February 2005 since it had already been agreed that the surface would be excavated and placed under the cap

ND (11.6 U) Chemical was not detected. The detection limit is shown in parentheses

TABLE 4

COMPARISON OF SUBSURFACE RESULTS WITH NJDEP SOIL CLEANUP CRITERIA
SITE 13 NWS EARLE
COLTS NECK, NEW JERSEY

			Parameter																			
	QC	Depth	Total PCBs	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SILVER	THALLIUM	VANADIUM	ZINC
Location	Type	Range	UG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
SA01	NM	(1 - 2)	0	17000 J	6.8 J	16 J	11.6 J	1.2 J	3.8 J	1430 J	1.2 J	21.5 J	12400 J	202 J	10.6 J	0.29 J	20.9 J	16.9 J	15.2 J	4 J	98.8 J	57.4 J
	NM	(2 - 3)	0	7070 J	1.5 J	9.6 J	11.7 J	0.59 J	2.9 J	293 J	6 J	11.2 J	8190 J	54.9 J	6.9 J	0.11 UJ	29.4 J	2.8 J	6 J	2.5 J	197 J	32.5 J
SA02	NM	(1 - 2)	510	22600 J	10.9 J	16.6 J	19 J	0.95 J	4.8 J	2150 J	0.75 J	34 J	10800 J	209 J	11.8 J	0.23 UJ	15 J	25.2 J	18.3 J	3.4 J	66.8 J	54.1 J
	NM	(2 - 3)	360	21300 J	7.8 J	13.1 J	11.8 J	0.67 J	3.5 J	1880 J	0.59 J	24 J	7060 J	139 J	8.7 J	0.26 UJ	13.8 J	18 J	14.6 J	2.7 UJ	73.1 J	37.9 J
SA03	NM	(1 - 2)	2400	17800 J	5.9 J	11.5 J	20.4 J	0.73 J	9.7 J	1220 J	1.3 J	40.7 J	9530 J	222 J	13 J	0.48 J	16.9 J	12.4 J	30.9 J	1.8 UJ	53.1 J	188 J
	NM	(2 - 3)	1420	14500 J	3 J	9 J	14.4 J	0.8 J	5.8 J	761 J	0.83 J	33.5 J	7810 J	170 J	11.2 J	0.21 J	13.5 J	9.9 J	16.7 J	1.9 J	40.3 J	128 J
SA04	NM	(1 - 2)	0	24400 J	9.7 J	6.9 J	15.7 J	0.74 J	2.8 J	2360 J	0.43 J	20 J	1990 J	243 J	6.6 J	0.19 UJ	15 J	22.6 J	13.2 J	2.4 UJ	21.8 J	49.6 J
	NM	(2 - 3)	0	6410 J	4.7 J	4.7 J	6.4 J	0.32 J	0.34 J	1140 J	0.1 UJ	7.9 J	2810 J	47 J	4.3 J	0.095 UJ	2.8 J	10.7 J	4.2 J	1 UJ	19.9 J	8.4 J
SA05	NM	(1 - 2)	6900	15000 J	3.4 J	14.7 J	16.8 J	0.68 J	7.1 J	952 J	0.45 J	52.5 J	21600 J	245 J	17.4 J	0.54 J	10.4 J	8.6 J	34.7 J	1.8 J	57.7 J	107 J
	NM	(2 - 3)	2670	7160	1.9 J	8	10.3	0.52	2.9 J	267	0.5	20.6	13200	83.1 J	13.4 J	0.19 J	7.1	2.7 J	18.7 J	1.4 J	41	89.4 J
SA06	NM	(1 - 2)	44	1370	0.56 J	1.4	1.5	0.24	0.16 J	185	0.06 U	2.9	3180	5.3 J	2.2 J	0.05 UJ	0.73	0.9 J	1.4 J	0.6 U	12.3	8.1 J
	NM	(2 - 3)	43	1180	0.44 UJ	1.2	0.99	0.27	0.18 J	160	0.066 U	2.9	3330	6 J	2.7 J	0.049 UJ	0.65	0.88 UJ	1.5 J	0.66 U	11.5	6.2 J
	FD	(2 - 3)	56	1310	0.38 UJ	1.9	0.88	0.33	0.13 J	177	0.057 U	2.6	3770	9.3 J	4.3 J	0.057 UJ	0.66	0.96 J	1.6 J	0.61 J	14.2	6.5 J
SA07	NM	(1 - 2)	820	4930	0.47 J	9.1	16.2	0.45	2.2 J	59.6	0.41	42.1	14800	123 J	21.4 J	0.52 J	4.5	0.88 UJ	15.6 J	1.7 J	55.5	44.6 J
	NM	(2 - 3)	1690	14600 J	3.2 J	7.6 J	22.4 J	0.71 J	10 J	309 J	0.76 J	38.8 J	9740 J	182 J	14.6 J	0.36 J	20.8 J	6.3 J	21.4 J	1.5 UJ	60.5 J	133 J
SA08	NM	(1 - 2)	1320	4410	1.9 J	5.8	6.6	0.4	1.2 J	427	0.1	20.1	8350	47.2 J	5.8 J	0.06 UJ	2.3	0.95 UJ	9.9 J	0.71 U	27.3	22.9 J
	NM	(2 - 3)	290	2160	1.8 J	4.6	1.7	0.31	0.53 J	511	0.056 U	7.5	8050	21.8 J	4.9 J	0.062 UJ	1.5	0.75 UJ	4.8 J	0.56 U	24.7	12 J
SA09	NM	(1 - 2)	550	2880	0.41 UJ	3.5	1.7	0.37	0.52 J	57.3	0.11	9.6 J	8920	19.9	9.6 J	0.074 J	1.8	0.81 U	4.1 J	1 J	45.3	15.4 J
	FD	(1 - 2)	440	5490	0.42 UJ	7.8	9	0.7	1.1 J	104	0.26	22.3 J	17300	38.7	11.9 J	0.052 UJ	3	0.84 U	8.5 J	1.7 J	88.2	28.7 J
	NM	(2 - 3)	63	3890	0.46 UJ	2.6	1.8	0.37	0.73 J	82.6	0.13	5.5	5880	29.7	3.5 J	0.061 UJ	2.4	0.92 U	3.8 J	0.69 U	29.2	16 J
SA10	NM	(1 - 2)	93	1640	0.4 UJ	1.6	3	0.3	0.47 J	143	0.061 U	4.5 J	3650	10.9 J	2.6 J	0.057 UJ	1.1	0.81 U	2.1 J	0.92 J	11.8	10.7 J
	NM	(2 - 3)	0	1560	0.39 UJ	3	0.27	0.27	0.27 J	92.6	0.058 U	3.1 J	6560	6.3 J	2.4 J	0.052 UJ	0.8	0.78 U	2.9 J	0.88 J	19	7.5 J
SA11	NM	(1 - 2)	0	1250	0.43 UJ	0.64 U	1.6	0.19	0.13 J	19.8	0.064 U	2.4 J	1720	3.5 J	2.3 J	0.054 UJ	0.57	0.85 U	0.94 J	0.64 U	13.2	5.6 J
	NM	(2 - 3)	0	1990	0.4 UJ	1.4	2.2	0.33	0.14 J	33.5	0.061 U	2.8 J	3890	4.4 J	2.7 J	0.062 UJ	0.98	0.81 U	1.8 J	0.61 U	20.2	6.6 J
SA12	NM	(1 - 2)	390	5290	0.45 UJ	10.4	1.1	0.76	0.54 J	161	0.068 U	7.3 J	14600	25.6 J	5.4 J	0.052 UJ	2.3	0.91 U	7.9 J	1.7 J	82.5	52.5 J
	FD	(1 - 2)	380	5050	0.42 UJ	10	0.9	0.74	0.53 J	154	0.081	6.6 J	13800	24.4 J	5.5 J	0.054 UJ	2.2	0.84 U	7.2 J	1.6 J	79	50.8 J
	NM	(2 - 3)	288	3990	0.5 J	10.1	0.25	0.62	0.36 J	132	0.062 U	5.7 J	12500	16.7 J	4.1 J	0.053 UJ	1.7	0.82 U	6.4 J	1.2 J	73.2	27.6 J

Parameter	Criteria (1)	Units
PCB	490	ug/kg
Aluminum	--	mg/kg
Antimony	14	mg/kg
Arsenic	20	mg/kg
Barium	700	mg/kg
Beryllium	2	mg/kg
Cadmium	39	mg/kg
Chromium	112,000(2)	mg/kg
Cobalt	--	mg/kg
Copper	600	mg/kg
Iron	--	mg/kg
Lead	400	mg/kg
Manganese	--	mg/kg
Mercury	14	mg/kg
Nickel	250	mg/kg
Selenium	63	mg/kg
Silver	110	mg/kg
Thallium	2	mg/kg
Vanadium	370	mg/kg
Zinc	1500	mg/kg

NOTES:
Not Included: Calcium, Magnesium, Potassium, Sodium (essential nutrients)
1 - The criteria Based on NJDEP Soil Cleanup Criteria 5/12/99.
2 - The criterion is trivalent form of chromium.
NM = normal sample
FD = Field Duplicate sample

TABLE 5

SUMMARY OF ANALYTICAL RESULTS
SEDIMENT SAMPLING - JUNE 2005
SITE 13 NWS EARLE
COLTS NECK, NEW JERSEY

Sample Number **Depth Range (ft bgs)**	**13SA03-SD03-DIS** 3	**13SA04-SD0102-DIS** 1 - 2	**13SA11-SD0102-DIS** 1 - 2	**13SA11-SD0102-DUP** 1 - 2
TCL PCBs (ug/kg)				
Aroclor-1016	37 U	42 U	39 U	38 U
Aroclor-1221	37 U	42 U	39 U	38 U
Aroclor-1232	37 U	42 U	39 U	38 U
Aroclor-1242	37 U	42 U	39 U	38 U
Aroclor-1248	37 U	42 U	39 U	38 U
Aroclor-1254	37 U	42 U	39 U	38 U
Aroclor-1260	37 U	42 U	39 U	38 U

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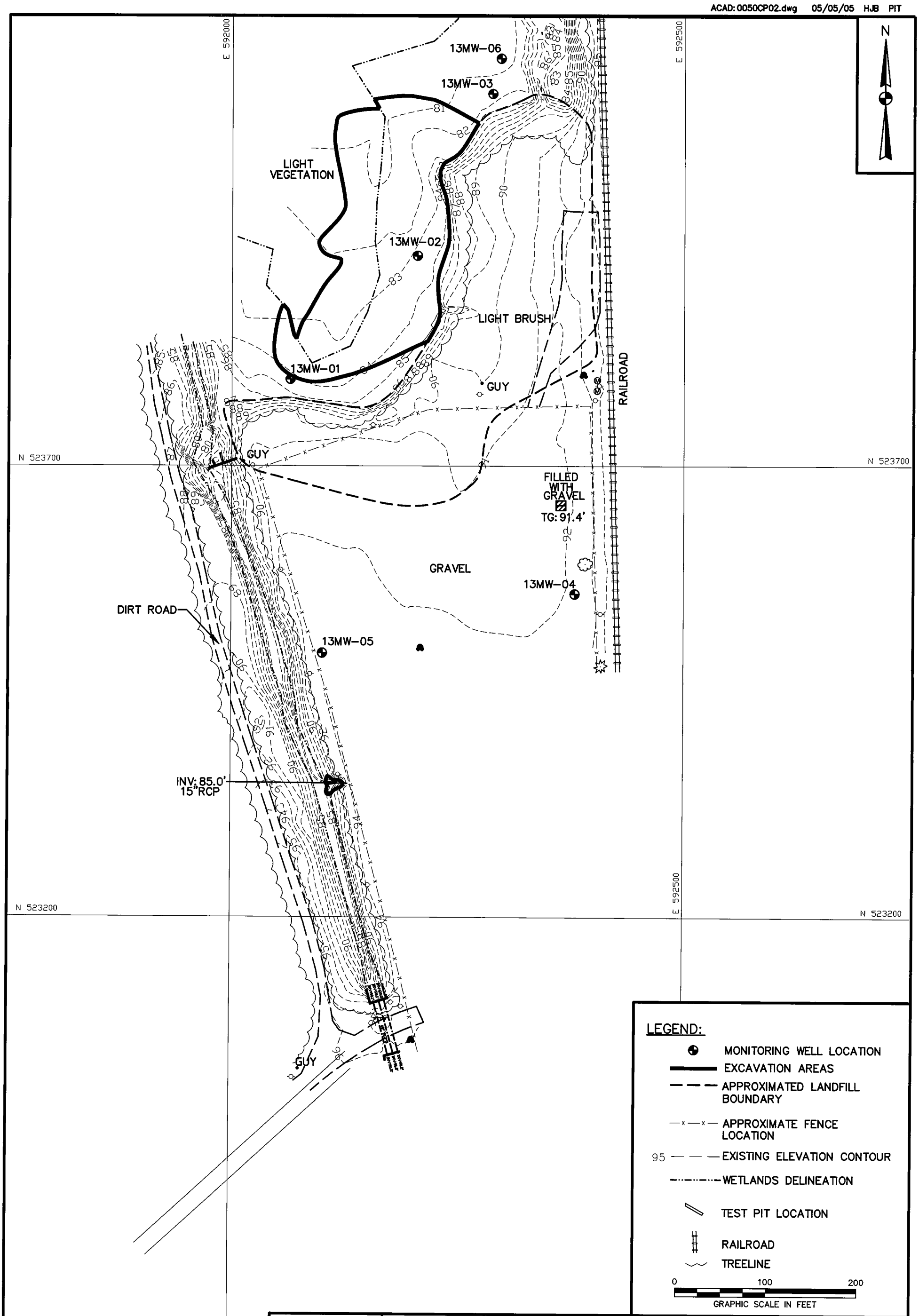

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CHECKED BY	DATE			OWNER NO. 0000
REVISED BY	DATE			APPROVED BY David C Witt DATE 5/5/05
SCALE AS NOTED				DRAWING NO. FIGURE 1 REV. 0

FORM CADD NO. TTNUS-BV.DWG - REV 1 -9/11/98

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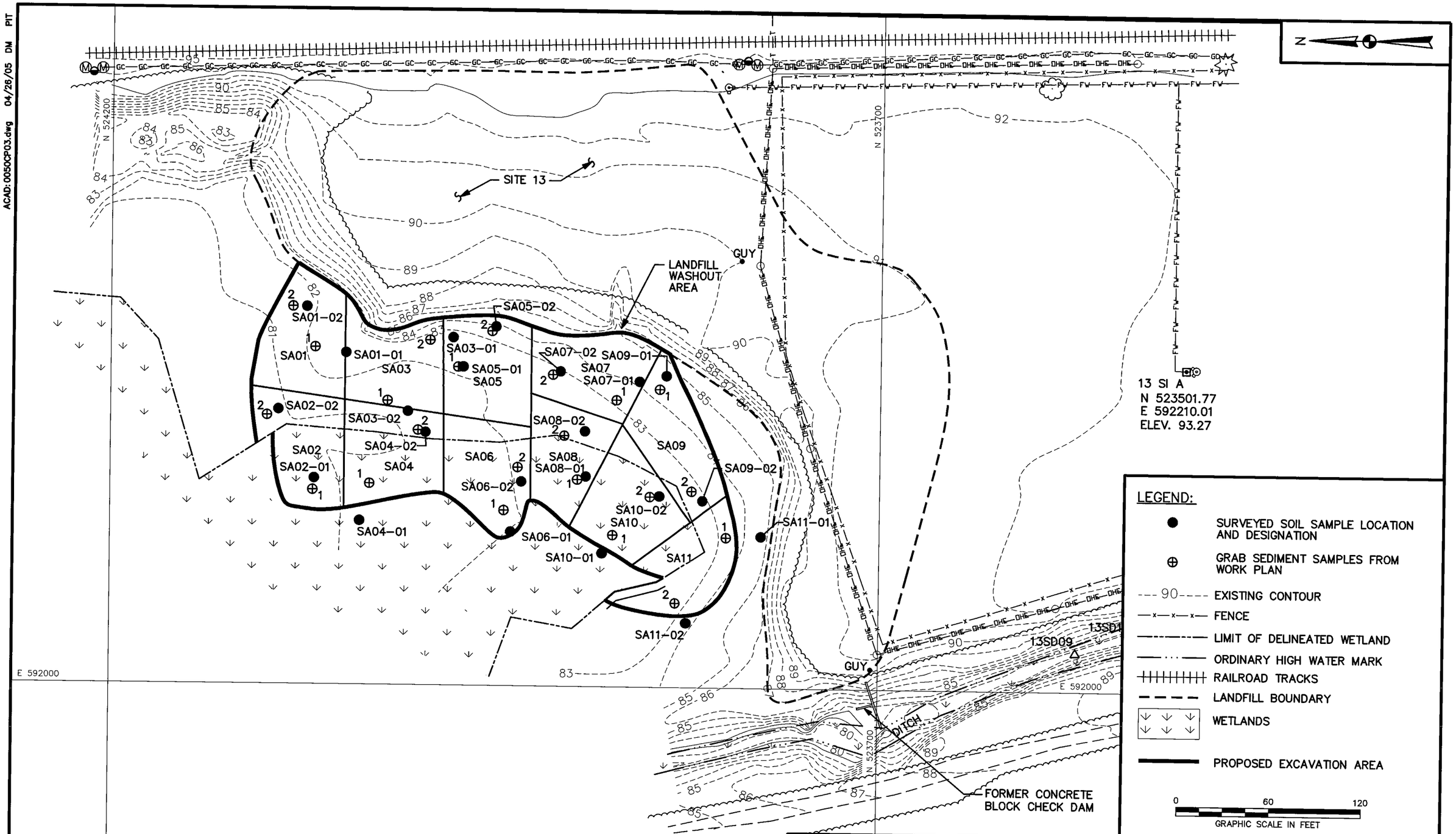

DRAWN BY	DATE
DM	4/26/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	

Tetra Tech NUS, Inc.

