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FIELD INVESTIGATION REPORT FOR SOLID WASTE MANAGEMENT UNIT 17 (SWMU 17)
BOGGS CREEK NSA CRANE IN
08/01/2010
TETRA TECH INC

Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-94-D-0888



Rev. 0
08/10

Field Investigation Report for SWMU 17 - Boggs Creek

Naval Support Activity Crane
Crane, Indiana

Contract Task Order F271

August 2010



Midwest

201 Decatur Avenue
Building IA, Code EV
Great Lakes, Illinois 60088

**FIELD INVESTIGATION REPORT
for
SWMU 17 – BOGGS CREEK**

**NAVAL SUPPORT ACTIVITY CRANE
CRANE, INDIANA**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

**Submitted to:
Naval Facilities Engineering Command
Midwest
201 Decatur Avenue
Building IA, Code EV
Great Lakes, Illinois 60088**

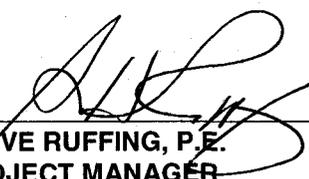
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**CONTRACT NUMBER N62472-03-D-0057
CONTRACT TASK ORDER F271**

AUGUST 2010

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ACRONYMS

°C	Degrees Celsius
bgs	Below ground surface
CLEAN	Comprehensive Long-Term Environmental Action Navy
CTO	Contract Task Order
DO	Dissolved oxygen
FOL	Field Operations Leader
GPS	Global Positioning System
HASP	Health and Safety Plan
IDW	Investigation-derived waste
IM	Interim Measure
mg/kg	Milligrams per kilogram
MS	Matrix spike
MSD	Matrix spike duplicate
NAVFAC MW	Naval Facilities Engineering Command, Midwest
NSA	Naval Support Activity
NTU	Nephelometric Turbidity Unit
ORP	Oxidation-reduction potential
PCB	Polychlorinated biphenyl
PPE	Personal protective equipment
QA	Quality assurance
QC	Quality control
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SOP	Standard Operating Procedure
SSO	Site Safety Officer
SWMU	Solid Waste Management Unit
TOM	Task Order Manager
TiNUS	Tetra Tech NUS, Inc.
U.S. EPA	United States Environmental Protection Agency
U.S. FWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

1.1 PURPOSE

This Field Investigation Report is an addendum to the draft Resource Conservation and Recovery Act (RCRA) Facility Investigation Report (RFI) prepared by Tetra Tech NUS, Inc. (TtNUS) for the Naval Support Activity (NSA) facility located in Crane, Indiana, dated August 2002. This work was performed through the United States Navy, Naval Facilities Engineering Command, Midwest (NAVFAC MW) under the Comprehensive Long-Term Environmental Action Navy (CLEAN) 3, Contract Number N62467-94-D-0888, Contract Task Order (CTO) F271. The investigation activities presented herein were to determine the full extent of polychlorinated biphenyl (PCB) contamination of surface water and sediment in Boggs Creek from where it exits Solid Waste Management Unit (SWMU) 17 to the south where it terminates into Lake Gallimore. This Field Investigation Report does not repeat information already found in the SWMU 17 draft RFI Report (TtNUS, 2002).

Supporting documentation referenced throughout this report is provided in Appendices A-D as follows:

- Appendix A – Field Log Sheets
- Appendix B – Sample Photographs
- Appendix C – Analytical Data
- Appendix D – Data Validation Reports

1.2 PROJECT BACKGROUND

NSA Crane prepared a Quality Assurance Project Plan (QAPP) (TtNUS, 2001) for a Phase III RFI at SWMU 17 to provide data regarding PCB contamination in surface and subsurface soil at the PCB Capacitor Burial/Pole Yard.

Following the 2001 QAPP, the Navy prepared a QAPP Addendum (TtNUS, 2005) to address data gaps regarding PCB contamination in surface soil, subsurface soil, perched groundwater, surface water, and sediment.

Based on these two previous field investigations identifying excessive risk related to PCB contamination at SWMU 17, the Navy prepared QAPP Addendum No. 2 (TtNUS, 2006a). This action was taken to identify the full extent of the contamination in ditches 1 through 10 leading into Boggs Creek, Boggs Creek headwaters, Boggs Creek plunge pool, and upper Boggs Creek itself.

PCB contamination found in the headwaters of Boggs Creek resulted in the Navy preparing QAPP Addendum No. 3 (TtNUS, 2006b) to gather data enabling completion of the RFI. These findings included the delineation and extent of PCB contamination around Building 2721 and the tributary flowing west from Building 2721 to Boggs Creek. QAPP Addendum No. 4 (TtNUS, 2008) governed the sampling and analyses of surface water and sediment within Boggs Creek and its tributaries to its termination at Lake Gallimore.

1.3 NSA CRANE SITE DESCRIPTION

NSA Crane is located in southern Indiana, 75 miles southwest of Indianapolis, Indiana and 71 miles northwest of Louisville, Kentucky, just east of Crane Village and Burns City (Figure 1-1). NSA Crane is on 62,463 acres (97.6 square miles), primarily in northern Martin County, and to a lesser extent Greene, Daviess, and Lawrence Counties. The area surrounding NSA Crane's mostly wooded location is rural, sparsely-populated farmland and forest.

NSA Crane provides material, technical, and logistical support to the Navy for equipment, shipboard weapons systems, and nonexpendable ordnance. In addition, NSA Crane supports the Crane Army Ammunition Activity with production, renovation, storage, shipment, demilitarization, and disposal of conventional ammunition.

1.4 SWMU 17 SITE DESCRIPTION

Figure 1-1 shows the north-central location of SWMU 17 on the NSA Crane facility. The PCB Capacitor Burial/Pole Yard/Building 2721 has been in use since before 1966. Historically, SWMU 17 has been used for the following:

- Storage of electrical capacitors and transformers, some containing PCBs.
- Burial of capacitors, some possibly containing PCBs.
- Storage of creosote-impregnated utility poles, some possibly contaminated with PCBs from leaking transformers.

Reportedly, capacitors were buried at SWMU 17 in the early to mid-1970s, but capacitor burial before or after that period is unknown. A geophysical survey was completed as part of the RFI in March of 2002. The survey, conducted to a maximum depth of 10 feet, identified several anomalies as well as a waste burial area and many locations of subsurface metal, including buried utilities. Subsequently, an Interim

Measure (IM) was conducted in August 2003. During the IM, PCB contaminated soil north of Building 357 was removed for disposal. Also, excavation to a depth of between 7 to 12 feet was completed at the capacitor burial area west of Building 357 to probe for buried capacitors. A large number of electrical insulators and other debris were uncovered, but no capacitor pieces were found in any of the 10 excavations.

Following is a list of the SWMU 17 investigations and remedial activities performed to date:

- SAIC soil investigation, March 2001
- TtNUS RFI, March 2002
- ToITest IM, August 2003
- TtNUS RFI Addendum field investigation, October 2005
- TtNUS RFI Addendum field investigation, April 2006
- TtNUS RFI Addendum field investigation, May 2006
- TtNUS RFI Addendum field investigation, October 2006

Section 1.5 describes environmental investigations and the previous IM conducted at SWMU 17 in more detail.

1.5 PREVIOUS AND RELATED INVESTIGATIONS

2001 Soil Investigation – In March 2001, SAIC conducted a soil investigation in and around the SWMU 17 capacitor burial and pole storage areas. Surface soil samples were taken first from 0 to 6 inches and then from 6 to 12 inches below ground surface (bgs). Six composite soil samples taken from 8 grab locations were collected and analyzed for PCBs only. The results indicated elevated concentrations of PCBs within the surface soils of the investigated areas. The primary contaminant of concern was identified as Aroclor-1260.

2002 RFI – Based on the results of the 2001 soil investigation, TtNUS conducted an RFI for SWMU 17. Field work for the RFI began in March 2002. In total, 44 surface soil samples were collected from 0- to 24 inches bgs, and 44 subsurface soil samples were collected from 2 to 4 feet bgs. The sampling identified five areas of concern immediately north and west of Building 357 and within the northwestern drainageway. In addition to soil sampling, a geophysical survey identified the limits of the reported capacitor burial area and revealed anomalies there. Also revealed were locations of subsurface metal including buried utilities.