SAMPLE LOCATIONS
LAND WASHOUT AREA
SITE 13 - DPDO YARD
NAVAL WEAPONS STATION EARLE
COLTS NECK, NEW JERSEY

CONTRACT NO. 0050	
OWNER NO. 0000	
APPROVED BY	DATE 5/5/05
DRAWING NO. FIGURE 2	REV. 0

FORM CADD NO. TTNUS-BH.DWG - REV 1 - 9/10/98

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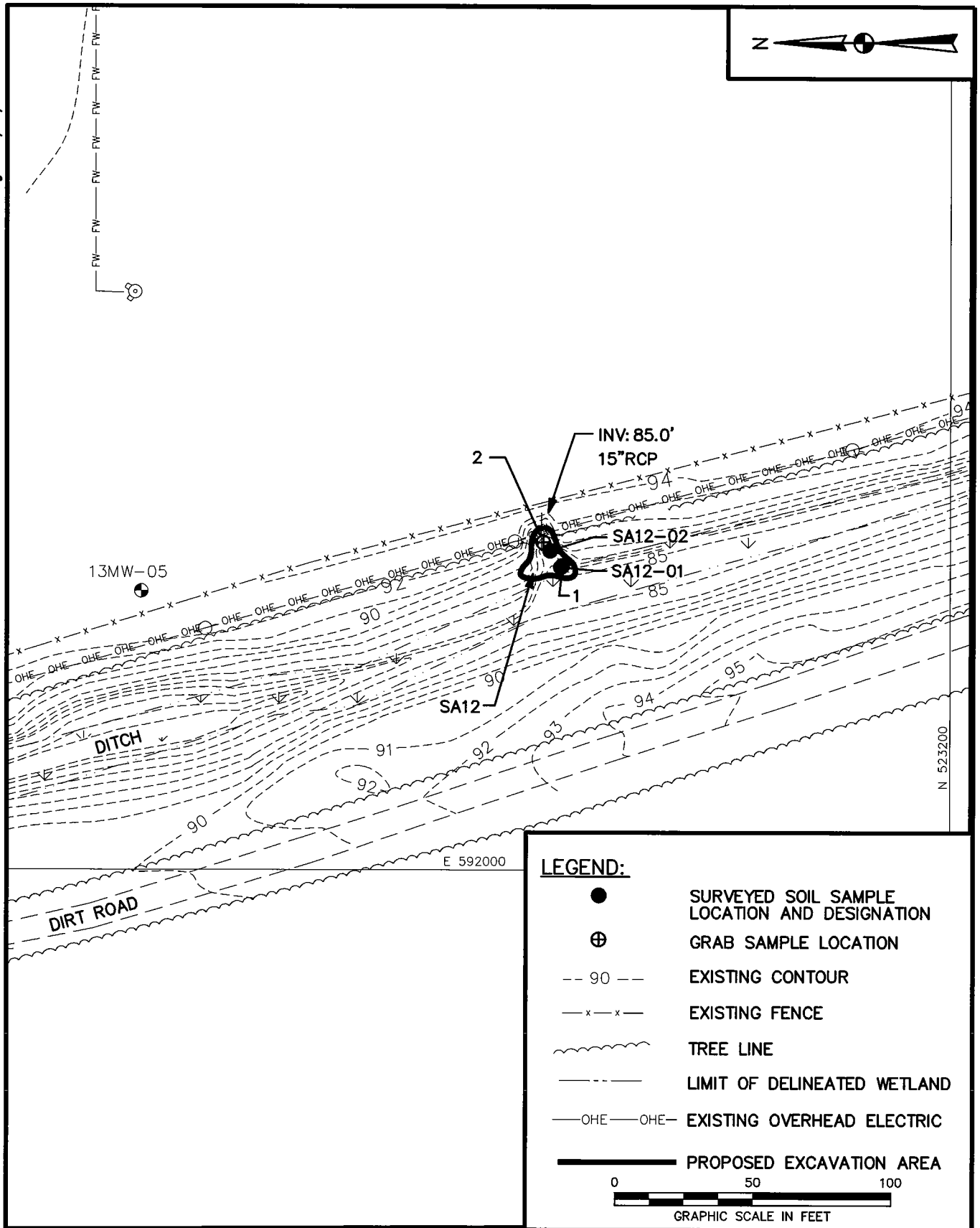

DRAWN BY DM	DATE 4/26/05	Tetra Tech NUS, Inc.	SEDIMENT SAMPLE LOCATIONS STREAM AREA SITE 13 - DPDO YARD NAVAL WEAPONS STATION EARLE COLTS NECK, NEW JERSEY
CHECKED BY	DATE		
REVISED BY	DATE		
SCALE AS NOTED			

CONTRACT NO. 0050
OWNER NO. 0000
APPROVED BY [signature] DATE 5/05/05
DRAWING NO. FIGURE 3
REV. 0

FORM CADD NO. TTNUS-AV.DWG - REV 1 -9/10/98

APPENDIX A

FIELD NOTES

LOG BOOK 2593

TITLE

PROJECT NO.

BOOK

Work continued from Page

February 22, 2005

Goals: Set-up and begin sampling soil/sediment at Site 13.

Weather: Partly cloudy, warm, ~40-50°F.

0700/ Scott R. Anderson (SA) and Matt Cochran (MC) arrive at site. Check in with Guards and go to Pass & ID office.
- SA pass held up in security. Get day pass as escort to Matt.

0720/ Check-in with Alicia at Environmental Building.
- Get two coolers. Unload equipment for Groundwater sampling & load equipment for sediment sampling.

0750/ Go to Fire Department and get hot permit for Drilling.

0805/ Check in with Site 13 / Gate area.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R. Anderson

DATE 2/22/05

WITNESS

DATE

TITLE

PROJECT NO.

BOOK

Work continued from Page

810/ Meet with Drillers. Go to Pass and ID with them.

0840/ Set-up at Site 13. Need to convert Latitude and Longitude as provided by GIS.

Was - 40° 16' 17.931", GPS Unit requires Degrees, Minutes, Minutes/Fraction

New - 40° 16.29885

915/ Scott Anderson set-up, locate Grab sample locations...

→ each time Magellan GPS unit off, locations shift slightly.

→ wait ~10 seconds to confirm location.

* Stake out grab locations for SA01, SA02, SA03.

1130/ On-site for lunch.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R. Anderson

DATE 2/22/05

WITNESS

DATE

TITLE **PROJECT NO.**

BOOK

Work continued from Page

1230 / Begin sampling at SA01

SA01-1, DTW = ~~3½~~ SA 2½' BGS
SA01-2, DTW = ~3' BGS

- Collect composite sample @ SA01, 1-2' @ 1305
- Collect composite sample @ SA01, 2-3' @ 1320. only minor soils from 1.

1340 / Set-up at SA02
SA02-1, DTW = ~2½' BGS
SA02-2, DTW = ~2½' BGS
- Collect composite sample @ SA02, 1-2' @ 1415
- Collect composite sample @ SA02, 2-3' @ 1430

1500 / Decon equipment. Found that not enough soil jars are here.
- order more from lab to be here first thing in morning.

1550 / Set-up at SA03
- Two grab samples appear wrong on map

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R Ackerman DATE 2/22/05

WITNESS DATE

TITLE **PROJECT NO.**

BOOK

Work continued from Page

1610 / Begin sampling at SA03.
SA03-1, DTW = 2½' BGS
SA03-2, DTW = 2½' BGS
- Collect composite sample @ SA03, 1-2' @ 1630
- Collect composite sample @ SA03, 2-3' @ 1645

1650 / Decon equipment.

1730 / Matt & Scott unload equipment

1750 / Matt & Scott offsite for day.

Scott R Ackerman

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R Ackerman DATE 2/22/05

WITNESS DATE

TITLE

PROJECT NO.

BOOK

Work continued from Page

February 23, 2005

Goals: Continue sampling at Site 13.

Weather: Partly Cloudy, cool, ~40°F

0700/ SA and MC leave hotel and travel to site. Stop by Home Depot for supplies.

0820/ Check in with Pass & ID office.
→ stop by Environmental building and get supplies.

0845/ Arrive at site 13. Set-up Magellan GPS unit and mark locations 1, 2 at SA04, SA05, SA06.

→ set-up decon equipment/stations.

0920/ Collect samples at SA04.

1- Black silty clay (Peat) to 3' BGS. water @ ~3' BGS.

2- Black silty clay (Peat) to 2', Green medium sand @ 3' BGS, water @ ~3' BGS.

Work continued to Page

SIGNATURE [signature] DATE 2/23/05

WITNESS DATE

TITLE

PROJECT NO.

BOOK

Work continued from Page

→ collect sample from 1-2' BGS @ 940
collect sample from 2-3' BGS @ 955

☆ Samples are composites of both locations from 1-2' and 2-3' BGS.

1005/ Collect samples at SA05.

1 - Peat/Black silty clay from 0-1', Green/Tan medium clayey sand from 1'-3', Water @ 3' BGS

2 - Peat/Black silty clay from 0-2', Green/Tan medium clayey sand from 2-3', water @ 3' BGS

☆ Odors in 1, from 0'-2' (sweet, musky)

→ collect samples from 1-2' BGS @ 1025
collect samples from 2-3' BGS @ 1035

1040/ Decon equipment - Hand Augers, stainless steel bowls, spoons

1100/ Mark locations 1, 2 at SA07, SA08, SA09, SA10 and SA11.

☆ Magellan unit only displays 3 decimal places, rounded coordinates on list (w/ COCs).

Work continued to Page

SIGNATURE [signature] DATE 2/23/05

WITNESS DATE

TITLE **PROJECT NO.** **BOOK**

Work continued from Page

1215 / Collect samples @ SA06.

1 – Peat / Black silty clay from 0-1', Tan/Green clayey medium sand from 1'-3' BGS, water @ 3' BGS

2 – Peat / Black silty clay from 0'-1', Tan/Green clayey medium sand from 1-3, gravel (quartz, coarse, rounded) at 2-3'. water @ 3' BGS.

→ collect samples from 1-2' @ 1240
→ collect sample from 2-3' @ 1245
* collect duplicate at 2-3'

1250 / SA, MC offsite for lunch.

1340 / Back onsite. Continue sampling. MC assists SA with sampling.

1400 / Collect samples @ SA07

1 – Peat / Black silty clay and Tan/Green sand from 0'-1', Tan/Green clayey medium sand from 1-2', Tan/Green sand from 2-2.25', Black silty clay / Peat from 2.25'-3.0 feet. Water 3'

2 – Peat / Black silty clay, little sand 0'-1', same as above to 2', sand and silty clay to 3'.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE [signature] DATE 2/23/05

WITNESS DATE

TITLE **PROJECT NO.** **BOOK**

Work continued from Page

→ collect samples from 1-2 @ 1425
collect samples from 2-3 @ 1435

1445 / Collect samples at SA08

1 – 0-1 Black silty clay / Peat, 1-2 Green/Tan moist clayey medium sand, 2-3 Green/Tan sand and Peat with gravel. water @ ~3'

2 – 0-1 Black silty clay / Peat, 1-2 Green/Tan moist sand with iron staining (Rust), 2-3 sand, gravel and silty clay / Peat. water @ 3'

→ collect samples from 1-2 @ 15~~15~~ SA 20
collect samples from 2-3 @ 1530

* Collect MS/MSD, Extra jar for each @ composited 1-2' BGS.

* Decon Equipment. Decon Augers each hole and for each depths. Total of 4 buckets used at each location.

1550 / collect samples at SA09

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE [signature] DATE 2/23/05

WITNESS DATE

TITLE **PROJECT NO.**

BOOK

Work continued from Page

1 — 0-1 Black silty clay/Peat, 1-2 SA Green/Tan clayey medium moist sand with coarse to very coarse quartz (milky) gravel, 2-3 Black silty clay/Peat, little sand. water at 2½'

2 — 0-1 Black silty clay/Peat, 1-2 Tan to Green medium, moist clayey sand, 2-3 same as above with gravel (quartz, milky, coarse, rounded) water @ 3' BGS

→ collect samples from 1-2 @ 1558
collect samples from 2-3 @ 1605

* Collect duplicate @ 1-2' BGS

1610/ Collect samples @ SA10

1 — 0-1 Black silty clay/Peat, 1-2½ Green/Tan medium, moist clayey sand with milky quartz gravel (rounded). water @ 2½' BGS.

2 — 0-1 Black silty clay/Peat, 1-2 Tan and Green clayey medium sand, 2-3' Green sand, medium clayey, wet with gravel. water @ 3' BGS.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R Carlson DATE 2/23/05

WITNESS DATE

TITLE **PROJECT NO.**

BOOK

Work continued from Page

→ collect samples @ 1630 @ 1-2
Collect samples @ 1640 @ 2-3

1645/ Collect samples @ SA11

1 — 0-1 Black silty clay/Peat, 1-2 Gray medium clean sand, moist, 2-3 Green to tan clayey medium sand with quartz gravel. water @ 3' BGS.

2 — 0-1 Black silty clay/Peat, 1-2 Green medium clayey moist sand, 2-3 Green sand as above and Peat, water @ 3' BGS

→ collect samples from 1-2 @ 1715
collect samples from 2-3 @ 1725

* collect MS/MSD @ 1-2, 2 extra soil jars

1740/ Decon equipment & pack up for day

1830/ SA, MC offsite for day.

Scott R Carlson

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R Carlson DATE 2/23/05

WITNESS DATE

TITLE

PROJECT NO.

BOOK

Work continued from Page

February 24, 2005

Goal: Finish sediment sampling, assist in well development, sampling.

Weather: Partly cloudy, snow later to ~6".

0700/ SA and MC leave hotel and travel to site.

0740/ Check in with Pass & ID office. Stop by Environmental Building and get supplies for day.

815/ SA scopes out final location, SA12.
→ select two locations in drainage ditch as where discharge would pool/flow.

845/ Collect samples @ SA12

1 – 0-1 Gray, dry medium sand, 1-2 wet gray medium sand, 2-2½ wet gray medium sand to ten sand, water @ 2½' BGS.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R Ashen

DATE 2/24/05

WITNESS

DATE

TITLE

PROJECT NO.

BOOK

Work continued from Page

2 – 0-1 Gray medium sand, 1-2 Tan wet sand, 2-3 Tan wet medium sand, water ~~@~~ SA @ 3' BGS.

→ collect sample from 1-2' @ 940
collect sample from 2-3' @ 950

* Collect Duplicate at 1-2'

1000/ Stake all locations, SA01 → SA12 at both locations within SA's.
→ Mark Name with sharpie.
→ attach bright pink surveyor tape to top.

1200/ Finish marking locations.

1230/ Help Matt with sampling, Scott to get lunch for Matt, Scott.

1300/ Matt calls and informs Scott that Battery is dying. Will go offsite to buy battery.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R Ashen

DATE 2/24/05

WITNESS

DATE

TITLE PROJECT NO.

BOOK

Work continued from Page

1400 / SA back onsite with lunch and battery. Matt hooks into system and continues sampling.

→ Scott starts developing well for Matt using whale pump.

→ Snow coming down very strongly.

1600 / Scott to Environmental building to prepare samplers.

1630 / Battery dying already. Take battery to Matt from charger.

→ Assist Matt w/ sample collection.

1830 / SA, MC offsite for day.

2000 / SA unloads equipment and cleans, packs for shipment.

2130 / SA done with equipment.

Scott R Allen

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R Allen DATE 2/24/05

WITNESS DATE

TITLE PROJECT NO.

BOOK

Work continued from Page

February 25, 2005

Goals: Send Equipment and samples via Fed EX to companies, travel home.

0800 / Scott Anderson prepares COC for cooler. Matt packs truck and loads equipment.

1000 / SA and MC to FedEX. Ship samples via Fed EX SATURDAY. Ship Equipment for overnight, Monday.

1040 / SA and MC pick up tire at Goodyear.

1045 / SA and MC travel home.

Scott R Allen

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE Scott R Allen DATE 2/25/05

WITNESS DATE

LOG BOOK 1361

Work continued from Page

0730 ON SITE, ~~[illegible]~~ (M.G. COCHRAN). GET BADGING

0800 AT SITE 13 SET UP TO COLLECT SEDIMENT SAMPLES AT ~~[illegible]~~ SA-2, 5, AND 9.

1130 SAMPLING COMPLETED, PACK UP SAMPLES AND DECON EQUIPMENT

1200 LEAVE SITE FOR ICE, FEDEX + TRAVEL BACK TO PIT.

VOID

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 MADE IN USA

Work continued to Page

SIGNATURE

DATE 3-15-05

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

LOG BOOK 2597

TITLE NWS Earle DPDO yard

PROJECT NO. 0050

BOOK 2597

Work continued from Page

Monday 6-6-05

0635 Vince Shickora (VS) arrives onsite
- weather: clear - Temp in low 70s °F

- proceed Thru security check at front gate

0650 VS at DPDO yard.

0700 Fred Ansel (Bernier) conducts Health & Safety Briefing for all personnel

0710 VS meets with Fred Ansel and Chris Miller (TN&A)
- Bernier will conduct excavation to allow VS to collect proposed discreet subsurface soil samples this morning.