2003 Interim Measure – As a result of the 2002 RFI, TolTest was contracted to remove PCB-contaminated soil from the SWMU 17 area. This IM was conducted in August 2003 and resulted in the excavation of 2,140 tons of soil with PCB concentrations less than 25 milligrams per kilogram (mg/kg) and 790 tons of soil with PCB concentrations greater than 25 mg/kg. The excavation around the capacitor burial area uncovered electrical insulators and miscellaneous debris. A small step-down transformer was also found during a search of an adjacent ditch. In compliance with Crane's PCB management program, the sealed transformer was packed and shipped, with other sealed capacitors, for proper disposal. Excavation ceased before all contaminated soil was removed because of contractual limitations. Site delineation samples and post-excavation sampling indicated that PCBs remained in subsurface soil below 2 feet of clean fill at concentrations greater than 25 mg/kg. In surface soil within the drainageway down gradient of the disposal area, the concentrations were greater than 1 mg/kg. A concentration greater than 1mg/kg was also found in the area between Building 357 and the asphalt paved road (eastern end of building). However, the sampling did not identify the extent of the remaining contamination. Being beyond the identified work area, surface soil within the drainageway down gradient of the disposal area was not excavated and posed no health risk to workers. The surface soil between Building 357 and the paved road at the eastern end of Building 357 was not excavated based on a regulatory decision (TolTest, 2004). The TolTest report targeted these areas for further evaluation in a future RFI.

RFI Addendum Sampling – In October 2005, April 2006, and May 2006, TtNUS conducted sediment sampling within the drainage channels that receive runoff from the SWMU 17 area and surface soil sampling around Building 357. In October 2005, seven sediment samples were taken from within the Northwest Drainageway, Boggs Creek, Ditch 8, and Ditch 3. Surface and subsurface soil samples were taken around Building 357 (see Figure 1-2). The results identified PCB concentrations ranging from non-detect to 37 mg/kg. In April 2006 33 sediment samples were taken from the upstream drainageways originating at SWMU 17. The results identified PCB concentrations ranging from non-detect to 4.6 mg/kg. PCBs were detected at 1.3 mg/kg at location 17SD14, upstream of a contributing stream that originated within SWMU 17. This detection suggested an additional source of PCB contamination other than SWMU 17 in the tributary. Further investigation of facilities upstream of sample location 17SD14 indicated Building 2721 was historically used as a transformer maintenance facility and PCB-contaminated oils were discharged through an oil-water separator to the drainage ditch. Consequently, in May 2006, 23 additional sediment samples were collected in the drainage ditch, the stream in which 17SD14 was located, and other drainage channels upgradient of SWMU 17. The analytical results identified PCB concentrations ranging from non-detect to 3.3 mg/kg.

Discovery of additional PCB contamination in the stream originating at Building 2721 prompted soil and sediment sampling in the vicinity of Building 2721 in October 2006. This sampling included areas along

the stream, areas outside the stream banks where it would likely receive flood waters, and areas within the drainage ditches in the vicinity of SWMU 17 not previously sampled. In total, 62 additional samples were collected from 35 soil boring and 5 sediment locations. PCB concentrations in the soil samples collected around Building 2721 and in the potential flood zone along the stream north of SWMU 17 ranged from non-detect to 73 mg/kg. The maximum PCB concentration was detected in a surface soil sample (0 to 2 feet bgs) collected from soil boring 17SB55, located adjacent to the southwestern corner of Building 2721. PCB concentrations in sediment samples collected from the streams and drainage channels ranged from non-detect to a high of 74.16 mg/kg detected in sample 17SD61. Figure 1-2 presents the RFI Addendum sample locations and Figures 1-3 and 1-4 present the RFI Addendum PCB results.

United States Fish and Wildlife Service (U.S. FWS) Fish Tissue Report – In August 2008, the U.S. FWS hired Geochemical Environmental Research to analyze fish tissue samples (Spotted Suckers) from Lake Gallimore for PCBs. The following three composite sample groups from Lake Gallimore Spotted Suckers were analyzed for PCBs:

- Whole Body (filet with carcass)
- Filets (filet without skin)
- Carcasses (no filet carcass)

The results of the fish tissue study demonstrate that Spotted Sucker filets are at the threshold of the Fish Consumption Advisory Group 1 (>0.05 ppm) and Group 2 (0.06 – 0.2 ppm) concentration levels and that the whole body concentration is not ideal (dry weight=1.52 ppm). These results suggest some downstream PCB migration from Boggs Creek into Lake Gallimore has occurred. The study concluded that clean-up in the upstream areas from Lake Gallimore is the most appropriate remedy for PCB contamination in Spotted Sucker tissue.

1.6 EXTENT OF CONTAMINATION

The 2003 IM removed the majority of PCB (Aroclor-1260) contamination from the SWMU 17 capacitor burial area and pole storage yard. However, verification samples collected following the IM identified isolated areas where PCB contamination remained in subsurface soil. In addition, as indicated by the 2005 and 2006 sediment sampling events, PCB contamination is present in sediment and soil within the drainage channel network surrounding SWMU 17 and surface and subsurface soil surrounding Buildings 357 and 2721.

1.7 DESCRIPTION OF QAPP ADDENDUM NO. 4

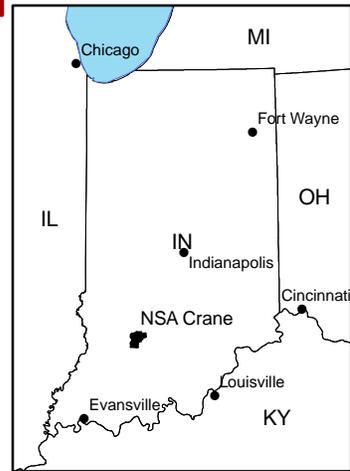
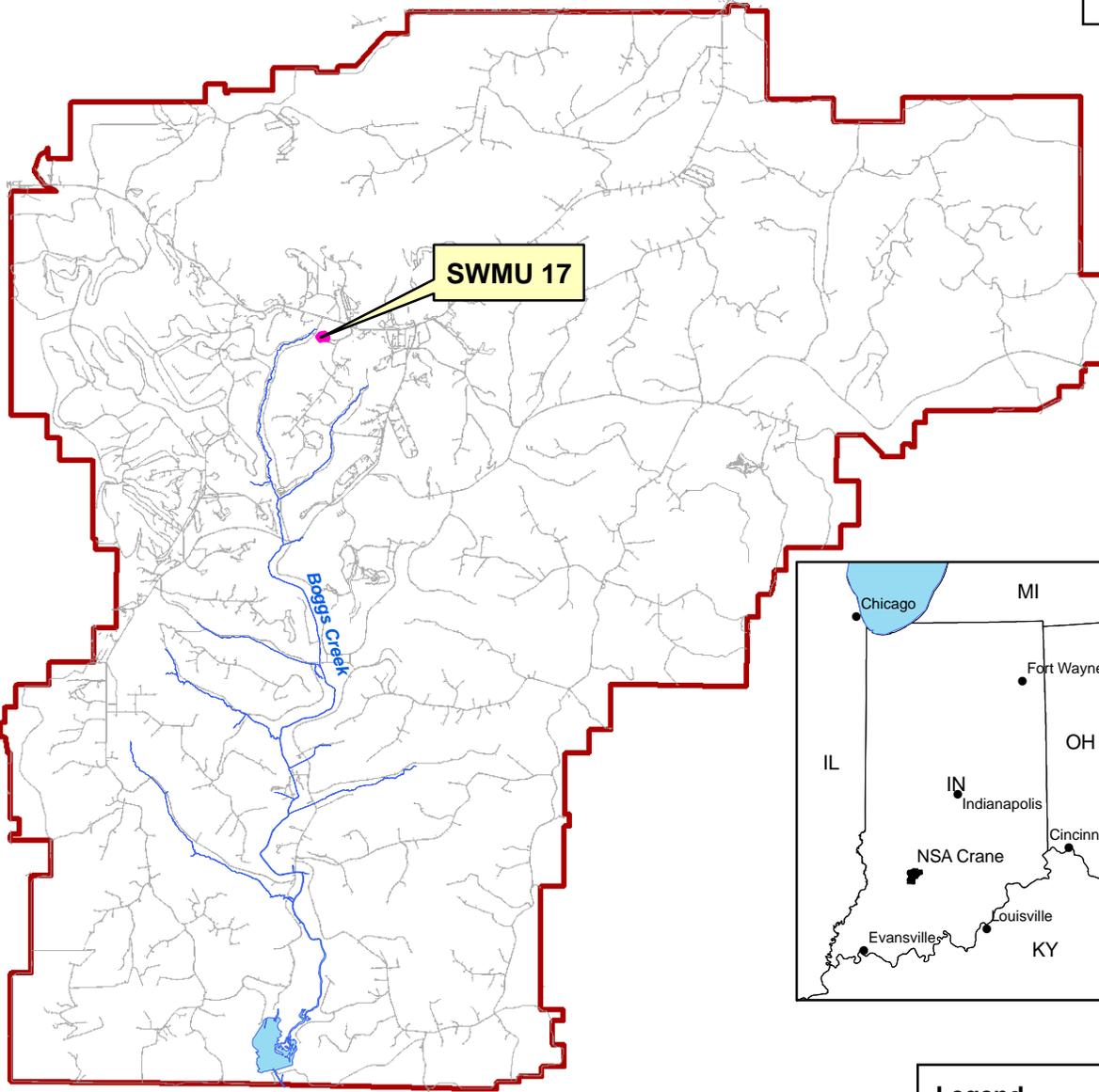
QAPP Addendum No. 4 (TtNUS, 2008) governed the sampling and analyses of surface water and sediment within Boggs Creek and its tributaries to its termination at Lake Gallimore. PCB contamination had been documented in certain sections of upper Boggs Creek (TtNUS, 2007), but the extent of the contamination, specifically in the mid to lower region of the creek had not been fully determined. QAPP Addendum No. 4 provided collection procedures for sampling of additional surface water and sediment from an area of Boggs Creek not previously investigated for PCB contamination. The creek length investigated was approximately 10 miles beginning at the previous southernmost sample location within Boggs Creek (17SD069) and ending at the termination of Boggs Creek at Lake Gallimore.