- personnel onsite:
  - Vince Shickora (Tetrus)
  - Chris Miller (TN&A)
  - Fred Ansel (Bernier)
  - 3 - Union personnel → one operator and 2 laborers.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

DATE 6-6-05

WITNESS

DATE

TITLE NWS Earle DPDO yard

PROJECT NO. 0050

BOOK 2597

Work continued from Page

0725 Bernier laborers continue silt-fence installation along western site perimeter

0815 VS and Excavator at 135A11-S00102-DIS location
- Excavator begins digging to ≈ 1.5' BGS

0825 VS collects sample # 135A11-S00102-DIS
- Sample depth ≈ 1.5' BGS
- also collect Duplicate sample # 135A-DUP01
(see soil sample logsheets for details)

0830 Excavator backfills Trench

0839 VS and Excavator at 135A04-S00102-DIS
- begin digging Trench to ≈ 1.5' BGS

0845 VS collects sample # 135A04-S00102-DIS
- Sample depth ≈ 1.5' BGS
(see soil sample logsheets for details)

0850 Excavator backfills Trench

0855 VS and excavator at 135A03-S003-DIS
- begin digging Trench to ≈ 3.0' BGS

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

DATE 6-6-05

WITNESS

DATE

TITLE NWS Earle DPDO Yard

PROJECT NO. 0050

BOOK 2597

Work continued from Page

0900 VS collects sample #35A03-5003-DIS
- Sample depth ≈ 3.0' BGS
(see soil sample logsheets for details)

0905 Excavator backfills Trench

0908 Bernier personnel on break
- VS begins sample paperwork / packaging

0930 Bernier personnel end break
- continue silt fence installation activities.

0945 Globe Petroleum Fuel Truck arrives onsite
(under escort of Fred Ansel)

- Fuel site equipment

1005 Globe Petroleum Fuel Truck leaves site

1045 VS phones Bob Mertz of TENUS
- Bob was not in - left voice mail message updating site activities.

1100 VS phones Dan Zari (ROICC)
- Dan not in - left voice mail message to return call.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

DATE 6-6-05

WITNESS

DATE

TITLE NWS Earle DPDO Yard

PROJECT NO. 0050

BOOK 2597

Work continued from Page

1125 Hertz rental Equipment Lowboy Truck arrives onsite
- Loads 580 Case backhoe for removal from site
- also Loads Ditch witch Trencher for removal

1155 Hertz Truck leaves site
- Bernier personnel break for lunch

1220 30 yard Rolloff box delivered to site
- 10 yard Rolloff (with cut up poles) removed from site

1245 Bernier personnel continue site activities
- Laborers shore-up orange-High-Vis fence between DPDO yard and Landfill
- Excavator consolidated cut Trees into Large piles on Landfill area.

1310 Fred Ansel (Bernier) informs VS that some type of munition has been located onsite.
- Fred is proceeding to notify TN+A and the ROICC.

1315 VS observes munition item

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

DATE 6-6-05

WITNESS

DATE

TITLE NWS Earle DPDO yard

PROJECT NO. 0050

BOOK 2597

Work continued from Page

- Item is Labeled as follows.
  ER 1.4 Lbs
  HHB 2122 C62
  Rocket Head

- Item is located along embankment near center portion of Landfill near wetlands approximately 20 feet south of sample point SA09-1.

1325 Fred Ansel returns to site
- Chris Miller (TN+A) and Dan Zeri (ROICC) have been notified of munition
- ROICC will contact UXO personnel to check out munition
- Bernier excavator has stopped activities (due to equipment malfunction)
- Bernier Laborers continue ~~still~~ fence activities at extreme eastern portion of site (High-Vis orange fence

1340 Dan Zeri (ROICC) and Lt. Beall of UXO arrive onsite

Work continued to Page

SIGNATURE [signature] DATE 6-6-05

WITNESS DATE

TITLE NWS Earle DPDO yard

PROJECT NO. 0050

BOOK 2597

Work continued from Page

1345 Recon Munition area
- Lt. Beall informs Fred Ansel that the munition is inert

1355 Dan Zeri and Lt. Beall leave site
- VS gave Dan Zeri copies of Daily Construction forms for last week.

1458 VS proceeds to TN+A Trailer
- Meet with Chris Miller and discuss site activities

1510 VS leaves site
- proceed to Fed Ex to complete sample packaging / shipment

[signature] 6-6-05

Work continued to Page

SIGNATURE [signature] DATE 6-6-05

WITNESS DATE

APPENDIX B

FIELD FORMS

B.1 SOIL AND SEDIMENT SAMPLE LOG SHEETS

B.2 CHAIN OF CUSTODY SHEETS

B.1 SOIL AND SEDIMENT SAMPLE LOG SHEETS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 01 -SD 0102
Sample Location: SA 01
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-22-05	1300	1/ 1-2	Black	silty clay to Peat, moist
Method:	1300	2/ 1-2	Black	silty clay to Peat, moist
Hand Auger				
Monitor Readings				
(Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ Collect sample @ 1305

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 01 -SD 0203
Sample Location: SA 01
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

~~Date:~~	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
~~Monitor Reading (ppm):~~			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-22-05	1315	1/ 2-3	Tan	medium clayey sand, wet
Method: Hand Auger	1315	2/ 2-3	Black	silty clay / Peat, wet
Monitor Readings (Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1320

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 02 -SD 0102
Sample Location: SA 02
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-22-05	1405	1 / SA 1-2	Black	Peat / Silty clay, moist
Method: Hand Auger	1405	2 / 1-2	Black	Peat / Silty clay, moist
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1415

MAP:

→ used coordinates from GIS and Magellan GPS Unit

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 02 -SD 0203
Sample Location: SA 02
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-22-05	1420	1/ 2-3	Tan	clayey medium sand, wet
Method: Hand Auger	1420	2/ 2-3	Black	silty clay / peat, wet
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1430

MAP:

→ used coordinates from GIS and Magellan GIS Unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott Rabun

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 03 -SD 0102
Sample Location: SA 03
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-22-05	1620	1/ 1-2	Black	Silty clay / Peat
Method: Hand Auger	1620	2/ 1-2	Black	Silty clay / Peat
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1628

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA03 -SD 0203
Sample Location: SA 03
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (~~Sand, Silt, Clay, Moisture~~, etc.)
Date:			
Time:			
Method:			
Monitor ~~Reading~~ (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-22-05	1640	1 / 2-3	Black/Tan	Peat and Medium sand, wet
Method:	1640	2 / 2-3	Black/Tan	Peat and Medium sand, wet
Hand Auger				
Monitor Readings				
(Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	/	—

OBSERVATIONS / NOTES:

→ collect sample @ 1645

MAP:

→ used coordinates from GIS and Magellan GPS Unit

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA04 -SD 0102
Sample Location: SA04
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	930	1/ 1-2	Black	Peat (silty clay)
Method: Hand Auger	930	1/ 1-2	Black	Peat (silty clay)
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 940

MAP:

→ used coordinates from GIS and magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 04 -SD 0203
Sample Location: SA 04
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

~~Date:~~	Depth Interval	Color	~~Description (Sand, Silt, Clay, Moisture, etc.)~~
Time:			
Method:			
~~Monitor Reading (ppm):~~			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	950	1/ 2-3	Black	Peat (silty clay)
Method:	950	2/ 2-3	Tan/Green	Tan/Green medium clayey sand
Hand Auger				
Monitor Readings				
(Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	/	—

OBSERVATIONS / NOTES:

→ collect sample @ 955

MAP:

→ used coordinates from GIS and Magellan GPS Unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 05 -SD 0102
Sample Location: SA 05
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
~~Date:~~			
Time:			
Method:			
~~Monitor Reading (ppm):~~			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1020	1/ 1-2	Green/Tan	medium clayey sand, moist
Method:	1020	2/ 1-2	Black	Peat (silty clay), moist
Hand Auger				
Monitor Readings				
(Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1025
→ odors @ 1'-2' in both

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA05 -SD 0203
Sample Location: SA 05
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-22-05	1030	1/ 2-3	Green/Tan	wet clayey medium sand
Method: Hand Auger	1030	2/ 2-3	Green/Tan	wet clayey medium sand
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1035
→ odors @ 2'-3' in both

MAP:

→ used coordinates from GIS and Magellan GPS Unit

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 06 -SD 0102
Sample Location: SA 06
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1235	1/ 1-2	Tan/Green	moist clayey medium sand
Method: Hand Auger	1235	2/ 1-2	Tan/Green	moist clayey medium sand
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	/	—

OBSERVATIONS / NOTES:

→ collect sample @ ~~SC~~ SA 1240

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 06 -SD 0203
Sample Location: SA 06
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1240	1/ 2-3	Tan/Green	wet clayey medium sand
Method: Hand Auger	1240	2/ 2-3	Tan/Green	wet clayey medium sand w/ coarse quartz gravel
Monitor Readings (Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	1

OBSERVATIONS / NOTES:

→ collect sample @ 1245

MAP:

→ used coordinates from GIS and Magellan GPS Unit.

Circle if Applicable:

MS/MSD

Duplicate ID No.: FD022305-1

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA07 -SD 0102
Sample Location: SA 07
Sampled By: Scott Anderson
C.O.C. No.: 01055

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1420	1/ 1-2	Tan/Green	moist clayey medium sand
Method: Hand Auger	1420	2/ 1-2	Black	moist Peat (silty clay)
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	/	—

OBSERVATIONS / NOTES:

→ collect sample @ 1425

MAP:

→ used coordinates from GIS and Magellan GPS Unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA07 -SD0203
Sample Location: SA 07
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
~~Monitor Reading (ppm):~~			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, ~~Moisture, etc.~~)
2-23-05	1430	1/ 2-3	Tan/Green→Black	Peat (silty clay) and sand, wet
Method:	1430	2/ 2-3	Tan/Green→Black	Peat (silty clay) and sand, wet
Hand Auger				
Monitor Readings				
(Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1435

MAP:

→ used coordinates from GIS and Magellan GPS Unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 08 -SD 0102
Sample Location: SA 08
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1515	1 / 1-2	Tan/Green	Moist clayey medium sand
Method:	1515	2 / 1-2	Tan/Green	Moist clayey medium sand
Hand Auger				-Rust staining
Monitor Readings				
(Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	2

OBSERVATIONS / NOTES:

→ collect sample @ 1520

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Scott K. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA08 -SD 02-03
Sample Location: SA 08
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (~~Sand, Silt, Clay, Moisture~~, etc.)
Time:			
Method:			
Monitor ~~Reading (ppm)~~:			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1525	1 / 2-3	Tan/Green → Black	Clayey sand with gravel, Peat
Method: Hand Auger	1525	2 / 2-3	Tan/Green	clayey sand with gravel
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ Collect sample @ 1530

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 09 -SD0102
Sample Location: SA 09
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1555	1/ 1-2	Green	Moist clayey medium sand
Method: Hand Auger	1555	2/ 1-2	Tan/Green	Moist clayey medium sand
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	1

OBSERVATIONS / NOTES:

→ collect sample @ 1558

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD

Duplicate ID No.: FD022305-2

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA09 -SD 0203
Sample Location: SA 09
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1600	1/ 2-3	Black	Peat (silty clay), wet
Method: Hand Auger	1600	2/ 2-3	Green/Tan	clayey sand and gravel, wet
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1605

MAP:

→ used coordinates from GIS and Magellan GPS Unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 10 -SD 0102
Sample Location: SA 10
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1625	1/ 1-2	Green/Tan	clayey sand w/gravel, moist
Method: Hand Auger	1625	2/ 1-2	Tan/Green	clayey sand w/gravel, moist
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1630

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA10 -SD 0203
Sample Location: SA 10
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1635	1 / 2-3	Green / Tan	wet clayey medium sand/gravel
Method: Hand Auger	1635	2 / 2-3	Tan / Green	wet clayey medium sand/gravel
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1640

MAP:

→ used coordinates from GIS and Magellan GPS Unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 11 -SD 0102
Sample Location: SA 11
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1710	1 / 1-2	Grey	Moist clayey sand
Method: Hand Auger	1710	2 / 1-2	Green	Moist clayey sand
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	2

OBSERVATIONS / NOTES:

→ collect sample @ 1715

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 11 -SD 0203
Sample Location: SA 11
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-23-05	1720	1 / 2-3	Tan/Green	wet clayey sand w/gravel
Method: Hand Auger	1720	2 / 2-3	Tan/Green	wet clayey sand & Peat
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	—

OBSERVATIONS / NOTES:

→ collect sample @ 1725

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 12 -SD 0102
Sample Location: SA 12
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-24-05	935	1/ 1-2	Grey	moist medium sand
Method: Hand Auger	935	2/ 1-2	Tan	moist medium sand
Monitor Readings (Range in ppm): —				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	1

OBSERVATIONS / NOTES:

→ collect sample @ 940

MAP:

→ used coordinates from GIS and Magellan GPS Unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.: FD022405-3

Signature(s): Scott R. Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earle, Site 13
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA12 -SD 0203
Sample Location: SA 12
Sampled By: Scott Anderson
C.O.C. No.: 01056

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-24-05	945	1 / 2-3	Grey	wet medium sand
Method:	945	2 / 2-3	Tan	wet medium sand
Hand Auger				
Monitor Readings				
(Range in ppm):				
—				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBS / METALS	8 OZ GLASS	1	–

OBSERVATIONS / NOTES:

→ Collect sample @ 950

MAP:

→ used coordinates from GIS and Magellan GPS unit.

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Scott R Anderson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle, Site 13
Project No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 02-SD 0001
Sample Location: SA 02
Sampled By:
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 3-15-05			
Time: 0830			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
3-15-05	0825	0-1	DK BR	SILT, W ROOT MTL (PEAT LIKE) DAMP
Method: HAND AUGER	0830	"	DK BR	SILT, W ROOT MTL (PEAT LIKE) DAMP
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TOTAL AND HEXAVALENT CHROMIUM	4 OZ GLASS	✓	

OBSERVATIONS / NOTES:

MAP:

LOCATIONS PREVIOUSLY SURVEYED

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle, Site 13
Project No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA02-SD01 02
Sample Location: SA 02
Sampled By:
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 3-15-05			
Time: 0845			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
3-15-05	0840	1-2'	DK BRN	SILT, TR SAND (PEAT LIKE) MOIST
Method: HAND AUGER	0845	1-2'	DK BRN	SILT, TR SAND (PEAT LIKE) MOIST
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TOTAL AND HEXAVALENT CHROMIUM	4 OZ GLASS	✓	

OBSERVATIONS / NOTES:

MAP:

LOCATIONS PREVIOUSLY SURVEYED

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle, Site 13
Project No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 05-SD 0001
Sample Location: SA 05
Sampled By:
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 3-15-05			
Time: 900			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 3/15/05	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	855	0-1	LT BRN	SAND, TR. SILT + ROOT MTL (DAMP)
Method: HAND AUGER	900	0-1	DK BRN	SILT, TR SAND + ROOT MTL (PEAT LIKE, DAMP)
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TOTAL AND HEXAVALENT CHROMIUM	4 OZ GLASS	✓	

OBSERVATIONS / NOTES:

MAP:

LOCATIONS PREVIOUSLY SURVEYED

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle, Site 13
Project No.: -

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA05-SD0102
Sample Location: SA 05
Sampled By:
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
3/15/05	0920	1-2'	DK BRN	SAND, TR SILT, MOIST
Method: HAND AUGER	0925	1-2'	"	SAND, TR SILT, MOIST
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TOTAL AND HEXAVALENT CHROMIUM	4 OZ GLASS	✓	

OBSERVATIONS / NOTES:

MAP:

LOCATIONS PREVIOUSLY SURVEYED

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle, Site 13
Project No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 09-SD 0001
Sample Location: SA 09
Sampled By:
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
3-15-05	1015	0-1	LT BRN	SAND, TR ROOT MTL. DAMP
Method: HAND AUGER	1020	0-1	LT GREY	SILTY SAND, TR ROOT MTL DAMP
Monitor Readings (Range in ppm): N A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TOTAL AND HEXAVALENT CHROMIUM	4 OZ GLASS		

OBSERVATIONS / NOTES:

MAP:

LOCATIONS PREVIOUSLY SURVEYED

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle, Site 13
Project No.:

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA 09-SD 01 02
Sample Location: SA 09
Sampled By:
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
3-15-05	1025	1-2	LT BRN	SAND, TR. GRAVEL, MOIST
Method: HAND AUGER	1030	1-2	DK GREY	SAND, TR GRAVEL MOIST
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TOTAL AND HEXAVALENT CHROMIUM	4 OZ GLASS	✓	

OBSERVATIONS / NOTES:

MAP:

LOCATIONS PREVIOUSLY SURVEYED

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle - Site 13
Project No.: CTO-0033

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA03-SD03-DIS
Sample Location: SA-03
Sampled By: Vince Shickosk
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6-6-05 Time: 0900 Method: Grab (see below) Monitor Reading (ppm): 0	3.0' BGS	Light Gray	Fine to medium grain sand with Trace silt / fine gravel (very moist)

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBs	8 ounce Amber Jar	1	

OBSERVATIONS / NOTES:

- Sample collected within Trench dug by excavator
- disposable Trowel used to collect Sample
- No odors, stains, elevated PID readings

MAP:

(see logbook #2597)

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle - Site 13
Project No.: CTO-0033

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 13SA11-SD0102-DIS
Sample Location: SA-11
Sampled By: Vince Shickosa
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6-6-05 Time: 0825 Method: Grab (see below) Monitor Reading (ppm): 0	1.5' BGS	Tan Brown	Fine to Medium grain sand with Trace silt / fine gravel (moist)

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBs	8 ounce Amber Jar	2 (Dup - see below)	-

OBSERVATIONS / NOTES:

- Sample collected in Trench dug by Excavator
- disposable Trowel used to collect Sample
- No odors, stains, elevated PID readings

MAP:

(see logbook #2597)

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	13SA-DUP01

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NWS Earle - Site 13
Project No.: CTO-0033

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 135A04-SB0102-DIS
Sample Location: SA-04
Sampled By: Vince Shickora
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6-6-05 Time: 0845 Method: Grab (see below) Monitor Reading (ppm): 0	1.5' BGS	Light Gray	Fine to medium grain Sand with Trace silt / fine gravel (moist)

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL PCBs	8 ounce Amber Jar	1	

OBSERVATIONS / NOTES:

- Sample collected in Trench dug by Excavator
- Disposable Trowel used to collect Sample
- No odors, stains, elevated PID readings

MAP:

(see logbook #2597)

Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

B.2 CHAIN OF CUSTODY SHEETS

CHAIN OF CUSTODY RECORD

01055

PROJECT NO.: CTO 033

SITE NAME: Earle NWS

SAMPLERS (SIGNATURE): Scott R. Anderson

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL PCBS TAL Metals						REMARKS
	2/22	1305	X		13SA01-SD0102	1	X						
	2/22	1320	X		13SA01-SD0203	1	X						
	2/22	1415	X		13SA02-SD0102	1	X						
	2/22	1430	X		13SA02-SD0203	1	X						
	2/22	1628	X		13SA03-SD0102	1	X						
	2/22	1645	X		13SA03-SD0203	1	X						
	2/23	940	X		13SA04-SD0102	1	X						
	2/23	955	X		13SA04-SD0203	1	X						
	2/23	1025	X		13SA05-SD0102	1	X						
	2/23	1035	X		13SA05-SD0203	1	X						
	2/23	1240	X		13SA06-SD0102	1	X						
	2/23	1245	X		13SA06-SD0203	1	X						
	2/23	1300	X		FD022305-1	1	X						
	2/23	1425	X		13SA07-SD0102	1	X						

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
Scott R. Anderson	900 2/25				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	

Order No. 70440 (0693)

01056

CHAIN OF CUSTODY RECORD

PROJECT NO.: CTO 033

SITE NAME: Earle NWS

SAMPLERS (SIGNATURE): Scott R. Anderson

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL PCBs / TAL metals	TCL PCBs	TAL metals				REMARKS
	2/23	1435	X		13SA07-SD0203	1	X						
	2/23	1520	X		13SA08-SD0102	3	X						MS/MSD
	2/23	1530	X		13SA08-SD0203	1	X						
	2/23	1558	X		13SA09-SD0102	1	X						
	2/23	1605	X		13SA09-SD0203	1	X						
	2/23	1600	X		FD022305-2	1	X						
	2/23	1630	X		13SA10_SD0102	1	X						
	2/23	1640	X		13SA10-SD0203	1	X						
	2/23	1715	X		13SA11-SD0102	3	X						MS/MSD
	2/23	1725	X		13SA11-SD0203	1	X						
	2/24	940	X		13SA12-SD0102	1	X						
	2/24	950	X		13SA12-SD0203	1	X						
	2/24	945	X		FD022405-3	1	X						
	2/24	1100	—	—	Rinseate-1	2		X	X				Water

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
Scott R. Anderson	900 2/25				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	

Order No. 70440 (0693)

TtA TECH NUS, INC. CHAIN OF CUSTODY NUMBER 0049 | PAGE ___ OF ___

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
00050	NWS EARLE SITE 13	DAN WITT	412-921-7090	MITKEM BENDOOGE
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: M. COCHRAN	PHONE NUMBER: 412-921-7090	ADDRESS: 175 MEIKO CENTER BLVD
		CARRIER/WAYBILL NUMBER		CITY, STATE: WARWICK, RI, 02886

STANDARD TAT ☐
RUSH TAT ☑ FRIDAY C.O.B.
☑ 24 hr. ☑ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: COOL

DATE YEAR 2005	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: HEXAVALENT + TOTAL CHROME	COMMENTS
3/15	0830	13SA02-SD0001	13SA2	0	1	SD	C	1	1	
3/15	0845	13SA02-SD0102	13SA2	1	2	↓	↓	↓	↓	
↓	0900	13SA05-SD0001	13SA5	0	1	↓	↓	↓	↓	
↓	0925	13SA05-SD0102	13SA5	1	2	↓	↓	↓	↓	
↓	1020	13SA09-SD0001	13SA9	0	1	↓	↓	↓	↓	
↓	1030	13SA09-SD0102	13SA9	1	2	↓	↓	↓	↓	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	3-15-05	13:00	1. RECEIVED BY FED EX # 84554237 5700	3-15-05	1300
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY Tetra Tech NUS	PHONE (412) 921-7167	COMPANY Tetratech NUS	PHONE (412) 921-7167	LAB PROJECT #:
NAME Bob Mertz	FAX (412) 921-4040	NAME	FAX (412) 921-4040	
ADDRESS		ADDRESS Pittsburgh PA		TURNAROUND TIME:
CITY/ST/ZIP Pittsburgh PA		CITY/ST/ZIP		48 hour

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
NWS Earle Site 13	N0050	

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	TCL PCBs	COMMENTS
135A11-S00102-DIS	6-6-05 / 0825		X		X			1	1	48 hour TAT
135A04-S00102-DIS	6-6-05 / 0845		X		X			1	1	↓
135A03-S003-DIS	6-6-05 / 0900		X		X			1	1	↓
135A-DUP01	6-6-05 / 0000		X		X			1	1	↓
	/									
Temp Blank	/			X				1		
	/									
	/									
	/									
	/									
	/									
	/									

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
	Vince Shickosa	6-6-05 / 1730		/
		/		/
		/		/

ADDITIONAL REMARKS:

48 hour TAT
Shipped by FED EX air bill
8455 3266 4092

COOLER TEMP:

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

APPENDIX C

DATA VALIDATION LETTERS

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: [redacted] **DATE:** **APRIL 18, 2005**

FROM: **ERIN M. FAUST** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TOTAL AND HEXAVALENT CHROMIUM**
CTO 033 NWS EARLE
SAMPLE DELIVERY GROUP (SDG) – D0309

SAMPLES: 6/Sediment/

13SA02-SD0001	13SA02-SD0102	13SA05-SD0001
13SA05-SD0102	13SA09-SD0001	13SA09-SD0102

Overview

The sample set for CTO 033, NWS, Earle, SDG D0309, consists of six (6) sediment environmental samples.

All samples were analyzed for total and hexavalent chromium. The samples were collected by Tetra Tech NUS on March 15, 2005 and analyzed by Mitkem Corporation under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Total chromium analyses were conducted using SW-846 method 6010B. Analyses for hexavalent chromium were conducted using SW-846 method 7196A.

Total chromium analyses were conducted using Inductively Coupled Plasma (ICP) instrumentation.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Data
* • Laboratory Blank Analyses
* • ICP Interference Check Sample Results
* • Laboratory Control Sample Results
* • Matrix Spike Results
* • Laboratory Duplicate Results
• ICP Serial Dilution Results
• Sample Quanitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

ICP Serial Dilution Results

The ICP serial dilution percent difference for chromium was > 10% quality control limit and the concentration of chromium in the initial sample was > 10X the instrument detection limit (IDL).

Positive results, greater than ten times the IDL, reported for chromium were qualified as estimated, "J".

Sample Quantitation

Positive and nondetected results reported for total and hexavalent chromium in samples 13SA02-SD0001, 13SA02-SD0102 and 13SA05-SD0102 were qualified as estimated, "J" and "UJ", respectively, due to low (< 50%) percent solids.

Notes

Total chromium results already existed in the electronic database for samples 13SA02-SD0102, 13SA05-SD0102 and 13SA09-SD0102. In order to store the most recent results for total chromium in these samples in the electronic database, the suffix "RE" was appended to the sample names.

The nondetected results reported by the laboratory for hexavalent chromium were recorded as '0' in the electronic data deliverable (EDD). The data reviewer corrected the results to reflect the nondetect at the method detection limit (MDL).

The laboratory did not analyze a Contract Required Detection Limit (CRDL) standard for the samples in this SDG. No validation action was necessary because all reported results were greater than two times the CRDL.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: Several results were qualified due to low percent solids.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", as amended for use within EPA Region II, January 1992 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Erin M Faust

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets
4. Appendix D - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00050

SDG: D0309 MEDIA: SOIL DATA FRACTION: M

nsample	13SA02-SD0001	nsample	13SA02-SD0102RE	nsample	13SA05-SD0001
samp_date	3/15/2005	samp_date	3/15/2005	samp_date	3/15/2005
lab_id	D0309-01A	lab_id	D0309-02A	lab_id	D0309-03A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	34.0	Pct_Solids	19.0	Pct_Solids	57.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
CHROMIUM	200	J	IY

Parameter	Result	Val Qual	Qual Code
CHROMIUM	2430	J	IY

Parameter	Result	Val Qual	Qual Code
CHROMIUM	31.8	J	I

PROJ_NO: 00050

SDG: D0309 MEDIA: SOIL DATA FRACTION: M

nsample	13SA05-SD0102RE	nsample	13SA09-SD0001	nsample	13SA09-SD0102RE
samp_date	3/15/2005	samp_date	3/15/2005	samp_date	3/15/2005
lab_id	D0309-04A	lab_id	D0309-05A	lab_id	D0309-06A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	49.0	Pct_Solids	85.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
CHROMIUM	351	J	IY

Parameter	Result	Val Qual	Qual Code
CHROMIUM	44.1	J	I

Parameter	Result	Val Qual	Qual Code
CHROMIUM	32.4	J	I

PROJ_NO: 00050

SDG: D0309 MEDIA: SOIL DATA FRACTION: MISC

nsample	13SA02-SD0001	nsample	13SA02-SD0102	nsample	13SA05-SD0001
samp_date	3/15/2005	samp_date	3/15/2005	samp_date	3/15/2005
lab_id	D0309-01A	lab_id	D0309-02A	lab_id	D0309-03A
qc_type	NM	qc_type	NM	qc_type	NM
Pct_Solids	34.0	Pct_Solids	19.0	Pct_Solids	57.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
HEXAVALENT CHROMIUM	MG/KG	11.6	UJ	Y

Parameter	units	Result	Val Qual	Qual Code
HEXAVALENT CHROMIUM	MG/KG	20.6	UJ	Y

Parameter	units	Result	Val Qual	Qual Code
HEXAVALENT CHROMIUM	MG/KG	14.4		

PROJ_NO: 00050

SDG: D0309 MEDIA: SOIL DATA FRACTION: MISC

nsample	13SA05-SD0102	nsample	13SA09-SD0001	nsample	13SA09-SD0102
samp_date	3/15/2005	samp_date	3/15/2005	samp_date	3/15/2005
lab_id	D0309-04A	lab_id	D0309-05A	lab_id	D0309-06A
qc_type	NM	qc_type	NM	qc_type	NM
Pct_Solids	49.0	Pct_Solids	85.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
HEXAVALENT CHROMIUM	MG/KG	8.03	UJ	Y

Parameter	units	Result	Val Qual	Qual Code
HEXAVALENT CHROMIUM	MG/KG	4.63	U	

Parameter	units	Result	Val Qual	Qual Code
HEXAVALENT CHROMIUM	MG/KG	4.54	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: [redacted] **DATE:** **APRIL 22, 2005**

FROM: **EDWARD SEDLMYER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- PCB**
CTO 033, NWS EARLE
SDG D0220

SAMPLES: 20/Sediment

13SA01-SD0102	13SA01-SD0203	13SA02-SD0102
13SA02-SD0203	13SA03-SD0102	13SA03-SD0203
13SA04-SD0102	13SA04-SD0203	13SA05-SD0102
13SA05-SD0203	13SA06-SD0102	13SA06-SD0203
13SA07-SD0102	13SA07-SD0203	13SA08-SD0102
13SA08-SD0203	13SA09-SD0102	13SA09-SD0203
FD022305-1	FD022305-2	

OVERVIEW

The sample set for CTO 033; NWS Earle, SDG D0220 consists of twenty (20) environmental sediment samples. All samples were analyzed for polychlorinated biphenyls (PCB) list. Two field duplicates were included in this SDG: (13SA06-SD0203 / FD022305-1 and 13SA09-SD0102 / FD022305-2).

The samples were collected by Tetra Tech NUS on February 22 and 23, 2005 and analyzed by Mitkem Corporation. All analyses were conducted in accordance with SW-846 Method 8082 analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
• Initial/continuing calibrations
* • Laboratory method and field blank results
* • Surrogate Spike Recoveries
* • Blank Spike/Blank Spike Duplicate Results
* • Matrix Spike/Matrix Spike Duplicate Results
* • Compound Identification
• Compound Quantitation
* • Detection Limits

The symbol (*) indicates that quality control criteria were not met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

PCB

The continuing calibration analyzed on 3/02/05 @07:03 on instrument "E2" had an average percent difference greater than the 15% quality control limit on the primary column for Aroclor-1254. No action was

taken on this basis because the secondary column average percent difference was acceptable.

The continuing calibration analyzed on 3/03/05 @09:32 on instrument "E2" had a average percent difference greater than the 15% quality control limit on the primary column for Aroclor-1260. No action was taken on this basis because the secondary column average percent difference was acceptable and no positive results were reported in the associated sample.

The continuing calibration analyzed on 3/03/05 @15:47 on instrument "E2" had a average percent difference greater than the 15% quality control limit on the primary column for Aroclor-1016 and Aroclor-1260. No action was taken on this basis because the secondary column average percent difference was acceptable and no positive results were reported in the associated sample.

The continuing calibration analyzed on 3/03/05 @22:28 on instrument "E2" had a average percent difference greater than the 15% quality control limit on the primary column for Aroclor-1016 and Aroclor-1260. No action was taken on this basis because the secondary column average percent difference was acceptable and no positive results were reported in the associated sample.

The %D between analytical columns for the pesticide analyses exceeded 25% for the positive results reported for several compounds in the following samples and the results have been qualified as estimated, "J":

Sample Number	Compound	% Difference	Qualification
13SA02-SD0203	Aroclor-1260	28.6%	J
13SA03-SD0102	Aroclor-1260	44.4%	J
13SA03-SD0203	Aroclor-1260	42.2%	J
13SA05-SD0102	Aroclor-1254	34.1%	J
	Aroclor-1260	50.0%	J
13SA05-SD0203	Aroclor-1260	56.7%	J
13SA06-SD0102	Aroclor-1260	29.1%	J
13SA06-SD0203	Aroclor-1260	29.7%	J
13SA07-SD0203	Aroclor-1254	51.0%	J
13SA08-SD0102	Aroclor-1254	44.9%	J
13SA08-SD0203	Aroclor-1254	58.3%	J
	Aroclor-1260	28.6%	J
13SA09-SD0102	Aroclor-1254	51.5%	J
	Aroclor-1260	27.3%	J
13SA09-SD0203	Aroclor-1260	39.5%	J
FD022305-2	Aroclor-1254	50.6%	J
	Aroclor-1260	32.2%	J

The positive and non-detected PCB results in samples 13SA01-SD0102, 13SA02-SD0102, 13SA02-SD0203, 13SA03-SD0102, 13SA03-SD0203, 13SA04-SD0102, and 13SA07-SD0203 were qualified as estimated (J) because the percent solids for the samples were less than 30%.

The retentions times for tetrachloro-m-xylene and decachlorobiphenyl were outside the acceptance window in all samples, standards, and blanks. No action was taken on this basis because the shift in retention times are attributed to the gap of two months between the initial calibration and sample analysis and all retention

times are consistent.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Calibration verification non-compliances. Qualifications were made based percent difference between analytical columns.

Other Factors Affecting Data Quality: Percent solids less than 30% resulted in qualification of the data.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and EPA Region II Guidelines. The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the Quality Assurance Project Plan (QAPP)."