The specific objectives achieved during this phase of field sampling were as follows:

- Based on the additional sampling of surface water and sediment in Boggs Creek, determine whether any PCB contamination located downstream of the headwaters of Boggs Creek exceeded the 1 ppm decision criteria agreed to by the United States Environmental Protection Agency (U.S. EPA), U.S. FWS, and the Navy.
- Provided information necessary to complete the human health and ecological risk assessments for SWMU 17. Laboratory analytical data meeting the human health and ecological screening levels was necessary.

Figure 1-1 shows the general location of NSA Crane, SWMU 17, and Boggs Creek and Figure 1-5 shows the locations of samples collected from Boggs Creek for this Field Investigation Report.

This report consists of three sections: Section 1.0 is this introduction, which includes a brief description of this field effort and provides general information on the previous investigations. Section 2.0 presents details regarding the events of the field investigation. Section 3.0 briefly describes the results of this investigation along with all associated current and previous analytical data.



Legend

- SWMU 17
- Lake Gallimore
- Road
- Base Boundary

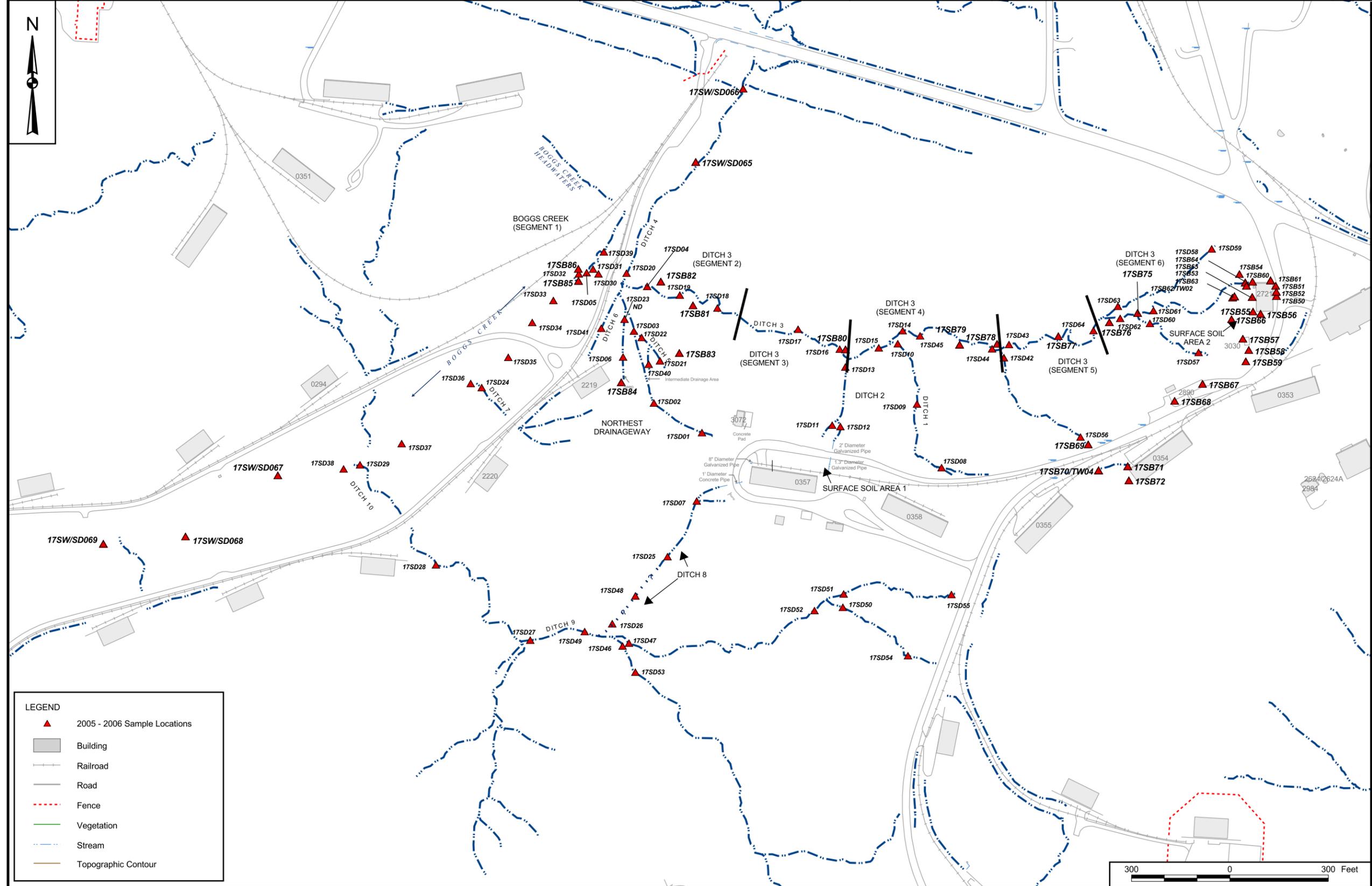


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T. WHEATON	11/04/09
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B. COLLINS	11/04/09
REVISED BY	DATE
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SCALE AS NOTED	

Tt Tetra Tech NUS, Inc.

**BASE AND SITE LOCATION MAP
SWMU 17 - BOGGS CREEK
FIELD INVESTIGATION REPORT
NSA CRANE
CRANE, INDIANA**

CONTRACT NUMBER CTO F271	
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J. GOERDT	11/04/09
APPROVED BY	DATE
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FIGURE NO.	REV
FIGURE 1-1	0