Edward Sedlmyer

TetraTech NUS
Edward Sedlmyer
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Worksheets
4. Appendix D - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA01-SD0102	nsample	13SA01-SD0203	nsample	13SA02-SD0102
samp_date	2/22/2005	samp_date	2/22/2005	samp_date	2/22/2005
lab_id	D0220-01A	lab_id	D0220-02A	lab_id	D0220-03A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	21.0	Pct_Solids	42.0	Pct_Solids	21.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	160	UJ	Y
AROCLOR-1221	160	UJ	Y
AROCLOR-1232	160	UJ	Y
AROCLOR-1242	160	UJ	Y
AROCLOR-1248	160	UJ	Y
AROCLOR-1254	160	UJ	Y
AROCLOR-1260	160	UJ	Y

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	78	U	
AROCLOR-1221	78	U	
AROCLOR-1232	78	U	
AROCLOR-1242	78	U	
AROCLOR-1248	78	U	
AROCLOR-1254	78	U	
AROCLOR-1260	78	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	160	UJ	Y
AROCLOR-1221	160	UJ	Y
AROCLOR-1232	160	UJ	Y
AROCLOR-1242	160	UJ	Y
AROCLOR-1248	160	UJ	Y
AROCLOR-1254	160	UJ	Y
AROCLOR-1260	510	J	Y

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA02-SD0203
samp_date	2/22/2005
lab_id	D0220-04A
qc_type	NM
units	UG/KG
Pct_Solids	18.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	180	UJ	Y
AROCLOR-1221	180	UJ	Y
AROCLOR-1232	180	UJ	Y
AROCLOR-1242	180	UJ	Y
AROCLOR-1248	180	UJ	Y
AROCLOR-1254	180	UJ	Y
AROCLOR-1260	360	J	UY

nsample	13SA03-SD0102
samp_date	2/22/2005
lab_id	D0220-05A
qc_type	NM
units	UG/KG
Pct_Solids	29.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	110	UJ	Y
AROCLOR-1221	110	UJ	Y
AROCLOR-1232	110	UJ	Y
AROCLOR-1242	110	UJ	Y
AROCLOR-1248	110	UJ	Y
AROCLOR-1254	1700	J	Y
AROCLOR-1260	700	J	UY

nsample	13SA03-SD0203
samp_date	2/22/2005
lab_id	D0220-06A
qc_type	NM
units	UG/KG
Pct_Solids	28.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	120	UJ	Y
AROCLOR-1221	120	UJ	Y
AROCLOR-1232	120	UJ	Y
AROCLOR-1242	120	UJ	Y
AROCLOR-1248	120	UJ	Y
AROCLOR-1254	990	J	Y
AROCLOR-1260	430	J	UY

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA04-SD0102	nsample	13SA04-SD0203	nsample	13SA05-SD0102
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0220-07A	lab_id	D0220-08A	lab_id	D0220-09A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	21.0	Pct_Solids	42.0	Pct_Solids	30.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	160	UJ	Y
AROCLOR-1221	160	UJ	Y
AROCLOR-1232	160	UJ	Y
AROCLOR-1242	160	UJ	Y
AROCLOR-1248	160	UJ	Y
AROCLOR-1254	160	UJ	Y
AROCLOR-1260	160	UJ	Y

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	78	U	
AROCLOR-1221	78	U	
AROCLOR-1232	78	U	
AROCLOR-1242	78	U	
AROCLOR-1248	78	U	
AROCLOR-1254	78	U	
AROCLOR-1260	78	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	110	U	
AROCLOR-1221	110	U	
AROCLOR-1232	110	U	
AROCLOR-1242	110	U	
AROCLOR-1248	110	U	
AROCLOR-1254	5100	J	U
AROCLOR-1260	1800	J	U

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA05-SD0203
samp_date	2/23/2005
lab_id	D0220-10A
qc_type	NM
units	UG/KG
Pct_Solids	54.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	60	U	
AROCLOR-1221	60	U	
AROCLOR-1232	60	U	
AROCLOR-1242	60	U	
AROCLOR-1248	60	U	
AROCLOR-1254	2000		
AROCLOR-1260	670	J	U

nsample	13SA06-SD0102
samp_date	2/23/2005
lab_id	D0220-11A
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	39	U	
AROCLOR-1221	39	U	
AROCLOR-1232	39	U	
AROCLOR-1242	39	U	
AROCLOR-1248	39	U	
AROCLOR-1254	39	U	
AROCLOR-1260	44	J	U

nsample	13SA06-SD0203
samp_date	2/23/2005
lab_id	D0220-12A
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	40	U	
AROCLOR-1221	40	U	
AROCLOR-1232	40	U	
AROCLOR-1242	40	U	
AROCLOR-1248	40	U	
AROCLOR-1254	40	U	
AROCLOR-1260	43	J	U

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA07-SD0102
samp_date	2/23/2005
lab_id	D0220-14A
qc_type	NM
units	UG/KG
Pct_Solids	68.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	48	U	
AROCLOR-1221	48	U	
AROCLOR-1232	48	U	
AROCLOR-1242	48	U	
AROCLOR-1248	48	U	
AROCLOR-1254	48	U	
AROCLOR-1260	820		

nsample	13SA07-SD0203
samp_date	2/23/2005
lab_id	D0220-15A
qc_type	NM
units	UG/KG
Pct_Solids	29.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	110	UJ	Y
AROCLOR-1221	110	UJ	Y
AROCLOR-1232	110	UJ	Y
AROCLOR-1242	110	UJ	Y
AROCLOR-1248	110	UJ	Y
AROCLOR-1254	890	J	UY
AROCLOR-1260	800	J	Y

nsample	13SA08-SD0102
samp_date	2/23/2005
lab_id	D0220-16A
qc_type	NM
units	UG/KG
Pct_Solids	69.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	48	U	
AROCLOR-1221	48	U	
AROCLOR-1232	48	U	
AROCLOR-1242	48	U	
AROCLOR-1248	48	U	
AROCLOR-1254	760	J	U
AROCLOR-1260	560		

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA08-SD0203	nsample	13SA09-SD0102	nsample	13SA09-SD0203
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0220-17A	lab_id	D0220-18A	lab_id	D0220-19A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	80.0	Pct_Solids	85.0	Pct_Solids	71.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	41	U	
AROCLOR-1221	41	U	
AROCLOR-1232	41	U	
AROCLOR-1242	41	U	
AROCLOR-1248	41	U	
AROCLOR-1254	170	J	U
AROCLOR-1260	120	J	U

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	38	U	
AROCLOR-1221	38	U	
AROCLOR-1232	38	U	
AROCLOR-1242	38	U	
AROCLOR-1248	38	U	
AROCLOR-1254	360	J	U
AROCLOR-1260	190	J	U

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	46	U	
AROCLOR-1221	46	U	
AROCLOR-1232	46	U	
AROCLOR-1242	46	U	
AROCLOR-1248	46	U	
AROCLOR-1254	46	U	
AROCLOR-1260	63	J	U

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	FD022305-1	nsample	FD022305-2
samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0220-13A	lab_id	D0220-20A
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	84.0	Pct_Solids	83.0
DUP_OF:	13SA06-SD0203	DUP_OF:	13SA09-SD0102

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	39	U	
AROCLOR-1221	39	U	
AROCLOR-1232	39	U	
AROCLOR-1242	39	U	
AROCLOR-1248	39	U	
AROCLOR-1254	39	U	
AROCLOR-1260	56		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	39	U	
AROCLOR-1221	39	U	
AROCLOR-1232	39	U	
AROCLOR-1242	39	U	
AROCLOR-1248	39	U	
AROCLOR-1254	310	J	U
AROCLOR-1260	130	J	U

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: [redacted] **DATE:** **APRIL 4, 2005**

FROM: **ERIN M. FAUST** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS AND MISCELLANEOUS PARAMETERS**
CTO 033 NWS EARLE
SAMPLE DELIVERY GROUP (SDG) – D0221

SAMPLES: 7/Sediment/

13SA10-SD0102	13SA10-SD0203	13SA11-SD0102
13SA11-SD0203	13SA12-SD0102	13SA12-SD0203
FD022405-3		

3/Aqueous/

13MW17	13MW18	RINSATE-1

Overview

The sample set for CTO 033, NWS, Earle, SDG D0221, consists of seven (7) sediment environmental samples, two (2) aqueous environmental samples and one (1) aqueous rinsate blank, RINSATE-1. One (1) field duplicate pair (FD022405-3 / 13SA12-SD0102) is included within this SDG.

All samples were analyzed for target analyte list (TAL) metals. Samples 13MW17 and 13MW18 were also analyzed for chloride, sulfate, nitrate and nitrite. In addition, sample 13MW18 was also analyzed for dissolved TAL metals. The samples were collected by Tetra Tech NUS on February 23 and 24, 2005 and analyzed by Mitkem Corporation under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses were conducted using Contract Laboratory program (CLP) method ILM04.1. Chloride, sulfate, nitrate and nitrite analyses were conducted using EPA method 300.0.

Metals analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) instrumentation. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA) instrumentation. Analyses for chloride, sulfate, nitrate and nitrite were conducted using Ion Chromatography (IC) instrumentation.

The data was evaluated based on the following parameters:

* • Data Completeness
• Holding Times
• Calibration Data
* • Laboratory Blank Analyses

* • ICP Interference Check Sample Results
• Laboratory Control Sample Results
• Matrix Spike Results
• Laboratory Duplicate Results
* • Field Duplicate Results
• ICP Serial Dilution Results
• Sample Quanitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

Holding Times

The samples were received at the laboratory approximately two days after the 48-hour holding time for nitrate and nitrite had expired. The samples were analyzed the day they were received. Positive results reported for nitrate and nitrite were qualified as estimated, "J".

Calibration Data

The Contract Required Detection Limit (CRDL) percent recoveries for lead, thallium and zinc were > 120% quality control limit, affecting all samples. Positive results reported for lead, thallium and zinc were qualified as estimated, "J".

The CRDL percent recoveries for mercury and silver were < 80% quality control limit, affecting all samples. Positive results reported for silver were qualified as estimated, "J". Nondetected results reported for mercury were qualified as estimated, "UJ".

The CRDL percent recovery for manganese was > 120% quality control limit, affecting all sediment samples and the dissolved metals analysis of sample 13MW18. Positive results reported for manganese in the affected samples were qualified as estimated, "J".

The CRDL percent recovery for selenium was < 80% quality control limit, affecting samples 13MW17, 13MW18 (total metals analyses) and RINSATE-1. Nondetected results reported for selenium in the affected samples were qualified as estimated, "UJ".

Laboratory Control Sample Results

The Laboratory Control Sample (LCS) percent recovery for lead was greater than the upper control limit, affecting the sediment samples. The positive results reported for lead in the affected samples were qualified as estimated, "J".

Matrix Spike Results

The Matrix Spike (MS) percent recoveries for aluminum, barium, beryllium, cadmium, cobalt, lead, manganese, nickel and thallium were >125% quality control limit, affecting the aqueous samples. Positive results reported for these analytes in the affected samples were qualified as estimated, "J". The rinsate blank sample RINSATE-1 was not qualified due to MS noncompliance.

The MS percent recoveries for cadmium, lead and thallium were >125% quality control limit, affecting the sediment samples. Positive results reported for these analytes in the affected samples were qualified as estimated, "J".

The MS percent recovery for antimony was < 75% quality control limit, affecting the sediment samples. Positive and nondetected results reported for antimony in the affected samples were qualified as estimated, "J" and "UJ", respectively.

Laboratory Duplicate Results

Laboratory duplicate imprecision (difference > CRDL) was noted for iron, affecting the aqueous samples. Positive results reported for iron in the affected samples were qualified as estimated, "J". The rinsate blank sample RINSATE-1 was not qualified due to laboratory duplicate imprecision.

ICP Serial Dilution Results

The ICP serial dilution percent difference for zinc was > 10% quality control limit and the concentration of zinc in the initial sample was > 10X the instrument detection limit (IDL), affecting the aqueous matrix. Positive results, greater than ten times the IDL, reported for zinc in the affected samples were qualified as estimated, "J". The rinsate blank sample RINSATE-1 was not qualified due to ICP serial dilution noncompliance.

The ICP serial dilution percent difference for copper was > 10% quality control limit and the concentration of copper in the initial sample was > 10X the instrument detection limit (IDL), affecting the sediment matrix. Positive results, greater than ten times the IDL, reported for copper in the affected samples were qualified as estimated, "J".

Sample Quantitation

The result reported for dissolved zinc (41.3 µg/L) in sample 13MW18 was greater than 10% of the result reported for total zinc (37.3 µg/L) in the sample. Both results reported for total and dissolved zinc in this sample were qualified as estimated, "J".

Notes

The laboratory named the dissolved metals analysis of sample 13MW18 as 13MW18-FILT. The data reviewer removed the "-FILT" from the sample name.

The CRDL percent recovery for selenium was > 150% quality control limit, affecting samples 13SA12-SD0102, 13SA12-SD0203 and FD022405-3. No validation action was required because the results for selenium in these samples were reported as nondetected by the laboratory.

The LCS percent recovery for antimony was > 120% quality control limit, affecting the aqueous samples. No validation action was required because the results for antimony in these samples were reported as nondetected by the laboratory.

The Interference Check sample (ICS) percent recovery for selenium was < 80% quality control limit, affecting all samples except 13SA10-SD0102. No validation action was necessary because the concentrations of aluminum, calcium, iron and magnesium in the affected samples were less than the concentrations of these analytes in the ICS solution.

The MS percent recovery for nitrate was outside of the 75-125% quality control limits. No validation action was necessary because the concentration of nitrate in the original sample was greater than four times the concentration of nitrate added in the spiking solution.

The Post Digestion Spike (PDS) percent recovery for thallium was > 125% quality control limit, affecting the sediment samples. No validation action was taken based on the PDS percent recovery.

The PDS percent recovery for lead was > 150% quality control limit, affecting the aqueous samples. No validation action was taken based on the PDS percent recovery.

Executive Summary

Laboratory Performance: Lead, manganese, mercury, selenium, silver, thallium and zinc were qualified due to calibration noncompliance. Laboratory duplicate imprecision was noted for iron in the aqueous matrix. Lead was qualified due to LCS noncompliance in the sediment matrix.

Other Factors Affecting Data Quality: Samples were received outside of the acceptable holding time for nitrate and nitrite. Several analytes were qualified due to MS noncompliance. Copper and zinc were qualified due to ICP serial dilution noncompliance in the sediment and aqueous matrices, respectively. Dissolved zinc was higher than total zinc in sample 13MW18.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", as amended for use within EPA Region II, January 1992 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Erin M Faust

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets
4. Appendix D - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00050

SDG: D0221 MEDIA: WATER DATA FRACTION: M

nsample	13MW17	nsample	13MW18	nsample	RINSATE-1
samp_date	2/23/2005	samp_date	2/24/2005	samp_date	2/24/2005
lab_id	D0221-09A	lab_id	D0221-10A	lab_id	D0221-08A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	784	J	D
ANTIMONY	2.0	U	
ARSENIC	6.2		
BARIUM	31.4	J	D
BERYLLIUM	0.47	J	D
CADMIUM	0.69	J	D
CALCIUM	7820		
CHROMIUM	8.8		
COBALT	3.1	J	D
COPPER	3.7		
IRON	13300	J	F
LEAD	2.0	U	
MAGNESIUM	1440		
MANGANESE	87.0	J	D
MERCURY	0.14	UJ	C
NICKEL	15.9	J	D
POTASSIUM	4700		
SELENIUM	4.0	UJ	C
SILVER	7.5	J	C
SODIUM	7340		
THALLIUM	3.0	U	
VANADIUM	3.7		
ZINC	44.7	J	CI

Parameter	Result	Val Qual	Qual Code
ALUMINUM	4270	J	D
ANTIMONY	2.0	U	
ARSENIC	5.6		
BARIUM	43.5	J	D
BERYLLIUM	0.36	J	D
CADMIUM	0.53	J	D
CALCIUM	2790		
CHROMIUM	62.6		
COBALT	2.5	J	D
COPPER	3.9		
IRON	8090	J	F
LEAD	4.9	J	CD
MAGNESIUM	2360		
MANGANESE	66.3	J	D
MERCURY	0.14	UJ	C
NICKEL	7.7	J	D
POTASSIUM	4970		
SELENIUM	4.0	UJ	C
SILVER	7.7	J	C
SODIUM	6710		
THALLIUM	3.2	J	CD
VANADIUM	25.3		
ZINC	37.3	J	CIQ

Parameter	Result	Val Qual	Qual Code
ALUMINUM	13.0	U	
ANTIMONY	2.0	U	
ARSENIC	3.0	U	
BARIUM	3.3		
BERYLLIUM	0.20	U	
CADMIUM	0.40	U	
CALCIUM	110	U	
CHROMIUM	0.31		
COBALT	0.30	U	
COPPER	1.3		
IRON	22.6		
LEAD	2.0	U	
MAGNESIUM	14.0		
MANGANESE	1.7		
MERCURY	0.14	UJ	C
NICKEL	0.50	U	
POTASSIUM	55.0	U	
SELENIUM	4.0	UJ	C
SILVER	5.1	J	C
SODIUM	52.1		
THALLIUM	4.2	J	C
VANADIUM	0.40	U	
ZINC	8.0	J	C

PROJ_NO: 00050

SDG: D0221 MEDIA: WATER DATA FRACTION: MF

nsample	13MW18
samp_date	2/24/2005
lab_id	D0221-12A
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	462	J	D
ANTIMONY	2.0	U	
ARSENIC	3.0	U	
BARIUM	47.1	J	D
BERYLLIUM	0.20	U	
CADMIUM	0.47	J	D
CALCIUM	2810		
CHROMIUM	8.8		
COBALT	2.4	J	D
COPPER	2.0		
IRON	267	J	F
LEAD	2.0	U	
MAGNESIUM	1660		
MANGANESE	64.3	J	CD
MERCURY	0.15	UJ	C
NICKEL	6.5	J	D
POTASSIUM	3240		
SELENIUM	4.0	UJ	C
SILVER	2.2	J	C
SODIUM	6780		
THALLIUM	3.0	U	
VANADIUM	0.40	U	
ZINC	41.3	J	CIQ

PROJ_NO: 00050

SDG: D0221 MEDIA: WATER DATA FRACTION: MISC

nsample	13MW18
samp_date	2/24/2005
lab_id	D0221-10C
qc_type	NM
Pct_Solids	
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CHLORIDE	MG/L	8.2		
NITRATE-N	MG/L	7.8	J	H
NITRITE-N	MG/L	0.028	J	H
SULFATE	MG/L	11.0		

PROJ_NO: 00050

SDG: D0221 MEDIA: SOIL DATA FRACTION: M

nsample	13SA10-SD0102	nsample	13SA10-SD0203	nsample	13SA11-SD0102
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0221-01A	lab_id	D0221-02A	lab_id	D0221-03A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	83.0	Pct_Solids	88.0	Pct_Solids	84.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1640		
ANTIMONY	0.40	UJ	D
ARSENIC	1.6		
BARIUM	3.0		
BERYLLIUM	0.30		
CADMIUM	0.47	J	D
CALCIUM	62.1		
CHROMIUM	143		
COBALT	0.061	U	
COPPER	4.5	J	I
IRON	3650		
LEAD	10.9	J	CDE
MAGNESIUM	390		
MANGANESE	2.6	J	C
MERCURY	0.057	UJ	C
NICKEL	1.1		
POTASSIUM	1150		
SELENIUM	0.81	U	
SILVER	2.1	J	C
SODIUM	22.1		
THALLIUM	0.92	J	CD
VANADIUM	11.8		
ZINC	10.7	J	C

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1560		
ANTIMONY	0.39	UJ	D
ARSENIC	3.0		
BARIUM	0.27		
BERYLLIUM	0.27		
CADMIUM	0.27	J	D
CALCIUM	52.9		
CHROMIUM	92.6		
COBALT	0.058	U	
COPPER	3.1	J	I
IRON	6560		
LEAD	6.3	J	CDE
MAGNESIUM	361		
MANGANESE	2.4	J	C
MERCURY	0.052	UJ	C
NICKEL	0.80		
POTASSIUM	1060		
SELENIUM	0.78	U	
SILVER	2.9	J	C
SODIUM	9.3		
THALLIUM	0.88	J	CD
VANADIUM	19.0		
ZINC	7.5	J	C

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1250		
ANTIMONY	0.43	UJ	D
ARSENIC	0.64	U	
BARIUM	1.6		
BERYLLIUM	0.19		
CADMIUM	0.13	J	D
CALCIUM	32.9		
CHROMIUM	19.8		
COBALT	0.064	U	
COPPER	2.4	J	I
IRON	1720		
LEAD	3.5	J	CDE
MAGNESIUM	201		
MANGANESE	2.3	J	C
MERCURY	0.054	UJ	C
NICKEL	0.57		
POTASSIUM	552		
SELENIUM	0.85	U	
SILVER	0.94	J	C
SODIUM	9.5		
THALLIUM	0.64	U	
VANADIUM	13.2		
ZINC	5.6	J	C

PROJ_NO: 00050

SDG: D0221 MEDIA: SOIL DATA FRACTION: M

nsample	13SA11-SD0203	nsample	13SA12-SD0102	nsample	13SA12-SD0203
samp_date	2/23/2005	samp_date	2/24/2005	samp_date	2/24/2005
lab_id	D0221-04A	lab_id	D0221-05A	lab_id	D0221-06A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	81.0	Pct_Solids	80.0	Pct_Solids	78.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1990		
ANTIMONY	0.40	UJ	D
ARSENIC	1.4		
BARIUM	2.2		
BERYLLIUM	0.33		
CADMIUM	0.14	J	D
CALCIUM	55.1		
CHROMIUM	33.5		
COBALT	0.061	U	
COPPER	2.8	J	I
IRON	3890		
LEAD	4.4	J	CDE
MAGNESIUM	438		
MANGANESE	2.7	J	C
MERCURY	0.062	UJ	C
NICKEL	0.98		
POTASSIUM	1320		
SELENIUM	0.81	U	
SILVER	1.8	J	C
SODIUM	13.3		
THALLIUM	0.61	U	
VANADIUM	20.2		
ZINC	6.6	J	C

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5290		
ANTIMONY	0.45	UJ	D
ARSENIC	10.4		
BARIUM	1.1		
BERYLLIUM	0.76		
CADMIUM	0.54	J	D
CALCIUM	328		
CHROMIUM	161		
COBALT	0.068	U	
COPPER	7.3	J	I
IRON	14600		
LEAD	25.6	J	CDE
MAGNESIUM	1180		
MANGANESE	5.4	J	C
MERCURY	0.052	UJ	C
NICKEL	2.3		
POTASSIUM	3490		
SELENIUM	0.91	U	
SILVER	7.9	J	C
SODIUM	19.0		
THALLIUM	1.7	J	CD
VANADIUM	82.5		
ZINC	52.5	J	C

Parameter	Result	Val Qual	Qual Code
ALUMINUM	3990		
ANTIMONY	0.50	J	D
ARSENIC	10.1		
BARIUM	0.25		
BERYLLIUM	0.62		
CADMIUM	0.36	J	D
CALCIUM	201		
CHROMIUM	132		
COBALT	0.062	U	
COPPER	5.7	J	I
IRON	12500		
LEAD	16.7	J	CDE
MAGNESIUM	941		
MANGANESE	4.1	J	C
MERCURY	0.053	UJ	C
NICKEL	1.7		
POTASSIUM	2860		
SELENIUM	0.82	U	
SILVER	6.4	J	C
SODIUM	18.1		
THALLIUM	1.2	J	CD
VANADIUM	73.2		
ZINC	27.6	J	C

PROJ_NO: 00050

SDG: D0221 MEDIA: SOIL DATA FRACTION: M

nsample	FD022405-3
samp_date	2/24/2005
lab_id	D0221-07A
qc_type	NM
units	MG/KG
Pct_Solids	80.0
DUP_OF:	13SA12-SD0102

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5050		
ANTIMONY	0.42	UJ	D
ARSENIC	10.0		
BARIUM	0.90		
BERYLLIUM	0.74		
CADMIUM	0.53	J	D
CALCIUM	331		
CHROMIUM	154		
COBALT	0.081		
COPPER	6.6	J	I
IRON	13800		
LEAD	24.4	J	CDE
MAGNESIUM	1100		
MANGANESE	5.5	J	CD
MERCURY	0.054	UJ	C
NICKEL	2.2		
POTASSIUM	3270		
SELENIUM	0.84	U	
SILVER	7.2	J	C
SODIUM	17.0		
THALLIUM	1.6	J	CD
VANADIUM	79.0		
ZINC	50.8	J	C

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: [redacted] **DATE:** **APRIL 21, 2005**

FROM: **ERIN M. FAUST** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS**
CTO 033 NWS EARLE
SAMPLE DELIVERY GROUP (SDG) – D0220

SAMPLES: 20/Sediment/

13SA01-SD0102	13SA01-SD0203	13SA02-SD0102
13SA02-SD0203	13SA03-SD0102	13SA03-SD0203
13SA04-SD0102	13SA04-SD0203	13SA05-SD0102
13SA05-SD0203	13SA06-SD0102	13SA06-SD0203
13SA07-SD0102	13SA07-SD0203	13SA08-SD0102
13SA08-SD0203	13SA09-SD0102	13SA09-SD0203
FD022305-1	FD022305-2	

Overview

The sample set for CTO 033, NWS, Earle, SDG D0220, consists of twenty (20) sediment environmental samples. Two (2) field duplicate pairs (FD022305-1 / 13SA06-SD0203 and FD022305-2 / 13SA09-SD0102) are included within this SDG.

All samples were analyzed for target analyte list (TAL) metals. The samples were collected by Tetra Tech NUS on February 22 and 23, 2005 and analyzed by Mitkem Corporation under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses were conducted using Contract Laboratory program (CLP) method ILM04.1.

Metals analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) instrumentation. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA) instrumentation.

The data was evaluated based on the following parameters:

- * Data Completeness
- * Holding Times
- Calibration Data
- * Laboratory Blank Analyses
- * ICP Interference Check Sample Results
- * Laboratory Control Sample Results
- Matrix Spike Results
- * Laboratory Duplicate Results
- Field Duplicate Results
- ICP Serial Dilution Results

- Sample Quanitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

Calibration Data

The Contract Required Detection Limit (CRDL) percent recoveries for manganese and zinc were > 120% quality control limit, affecting all samples. Positive results reported for manganese and zinc were qualified as estimated, "J".

The CRDL percent recoveries for mercury and silver were < 80% quality control limit, affecting all samples. Positive results reported for mercury and silver were qualified as estimated, "J". Nondetected results reported for mercury were qualified as estimated, "UJ".

The CRDL percent recoveries for lead were > 120% quality control limit, affecting all samples except 13SA09-SD0102, 13SA09-SD0203 and FD022305-2. Positive results reported for lead in the affected samples were qualified as estimated, "J".

The CRDL percent recoveries for thallium were > 120% quality control limit, affecting samples 13SA01-SD0102, 13SA01-SD0203, 13SA02-SD0102, 13SA02-SD0203, 13SA03-SD0102, 13SA03-SD0203, 13SA04-SD0102, 13SA04-SD0203, 13SA09-SD0102, 13SA09-SD0203 and FD022305-2. Positive results reported for thallium in the affected samples were qualified as estimated, "J".

The CRDL percent recovery for selenium was > 150% quality control limit, affecting samples 13SA01-SD0102, 13SA01-SD0203, 13SA02-SD0102, 13SA02-SD0203, 13SA03-SD0102, 13SA03-SD0203, 13SA04-SD0102 and 13SA04-SD0203. Although EPA Region II guidelines would consider these values to be unusable, the positive results reported for selenium in the affected samples were qualified as estimated, "J", because the guidelines were determined to be extremely conservative.

The CRDL percent recovery for selenium was < 80% quality control limit, affecting samples 13SA05-SD0102, 13SA05-SD0203, 13SA06-SD0102, 13SA06-SD0203, 13SA07-SD0102, 13SA07-SD0203, 13SA08-SD0102, 13SA08-SD0203 and FD022305-1. Positive and nondetected results reported for selenium in the affected samples were qualified as estimated, "J" and "UJ", respectively.

Matrix Spike Results

The Matrix Spike (MS) percent recovery for cadmium was >200% quality control limit. Although EPA Region II guidelines would consider these values to be unusable, the positive results reported for cadmium were qualified as estimated, "J", because the guidelines were determined to be extremely conservative.

The MS percent recoveries for selenium, thallium and zinc were >125% quality control limit. Positive results reported for these analytes were qualified as estimated, "J".

The MS percent recovery for antimony was < 75% quality control limit. Positive and nondetected results reported for antimony were qualified as estimated, "J" and "UJ", respectively.

Field Duplicate Results

Field duplicate imprecision (difference > 2X CRDL) was noted for copper and zinc in the FD022305-2 / 13SA09-SD0102 sample pair. Positive results reported for copper and zinc in this field duplicate pair were qualified as estimated, "J".

ICP Serial Dilution Results

The ICP serial dilution percent difference for cadmium was > 10% quality control limit and the concentration of cadmium in the initial sample was > 10X the instrument detection limit (IDL). Positive results, greater than ten times the IDL, reported for cadmium in all samples except 13SA04-SD0203, 13SA06-SD0102, 13SA06-SD0203, 13SA08-SD0203, 13SA09-SD0102, 13SA09-SD0203 and FD022305-1 were qualified as estimated, "J".

Sample Quantitation

All positive and nondetected results reported for all metals in samples 13SA01-SD0102, 13SA01-SD0203, 13SA02-SD0102, 13SA02-SD0203, 13SA03-SD0102, 13SA03-SD0203, 13SA04-SD0102, 13SA04-SD0203, 13SA05-SD0102 and 13SA07-SD0203 were qualified as estimated, "J" and "UJ", respectively, due to low (< 50%) percent solids.

Notes

The CRDL percent recovery for selenium was > 120% quality control limit, affecting samples 13SA09-SD0102, 13SA09-SD0203 and FD022305-2. No validation action was required because the results for selenium in these samples were reported as nondetected by the laboratory.

The MS percent recoveries for chromium and lead were outside of the 75-125% quality control limits. No validation action was necessary because the concentrations of these analytes in the original sample were greater than four times the concentrations of these analytes added in the spiking solution.

The Post Digestion Spike (PDS) percent recovery for thallium was < 75% quality control limit. No validation action was taken based on the PDS percent recovery.

The Interference Check sample (ICS) percent recovery for selenium was < 80% quality control limit, affecting all samples except 13SA07-SD0203, 13SA08-SD0102, 13SA08-SD0203, 13SA09-SD0102, 13SA09-SD0203 and FD022305-2. No validation action was necessary because the concentrations of aluminum, calcium, iron and magnesium in the affected samples were less than the concentrations of these analytes in the ICS solution.

Executive Summary

Laboratory Performance: Lead, manganese, mercury, selenium, silver, thallium and zinc were qualified due to calibration noncompliance.

Other Factors Affecting Data Quality: Antimony, cadmium, selenium, thallium and zinc were qualified due to MS noncompliance. All analytes in several samples were qualified due to low percent solid content. Field duplicate imprecision was noted for copper and zinc in the FD022305-2 / 13SA09-SD0102 sample pair. Cadmium was qualified due to ICP serial dilution noncompliance.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", as amended for use within EPA Region II, January 1992 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Erin M Faust

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets
4. Appendix D - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: M

nsample	13SA01-SD0102	nsample	13SA01-SD0203	nsample	13SA02-SD0102
samp_date	2/22/2005	samp_date	2/22/2005	samp_date	2/22/2005
lab_id	D0220-01A	lab_id	D0220-02A	lab_id	D0220-03A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	21.0	Pct_Solids	42.0	Pct_Solids	21.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	17000	J	Y
ANTIMONY	6.8	J	DY
ARSENIC	16.0	J	Y
BARIUM	11.6	J	Y
BERYLLIUM	1.2	J	Y
CADMIUM	3.8	J	DIY
CALCIUM	452	J	Y
CHROMIUM	1430	J	Y
COBALT	1.2	J	Y
COPPER	21.5	J	Y
IRON	12400	J	Y
LEAD	202	J	CY
MAGNESIUM	454	J	Y
MANGANESE	10.6	J	CY
MERCURY	0.29	J	CY
NICKEL	20.9	J	Y
POTASSIUM	874	J	Y
SELENIUM	16.9	J	CD
SILVER	15.2	J	CY
SODIUM	97.0	J	Y
THALLIUM	4.0	J	CDY
VANADIUM	98.8	J	Y
ZINC	57.4	J	CDY

Parameter	Result	Val Qual	Qual Code
ALUMINUM	7070	J	Y
ANTIMONY	1.5	J	DY
ARSENIC	9.6	J	Y
BARIUM	11.7	J	Y
BERYLLIUM	0.59	J	Y
CADMIUM	2.9	J	DIY
CALCIUM	131	J	Y
CHROMIUM	293	J	Y
COBALT	6.0	J	Y
COPPER	11.2	J	Y
IRON	8190	J	Y
LEAD	54.9	J	CY
MAGNESIUM	531	J	Y
MANGANESE	6.9	J	CY
MERCURY	0.11	UJ	CY
NICKEL	29.4	J	Y
POTASSIUM	1380	J	Y
SELENIUM	2.8	J	CD
SILVER	6.0	J	CY
SODIUM	33.2	J	Y
THALLIUM	2.5	J	CDY
VANADIUM	197	J	Y
ZINC	32.5	J	CDY

Parameter	Result	Val Qual	Qual Code
ALUMINUM	22600	J	Y
ANTIMONY	10.9	J	DY
ARSENIC	16.6	J	Y
BARIUM	19.0	J	Y
BERYLLIUM	0.95	J	Y
CADMIUM	4.8	J	DIY
CALCIUM	340	J	Y
CHROMIUM	2150	J	Y
COBALT	0.75	J	Y
COPPER	34.0	J	Y
IRON	10800	J	Y
LEAD	209	J	CY
MAGNESIUM	479	J	Y
MANGANESE	11.8	J	CY
MERCURY	0.23	UJ	CY
NICKEL	15.0	J	Y
POTASSIUM	1220	J	Y
SELENIUM	25.2	J	CD
SILVER	18.3	J	CY
SODIUM	68.2	J	Y
THALLIUM	3.4	J	CDY
VANADIUM	66.8	J	Y
ZINC	54.1	J	CDY

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: M

nsample	13SA02-SD0203	nsample	13SA03-SD0102	nsample	13SA03-SD0203
samp_date	2/22/2005	samp_date	2/22/2005	samp_date	2/22/2005
lab_id	D0220-04A	lab_id	D0220-05A	lab_id	D0220-06A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	18.0	Pct_Solids	29.0	Pct_Solids	28.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	21300	J	Y
ANTIMONY	7.8	J	DY
ARSENIC	13.1	J	Y
BARIUM	11.8	J	Y
BERYLLIUM	0.67	J	Y
CADMIUM	3.5	J	DIY
CALCIUM	203	J	Y
CHROMIUM	1880	J	Y
COBALT	0.59	J	Y
COPPER	24.0	J	Y
IRON	7060	J	Y
LEAD	139	J	CY
MAGNESIUM	410	J	Y
MANGANESE	8.7	J	CY
MERCURY	0.26	UJ	CY
NICKEL	13.8	J	Y
POTASSIUM	1020	J	Y
SELENIUM	18.0	J	CD
SILVER	14.6	J	CY
SODIUM	51.6	J	Y
THALLIUM	2.7	UJ	Y
VANADIUM	73.1	J	Y
ZINC	37.9	J	CDY

Parameter	Result	Val Qual	Qual Code
ALUMINUM	17800	J	Y
ANTIMONY	5.9	J	DY
ARSENIC	11.5	J	Y
BARIUM	20.4	J	Y
BERYLLIUM	0.73	J	Y
CADMIUM	9.7	J	DIY
CALCIUM	1080	J	Y
CHROMIUM	1220	J	Y
COBALT	1.3	J	Y
COPPER	40.7	J	Y
IRON	9530	J	Y
LEAD	222	J	CY
MAGNESIUM	629	J	Y
MANGANESE	13.0	J	CY
MERCURY	0.48	J	CY
NICKEL	16.9	J	Y
POTASSIUM	1270	J	Y
SELENIUM	12.4	J	CD
SILVER	30.9	J	CY
SODIUM	73.6	J	Y
THALLIUM	1.8	UJ	Y
VANADIUM	53.1	J	Y
ZINC	188	J	CDY

Parameter	Result	Val Qual	Qual Code
ALUMINUM	14500	J	Y
ANTIMONY	3.0	J	DY
ARSENIC	9.0	J	Y
BARIUM	14.4	J	Y
BERYLLIUM	0.80	J	Y
CADMIUM	5.8	J	DIY
CALCIUM	860	J	Y
CHROMIUM	761	J	Y
COBALT	0.83	J	Y
COPPER	33.5	J	Y
IRON	7810	J	Y
LEAD	170	J	CY
MAGNESIUM	673	J	Y
MANGANESE	11.2	J	CY
MERCURY	0.21	J	CY
NICKEL	13.5	J	Y
POTASSIUM	1400	J	Y
SELENIUM	9.9	J	CD
SILVER	16.7	J	CY
SODIUM	65.8	J	Y
THALLIUM	1.9	J	CDY
VANADIUM	40.3	J	Y
ZINC	128	J	CDY

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: M

nsample	13SA04-SD0102
samp_date	2/23/2005
lab_id	D0220-07A
qc_type	NM
units	MG/KG
Pct_Solids	21.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	24400	J	Y
ANTIMONY	9.7	J	DY
ARSENIC	6.9	J	Y
BARIUM	15.7	J	Y
BERYLLIUM	0.74	J	Y
CADMIUM	2.8	J	DIY
CALCIUM	163	J	Y
CHROMIUM	2360	J	Y
COBALT	0.43	J	Y
COPPER	20.0	J	Y
IRON	1990	J	Y
LEAD	243	J	CY
MAGNESIUM	194	J	Y
MANGANESE	6.6	J	CY
MERCURY	0.19	UJ	CY
NICKEL	15.0	J	Y
POTASSIUM	396	J	Y
SELENIUM	22.6	J	CD
SILVER	13.2	J	CY
SODIUM	75.9	J	Y
THALLIUM	2.4	UJ	Y
VANADIUM	21.8	J	Y
ZINC	49.6	J	CDY

nsample	13SA04-SD0203
samp_date	2/23/2005
lab_id	D0220-08A
qc_type	NM
units	MG/KG
Pct_Solids	42.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6410	J	Y
ANTIMONY	4.7	J	DY
ARSENIC	4.7	J	Y
BARIUM	6.4	J	Y
BERYLLIUM	0.32	J	Y
CADMIUM	0.34	J	DY
CALCIUM	78.9	J	Y
CHROMIUM	1140	J	Y
COBALT	0.10	UJ	Y
COPPER	7.9	J	Y
IRON	2810	J	Y
LEAD	47.0	J	CY
MAGNESIUM	217	J	Y
MANGANESE	4.3	J	CY
MERCURY	0.095	UJ	CY
NICKEL	2.8	J	Y
POTASSIUM	565	J	Y
SELENIUM	10.7	J	CD
SILVER	4.2	J	CY
SODIUM	31.8	J	Y
THALLIUM	1.0	UJ	Y
VANADIUM	19.9	J	Y
ZINC	8.4	J	CDY

nsample	13SA05-SD0102
samp_date	2/23/2005
lab_id	D0220-09A
qc_type	NM
units	MG/KG
Pct_Solids	30.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	15000	J	Y
ANTIMONY	3.4	J	DY
ARSENIC	14.7	J	Y
BARIUM	16.8	J	Y
BERYLLIUM	0.68	J	Y
CADMIUM	7.1	J	DIY
CALCIUM	736	J	Y
CHROMIUM	952	J	Y
COBALT	0.45	J	Y
COPPER	52.5	J	Y
IRON	21600	J	Y
LEAD	245	J	CY
MAGNESIUM	807	J	Y
MANGANESE	17.4	J	CY
MERCURY	0.54	J	CY
NICKEL	10.4	J	Y
POTASSIUM	1760	J	Y
SELENIUM	8.6	J	CDY
SILVER	34.7	J	CY
SODIUM	68.6	J	Y
THALLIUM	1.8	J	DY
VANADIUM	57.7	J	Y
ZINC	107	J	CDY

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: M

nsample	13SA05-SD0203	nsample	13SA06-SD0102	nsample	13SA06-SD0203
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0220-10A	lab_id	D0220-11A	lab_id	D0220-12A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	54.0	Pct_Solids	84.0	Pct_Solids	82.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	7160		
ANTIMONY	1.9	J	D
ARSENIC	8.0		
BARIUM	10.3		
BERYLLIUM	0.52		
CADMIUM	2.9	J	DI
CALCIUM	538		
CHROMIUM	267		
COBALT	0.50		
COPPER	20.6		
IRON	13200		
LEAD	83.1	J	C
MAGNESIUM	696		
MANGANESE	13.4	J	C
MERCURY	0.19	J	C
NICKEL	7.1		
POTASSIUM	1690		
SELENIUM	2.7	J	CD
SILVER	18.7	J	C
SODIUM	37.3		
THALLIUM	1.4	J	D
VANADIUM	41.0		
ZINC	89.4	J	CD

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1370		
ANTIMONY	0.56	J	D
ARSENIC	1.4		
BARIUM	1.5		
BERYLLIUM	0.24		
CADMIUM	0.16	J	D
CALCIUM	33.3		
CHROMIUM	185		
COBALT	0.06	U	
COPPER	2.9		
IRON	3180		
LEAD	5.3	J	C
MAGNESIUM	347		
MANGANESE	2.2	J	C
MERCURY	0.05	UJ	C
NICKEL	0.73		
POTASSIUM	1010		
SELENIUM	0.90	J	CD
SILVER	1.4	J	C
SODIUM	13.5		
THALLIUM	0.60	U	
VANADIUM	12.3		
ZINC	8.1	J	CD

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1180		
ANTIMONY	0.44	UJ	D
ARSENIC	1.2		
BARIUM	0.99		
BERYLLIUM	0.27		
CADMIUM	0.18	J	D
CALCIUM	46.6		
CHROMIUM	160		
COBALT	0.066	U	
COPPER	2.9		
IRON	3330		
LEAD	6.0	J	C
MAGNESIUM	327		
MANGANESE	2.7	J	C
MERCURY	0.049	UJ	C
NICKEL	0.65		
POTASSIUM	971		
SELENIUM	0.88	UJ	C
SILVER	1.5	J	C
SODIUM	13.8		
THALLIUM	0.66	U	
VANADIUM	11.5		
ZINC	6.2	J	CD

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: M

nsample	13SA07-SD0102	nsample	13SA07-SD0203	nsample	13SA08-SD0102
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0220-14A	lab_id	D0220-15A	lab_id	D0220-16A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	68.0	Pct_Solids	29.0	Pct_Solids	69.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	4930		
ANTIMONY	0.47	J	D
ARSENIC	9.1		
BARIUM	16.2		
BERYLLIUM	0.45		
CADMIUM	2.2	J	DI
CALCIUM	231		
CHROMIUM	59.6		
COBALT	0.41		
COPPER	42.1		
IRON	14800		
LEAD	123	J	C
MAGNESIUM	680		
MANGANESE	21.4	J	C
MERCURY	0.52	J	C
NICKEL	4.5		
POTASSIUM	1870		
SELENIUM	0.88	UJ	C
SILVER	15.6	J	C
SODIUM	31.6		
THALLIUM	1.7	J	D
VANADIUM	55.5		
ZINC	44.6	J	CD

Parameter	Result	Val Qual	Qual Code
ALUMINUM	14600	J	Y
ANTIMONY	3.2	J	DY
ARSENIC	7.6	J	Y
BARIUM	22.4	J	Y
BERYLLIUM	0.71	J	Y
CADMIUM	10.0	J	DIY
CALCIUM	396	J	Y
CHROMIUM	309	J	Y
COBALT	0.76	J	Y
COPPER	38.8	J	Y
IRON	9740	J	Y
LEAD	182	J	CY
MAGNESIUM	579	J	Y
MANGANESE	14.6	J	CY
MERCURY	0.36	J	CY
NICKEL	20.8	J	Y
POTASSIUM	1510	J	Y
SELENIUM	6.3	J	CDY
SILVER	21.4	J	CY
SODIUM	95.5	J	Y
THALLIUM	1.5	UJ	Y
VANADIUM	60.5	J	Y
ZINC	133	J	CDY

Parameter	Result	Val Qual	Qual Code
ALUMINUM	4410		
ANTIMONY	1.9	J	D
ARSENIC	5.8		
BARIUM	6.6		
BERYLLIUM	0.40		
CADMIUM	1.2	J	DI
CALCIUM	99.5		
CHROMIUM	427		
COBALT	0.10		
COPPER	20.1		
IRON	8350		
LEAD	47.2	J	C
MAGNESIUM	538		
MANGANESE	5.8	J	C
MERCURY	0.06	UJ	C
NICKEL	2.3		
POTASSIUM	1560		
SELENIUM	0.95	UJ	C
SILVER	9.9	J	C
SODIUM	27.8		
THALLIUM	0.71	U	
VANADIUM	27.3		
ZINC	22.9	J	CD

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: M

nsample	13SA08-SD0203	nsample	13SA09-SD0102	nsample	13SA09-SD0203
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0220-17A	lab_id	D0220-18A	lab_id	D0220-19A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	80.0	Pct_Solids	85.0	Pct_Solids	71.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	2160		
ANTIMONY	1.8	J	D
ARSENIC	4.6		
BARIUM	1.7		
BERYLLIUM	0.31		
CADMIUM	0.53	J	D
CALCIUM	75.6		
CHROMIUM	511		
COBALT	0.056	U	
COPPER	7.5		
IRON	8050		
LEAD	21.8	J	C
MAGNESIUM	478		
MANGANESE	4.9	J	C
MERCURY	0.062	UJ	C
NICKEL	1.5		
POTASSIUM	1410		
SELENIUM	0.75	UJ	C
SILVER	4.8	J	C
SODIUM	18.5		
THALLIUM	0.56	U	
VANADIUM	24.7		
ZINC	12.0	J	CD

Parameter	Result	Val Qual	Qual Code
ALUMINUM	2880		
ANTIMONY	0.41	UJ	D
ARSENIC	3.5		
BARIUM	1.7		
BERYLLIUM	0.37		
CADMIUM	0.52	J	D
CALCIUM	67.6		
CHROMIUM	57.3		
COBALT	0.11		
COPPER	9.6	J	G
IRON	8920		
LEAD	19.9		
MAGNESIUM	637		
MANGANESE	9.6	J	C
MERCURY	0.074	J	C
NICKEL	1.8		
POTASSIUM	1840		
SELENIUM	0.81	U	
SILVER	4.1	J	C
SODIUM	13.6		
THALLIUM	1.0	J	CD
VANADIUM	45.3		
ZINC	15.4	J	CDG

Parameter	Result	Val Qual	Qual Code
ALUMINUM	3890		
ANTIMONY	0.46	UJ	D
ARSENIC	2.6		
BARIUM	1.8		
BERYLLIUM	0.37		
CADMIUM	0.73	J	D
CALCIUM	58.9		
CHROMIUM	82.6		
COBALT	0.13		
COPPER	5.5		
IRON	5880		
LEAD	29.7		
MAGNESIUM	553		
MANGANESE	3.5	J	C
MERCURY	0.061	UJ	C
NICKEL	2.4		
POTASSIUM	1600		
SELENIUM	0.92	U	
SILVER	3.8	J	C
SODIUM	13.6		
THALLIUM	0.69	U	
VANADIUM	29.2		
ZINC	16.0	J	CD

PROJ_NO: 00050

SDG: D0220 MEDIA: SOIL DATA FRACTION: M

nsample	FD022305-1	nsample	FD022305-2
samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0220-13A	lab_id	D0220-20A
qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG
Pct_Solids	84.0	Pct_Solids	83.0
DUP_OF:	13SA06-SD0203	DUP_OF:	13SA09-SD0102

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1310		
ANTIMONY	0.38	UJ	D
ARSENIC	1.9		
BARIUM	0.88		
BERYLLIUM	0.33		
CADMIUM	0.13	J	D
CALCIUM	39.2		
CHROMIUM	177		
COBALT	0.057	U	
COPPER	2.6		
IRON	3770		
LEAD	9.3	J	C
MAGNESIUM	363		
MANGANESE	4.3	J	C
MERCURY	0.057	UJ	C
NICKEL	0.66		
POTASSIUM	1120		
SELENIUM	0.96	J	CD
SILVER	1.6	J	C
SODIUM	11.3		
THALLIUM	0.61	J	D
VANADIUM	14.2		
ZINC	6.5	J	CD

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5490		
ANTIMONY	0.42	UJ	D
ARSENIC	7.8		
BARIUM	9.0		
BERYLLIUM	0.70		
CADMIUM	1.1	J	DI
CALCIUM	250		
CHROMIUM	104		
COBALT	0.26		
COPPER	22.3	J	G
IRON	17300		
LEAD	38.7		
MAGNESIUM	1240		
MANGANESE	11.9	J	C
MERCURY	0.052	UJ	C
NICKEL	3.0		
POTASSIUM	3600		
SELENIUM	0.84	U	
SILVER	8.5	J	C
SODIUM	40.7		
THALLIUM	1.7	J	CD
VANADIUM	88.2		
ZINC	28.7	J	CDG

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. WITT**	**DATE:**	**APRIL 25, 2005**
FROM:	**EDWARD SEDLMYER**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- VOC/PCB**
CTO 033, NWS EARLE
SDGs D0221

SAMPLES: 4/Aqueous

13MW17	13MW18	TRIP BLANK
RINSATE-1		

7/Sediment

13SA10-SD0102	13SA10-SD0203	13SA11-SD0102
13SA11-SD0203	13SA12-SD0102	13SA12-SD0203
FD022405-3		

OVERVIEW

The sample set for NWS Earle, SDG D0221 consists of one (1) trip blank, one (1) rinsate blank, two (2) aqueous samples, and seven (7) sediment samples. Samples 13MW17, 13MW18, and TRIP BLANK were analyzed for Target Compound List (TCL) volatile organic compounds (VOC). The remaining samples were analyzed for polychlorinated biphenyls (PCB). One field duplicate pair was included in this SDG: (13SA12-SD0102 / FD022405-3).

The samples were collected by Tetra Tech NUS on February 23 and 24, 2005 and analyzed by Mitkem Corporation. The VOA analyses were conducted in accordance with EPA Contract Lab Program (CLP) OLM04.3 and the PCB analyses were conducted in accordance with SW-846 Method 8082 analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

*	• Data completeness
*	• Holding times
*	• GCMS System Tuning and Performance
	• Initial/continuing calibrations
	• Laboratory method and field blank results
*	• Surrogate Spike Recoveries
*	• Internal Standard Recoveries
	• Field Duplicate Results
*	• Blank Spike/Blank Spike Duplicate Results
*	• Matrix Spike/Matrix Spike Duplicate Results
	• Compound Identification
	• Compound Quantitation
*	• Detection Limits

The symbol (*) indicates that quality control criteria were not met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is

presented in Appendix D.

Volatile

Acetone and 2-butanone were detected in the TRIP BLANK. No action was taken on this basis because acetone and 2-butanone were not detected in any associated samples.

PCB

The continuing calibration analyzed on 3/03/05 @09:05 on instrument "E2" had an average percent difference greater than the 15% quality control limit on the primary column for Aroclor-1254. Positive results reported for Aroclor-1254 from the primary column have been qualified as estimated (J). No action was taken on the non-detected results for Aroclor-1254.

The continuing calibration analyzed on 3/03/05 @09:32 on instrument "E2" had a average percent difference greater than the 15% quality control limit on the primary column for Aroclor-1260. No action was taken on this basis because the secondary column average percent difference was acceptable and results were reported from the secondary column.

The continuing calibration analyzed on 3/03/05 @15:20 on instrument "E2" had an average percent difference greater than the 15% quality control limit on the primary column for Aroclor-1254. Positive results reported for Aroclor-1254 from the primary column have been qualified as estimated (J). No action was taken on the non-detected results for Aroclor-1254.

The continuing calibration analyzed on 3/03/05 @15:47 on instrument "E2" had a average percent difference greater than the 15% quality control limit on the primary column for Aroclor-1016 and Aroclor-1260. No action was taken on this basis because the secondary column average percent difference was acceptable and results were reported from the secondary column for Aroclor-1260. No action was taken for Aroclor-1016 because all results were non-detects.

The %D between analytical columns for the pesticide analyses exceeded 25% for the positive results reported for several compounds in the following samples and the results have been qualified as estimated, "J":

Sample Number	Compound	% Difference	Qualification
13SA10-SD0102	Aroclor-1260	58.6%	J
13SA12-SD0102	Aroclor-1254	53.5%	J
	Aroclor-1260	42.4%	J
13SA12-SD0203	Aroclor-1260	62.6%	J
FD022405-3	Aroclor-1254	38.8%	J
	Aroclor-1260	62.5%	J

EXECUTIVE SUMMARY

Laboratory Performance Issues: Calibration verification non-compliances. Qualifications were made based percent difference between analytical columns. The laboratory reported a positive result for Aroclor-1254 for FD022405-3 and a non-detect for the associated sample (13SA12-SD0102). The data reviewer requested the laboratory to re-evaluate the Aroclor-1254 results for the field duplicate and associated sample. Upon re-evaluation the laboratory reported positive Aroclor-1254 results for both the field duplicate and the associated sample (13SA12-SD0102).

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and EPA Region II Guidelines. The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the Quality Assurance Project Plan (QAPP)."

TetraTech NUS
Edward Sedlmyer
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Worksheets
4. Appendix D – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00050

SDG: D0221 MEDIA: WATER DATA FRACTION: OV

nsample	13MW17
samp_date	2/23/2005
lab_id	D0221-09B
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	10	U	
1,1,2,2-TETRACHLOROETHANE	10	U	
1,1,2-TRICHLOROETHANE	10	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	10	U	
1,1-DICHLOROETHANE	10	U	
1,1-DICHLOROETHENE	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DIBROMO-3-CHLOROPROPANE	10	U	
1,2-DIBROMOETHANE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DICHLOROETHANE	10	U	
1,2-DICHLOROPROPANE	10	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2-BUTANONE	10	U	
2-HEXANONE	10	U	
4-METHYL-2-PENTANONE	10	U	
ACETONE	10	U	
BENZENE	10	U	
BROMODICHLOROMETHANE	10	U	
BROMOFORM	10	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	10	U	
CARBON TETRACHLORIDE	10	U	
CHLOROBENZENE	10	U	
CHLORODIBROMOMETHANE	10	U	
CHLOROETHANE	10	U	
CHLOROFORM	4	J	P
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	10	U	
CIS-1,3-DICHLOROPROPENE	10	U	
CYCLOHEXANE	10	U	

nsample	13MW17
samp_date	2/23/2005
lab_id	D0221-09B
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	10	U	
ISOPROPYLBENZENE	10	U	
METHYL ACETATE	10	U	
METHYL CYCLOHEXANE	10	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	10	U	
STYRENE	10	U	
TETRACHLOROETHENE	2	J	P
TOLUENE	10	U	
TOTAL XYLENES	10	U	
TRANS-1,2-DICHLOROETHENE	10	U	
TRANS-1,3-DICHLOROPROPENE	10	U	
TRICHLOROETHENE	10	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

nsample	13MW18
samp_date	2/24/2005
lab_id	D0221-10B
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	10	U	
1,1,2,2-TETRACHLOROETHANE	10	U	
1,1,2-TRICHLOROETHANE	10	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	10	U	
1,1-DICHLOROETHANE	10	U	
1,1-DICHLOROETHENE	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DIBROMO-3-CHLOROPROPANE	10	U	
1,2-DIBROMOETHANE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DICHLOROETHANE	10	U	
1,2-DICHLOROPROPANE	10	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2-BUTANONE	10	U	
2-HEXANONE	10	U	
4-METHYL-2-PENTANONE	10	U	
ACETONE	10	U	
BENZENE	10	U	
BROMODICHLOROMETHANE	10	U	
BROMOFORM	10	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	10	U	
CARBON TETRACHLORIDE	10	U	
CHLOROBENZENE	10	U	
CHLORODIBROMOMETHANE	10	U	
CHLOROETHANE	10	U	
CHLOROFORM	3	J	P
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	10	U	
CIS-1,3-DICHLOROPROPENE	10	U	
CYCLOHEXANE	10	U	

PROJ_NO: 00050

SDG: D0221 MEDIA: WATER DATA FRACTION: OV

nsample	13MW18
samp_date	2/24/2005
lab_id	D0221-10B
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	10	U	
ISOPROPYLBENZENE	10	U	
METHYL ACETATE	10	U	
METHYL CYCLOHEXANE	10	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	10	U	
STYRENE	10	U	
TETRACHLOROETHENE	10	U	
TOLUENE	10	U	
TOTAL XYLENES	10	U	
TRANS-1,2-DICHLOROETHENE	10	U	
TRANS-1,3-DICHLOROPROPENE	10	U	
TRICHLOROETHENE	10	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

nsample	TRIP BLANK
samp_date	2/24/2005
lab_id	D0221-11A
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	10	U	
1,1,2,2-TETRACHLOROETHANE	10	U	
1,1,2-TRICHLOROETHANE	10	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	10	U	
1,1-DICHLOROETHANE	10	U	
1,1-DICHLOROETHENE	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DIBROMO-3-CHLOROPROPANE	10	U	
1,2-DIBROMOETHANE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DICHLOROETHANE	10	U	
1,2-DICHLOROPROPANE	10	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2-BUTANONE	7	J	P
2-HEXANONE	10	U	
4-METHYL-2-PENTANONE	10	U	
ACETONE	21		
BENZENE	10	U	
BROMODICHLOROMETHANE	10	U	
BROMOFORM	10	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	10	U	
CARBON TETRACHLORIDE	10	U	
CHLOROBENZENE	10	U	
CHLORODIBROMOMETHANE	10	U	
CHLOROETHANE	10	U	
CHLOROFORM	10	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	10	U	
CIS-1,3-DICHLOROPROPENE	10	U	
CYCLOHEXANE	10	U	

nsample	TRIP BLANK
samp_date	2/24/2005
lab_id	D0221-11A
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	10	U	
ISOPROPYLBENZENE	10	U	
METHYL ACETATE	10	U	
METHYL CYCLOHEXANE	10	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	10	U	
STYRENE	10	U	
TETRACHLOROETHENE	10	U	
TOLUENE	10	U	
TOTAL XYLENES	10	U	
TRANS-1,2-DICHLOROETHENE	10	U	
TRANS-1,3-DICHLOROPROPENE	10	U	
TRICHLOROETHENE	10	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

PROJ_NO: 00050

SDG: D0221 MEDIA: WATER DATA FRACTION: OV

nsample	13MW17	nsample	13MW17	nsample	13MW18
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/24/2005
lab_id	D0221-09B	lab_id	D0221-09B	lab_id	D0221-10B
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	10	U	
1,1,2,2-TETRACHLOROETHANE	10	U	
1,1,2-TRICHLOROETHANE	10	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	10	U	
1,1-DICHLOROETHANE	10	U	
1,1-DICHLOROETHENE	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DIBROMO-3-CHLOROPROPANE	10	U	
1,2-DIBROMOETHANE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DICHLOROETHANE	10	U	
1,2-DICHLOROPROPANE	10	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2-BUTANONE	10	U	
2-HEXANONE	10	U	
4-METHYL-2-PENTANONE	10	U	
ACETONE	10	U	
BENZENE	10	U	
BROMODICHLOROMETHANE	10	U	
BROMOFORM	10	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	10	U	
CARBON TETRACHLORIDE	10	U	
CHLOROBENZENE	10	U	
CHLORODIBROMOMETHANE	10	U	
CHLOROETHANE	10	U	
CHLOROFORM	4	J	P
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	10	U	
CIS-1,3-DICHLOROPROPENE	10	U	
CYCLOHEXANE	10	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	10	U	
ISOPROPYLBENZENE	10	U	
METHYL ACETATE	10	U	
METHYL CYCLOHEXANE	10	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	10	U	
STYRENE	10	U	
TETRACHLOROETHENE	2	J	
TOLUENE	10	U	
TOTAL XYLENES	10	U	
TRANS-1,2-DICHLOROETHENE	10	U	
TRANS-1,3-DICHLOROPROPENE	10	U	
TRICHLOROETHENE	10	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	10	U	
1,1,2,2-TETRACHLOROETHANE	10	U	
1,1,2-TRICHLOROETHANE	10	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	10	U	
1,1-DICHLOROETHANE	10	U	
1,1-DICHLOROETHENE	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DIBROMO-3-CHLOROPROPANE	10	U	
1,2-DIBROMOETHANE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DICHLOROETHANE	10	U	
1,2-DICHLOROPROPANE	10	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2-BUTANONE	10	U	
2-HEXANONE	10	U	
4-METHYL-2-PENTANONE	10	U	
ACETONE	10	U	
BENZENE	10	U	
BROMODICHLOROMETHANE	10	U	
BROMOFORM	10	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	10	U	
CARBON TETRACHLORIDE	10	U	
CHLOROBENZENE	10	U	
CHLORODIBROMOMETHANE	10	U	
CHLOROETHANE	10	U	
CHLOROFORM	3	J	P
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	10	U	
CIS-1,3-DICHLOROPROPENE	10	U	
CYCLOHEXANE	10	U	

PROJ_NO: 00050

SDG: D0221 MEDIA: WATER DATA FRACTION: OV

nsample	13MW18	nsample	TRIP BLANK	nsample	TRIP BLANK
samp_date	2/24/2005	samp_date	2/24/2005	samp_date	2/24/2005
lab_id	D0221-10B	lab_id	D0221-11A	lab_id	D0221-11A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	10	U	
ISOPROPYLBENZENE	10	U	
METHYL ACETATE	10	U	
METHYL CYCLOHEXANE	10	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	10	U	
STYRENE	10	U	
TETRACHLOROETHENE	10	U	
TOLUENE	10	U	
TOTAL XYLENES	10	U	
TRANS-1,2-DICHLOROETHENE	10	U	
TRANS-1,3-DICHLOROPROPENE	10	U	
TRICHLOROETHENE	10	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	10	U	
1,1,2,2-TETRACHLOROETHANE	10	U	
1,1,2-TRICHLOROETHANE	10	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	10	U	
1,1-DICHLOROETHANE	10	U	
1,1-DICHLOROETHENE	10	U	
1,2,4-TRICHLOROBENZENE	10	U	
1,2-DIBROMO-3-CHLOROPROPANE	10	U	
1,2-DIBROMOETHANE	10	U	
1,2-DICHLOROBENZENE	10	U	
1,2-DICHLOROETHANE	10	U	
1,2-DICHLOROPROPANE	10	U	
1,3-DICHLOROBENZENE	10	U	
1,4-DICHLOROBENZENE	10	U	
2-BUTANONE	7	J	P
2-HEXANONE	10	U	
4-METHYL-2-PENTANONE	10	U	
ACETONE	21		
BENZENE	10	U	
BROMODICHLOROMETHANE	10	U	
BROMOFORM	10	U	
BROMOMETHANE	10	U	
CARBON DISULFIDE	10	U	
CARBON TETRACHLORIDE	10	U	
CHLOROBENZENE	10	U	
CHLORODIBROMOMETHANE	10	U	
CHLOROETHANE	10	U	
CHLOROFORM	10	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	10	U	
CIS-1,3-DICHLOROPROPENE	10	U	
CYCLOHEXANE	10	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	10	U	
ETHYLBENZENE	10	U	
ISOPROPYLBENZENE	10	U	
METHYL ACETATE	10	U	
METHYL CYCLOHEXANE	10	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	10	U	
STYRENE	10	U	
TETRACHLOROETHENE	10	U	
TOLUENE	10	U	
TOTAL XYLENES	10	U	
TRANS-1,2-DICHLOROETHENE	10	U	
TRANS-1,3-DICHLOROPROPENE	10	U	
TRICHLOROETHENE	10	U	
TRICHLOROFLUOROMETHANE	10	U	
VINYL CHLORIDE	10	U	

PROJ_NO: 00050

SDG: D0221 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA10-SD0102	nsample	13SA10-SD0203	nsample	13SA11-SD0102
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0221-01A	lab_id	D0221-02A	lab_id	D0221-03A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	88.0	Pct_Solids	84.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	40	U	
AROCLOR-1221	40	U	
AROCLOR-1232	40	U	
AROCLOR-1242	40	U	
AROCLOR-1248	40	U	
AROCLOR-1254	40	U	
AROCLOR-1260	93	J	U

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	37	U	
AROCLOR-1221	37	U	
AROCLOR-1232	37	U	
AROCLOR-1242	37	U	
AROCLOR-1248	37	U	
AROCLOR-1254	37	U	
AROCLOR-1260	37	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	39	U	
AROCLOR-1221	39	U	
AROCLOR-1232	39	U	
AROCLOR-1242	39	U	
AROCLOR-1248	39	U	
AROCLOR-1254	39	U	
AROCLOR-1260	39	U	

PROJ_NO: 00050

SDG: D0221 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA11-SD0203	nsample	13SA12-SD0102	nsample	13SA12-SD0203
samp_date	2/23/2005	samp_date	2/24/2005	samp_date	2/24/2005
lab_id	D0221-04A	lab_id	D0221-05A	lab_id	D0221-06A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	81.0	Pct_Solids	80.0	Pct_Solids	78.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	40	U	
AROCLOR-1221	40	U	
AROCLOR-1232	40	U	
AROCLOR-1242	40	U	
AROCLOR-1248	40	U	
AROCLOR-1254	40	U	
AROCLOR-1260	40	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	41	U	
AROCLOR-1221	41	U	
AROCLOR-1232	41	U	
AROCLOR-1242	41	U	
AROCLOR-1248	41	U	
AROCLOR-1254	260	J	CU
AROCLOR-1260	130	J	U

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	42	U	
AROCLOR-1221	42	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	220	J	C
AROCLOR-1260	68	J	U

PROJ_NO: 00050

SDG: D0221 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	FD022405-3
samp_date	2/24/2005
lab_id	D0221-07A
qc_type	NM
units	UG/KG
Pct_Solids	80.0
DUP_OF:	13SA12-SD0102

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	41	U	
AROCLOR-1221	41	U	
AROCLOR-1232	41	U	
AROCLOR-1242	41	U	
AROCLOR-1248	41	U	
AROCLOR-1254	270	J	CU
AROCLOR-1260	110	J	U

PROJ_NO: 00050

SDG: D0221 MEDIA: WATER DATA FRACTION: PEST/PCB

nsample	RINSATE-1
samp_date	2/24/2005
lab_id	D0221-08B
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	1	U	
AROCLOR-1221	1	U	
AROCLOR-1232	1	U	
AROCLOR-1242	1	U	
AROCLOR-1248	1	U	
AROCLOR-1254	1	U	
AROCLOR-1260	1	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. WITT**	**DATE:**	**JULY 28, 2005**
FROM:	**EDWARD SEDLMYER**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION- PCB CTO 033, NWS EARLE SDG D0660**		
SAMPLES:	4/Sediment		

13SA03-SD03-DIS 13SA04-SD0102-DIS 13SA11-SD0102-DIS
13SA-DUP01

OVERVIEW

The sample set for CTO 033; NWS Earle, SDG D0660 consists of four (4) environmental sediment samples. All samples were analyzed for polychlorinated biphenyls (PCB). One field duplicate was included in this SDG: (13SA11-SD0102-DIS / 13SA-DUP01).

The samples were collected by Tetra Tech NUS on June 6, 2005 and analyzed by Mitkem Corporation. All analyses were conducted in accordance with SW-846 Method 8082 analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial/continuing calibrations
* • Laboratory method and field blank results
* • Surrogate Spike Recoveries
* • Blank Spike/Blank Spike Duplicate Results
* • Matrix Spike/Matrix Spike Duplicate Results
* • Compound Identification
* • Compound Quantitation
* • Detection Limits

The symbol (*) indicates that quality control criteria were not met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

PCB

No qualification of the data was necessary.

EXECUTIVE SUMMARY

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and EPA Region II Guidelines. The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the Quality Assurance Project Plan (QAPP)."

Edward Sedlmyer

TetraTech NUS
Edward Sedlmyer
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Worksheets
4. Appendix D - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00050

SDG: D0660 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA03-SD03-DIS
samp_date	6/6/2005
lab_id	D0660-03A
qc_type	NM
units	UG/KG
Pct_Solids	90.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	37	U	
AROCLOR-1221	37	U	
AROCLOR-1232	37	U	
AROCLOR-1242	37	U	
AROCLOR-1248	37	U	
AROCLOR-1254	37	U	
AROCLOR-1260	37	U	

nsample	13SA04-SD0102-DIS
samp_date	6/6/2005
lab_id	D0660-02A
qc_type	NM
units	UG/KG
Pct_Solids	79.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	42	U	
AROCLOR-1221	42	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	42	U	
AROCLOR-1260	42	U	

nsample	13SA11-SD0102-DIS
samp_date	6/6/2005
lab_id	D0660-01A
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	39	U	
AROCLOR-1221	39	U	
AROCLOR-1232	39	U	
AROCLOR-1242	39	U	
AROCLOR-1248	39	U	
AROCLOR-1254	39	U	
AROCLOR-1260	39	U	

PROJ_NO: 00050

SDG: D0660 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	13SA-DUP01
samp_date	6/6/2005
lab_id	D0660-04A
qc_type	NM
units	UG/KG
Pct_Solids	87.0
DUP_OF:	13SA11-SD0102-DIS

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	38	U	
AROCLOR-1221	38	U	
AROCLOR-1232	38	U	
AROCLOR-1242	38	U	
AROCLOR-1248	38	U	
AROCLOR-1254	38	U	
AROCLOR-1260	38	U	