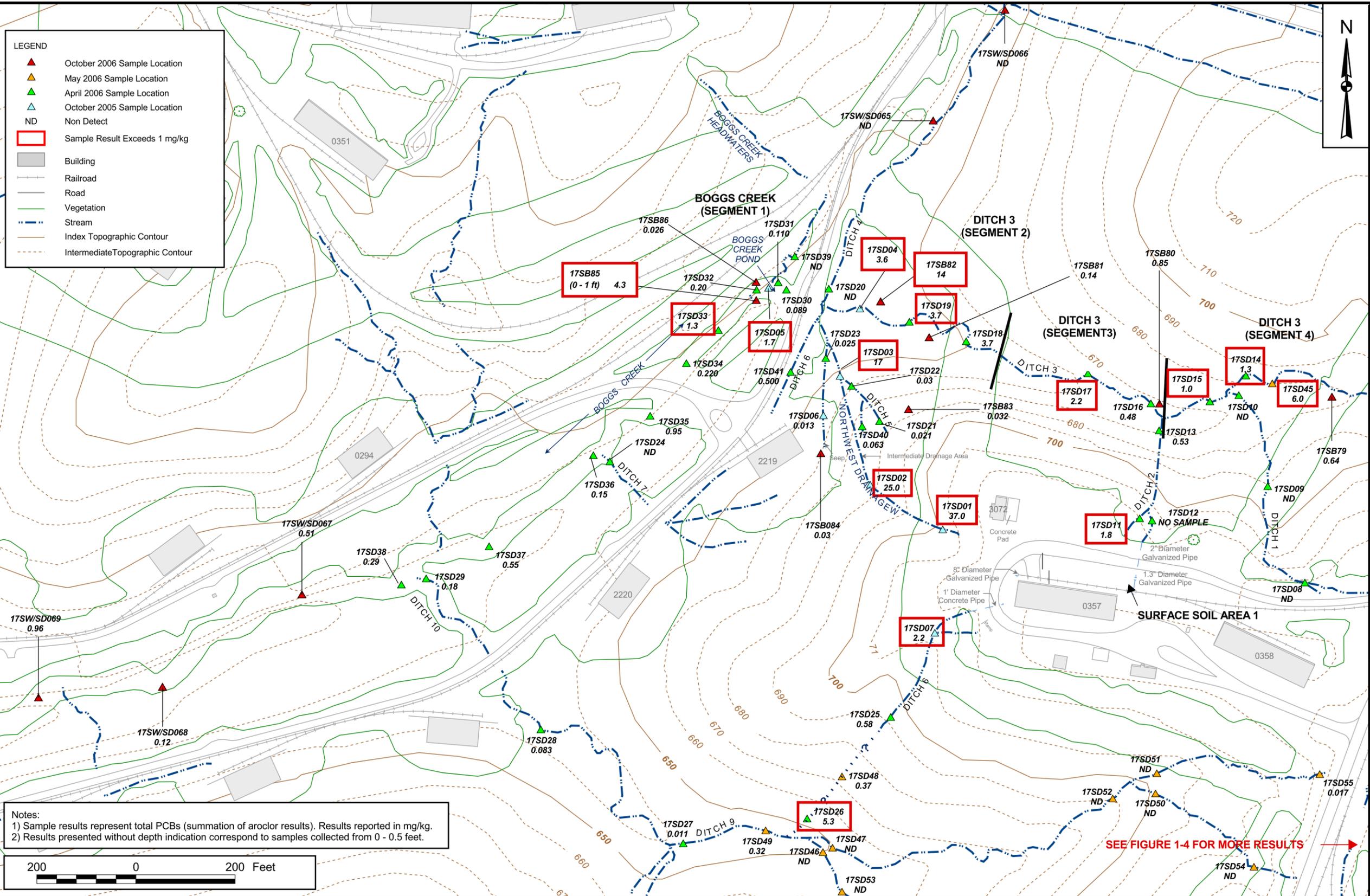
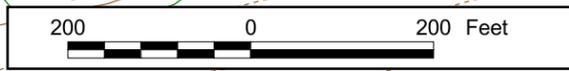
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RFI ADDENDUM 2005 AND 2006 SAMPLE LOCATIONS SWMU 17 - BOGGS CREEK FIELD INVESTIGATION REPORT NSA CRANE CRANE, INDIANA				
		DATE 2/23/07	DATE 11/04/09	SCALE AS NOTED
		CHECKED BY S. PAXTON	COST/SCHED-AREA B. COLLINS	

LEGEND

- ▲ October 2006 Sample Location
- ▲ May 2006 Sample Location
- ▲ April 2006 Sample Location
- ▲ October 2005 Sample Location
- ND Non Detect
- Sample Result Exceeds 1 mg/kg
- Building
- Railroad
- Road
- Vegetation
- Stream
- Index Topographic Contour
- Intermediate Topographic Contour

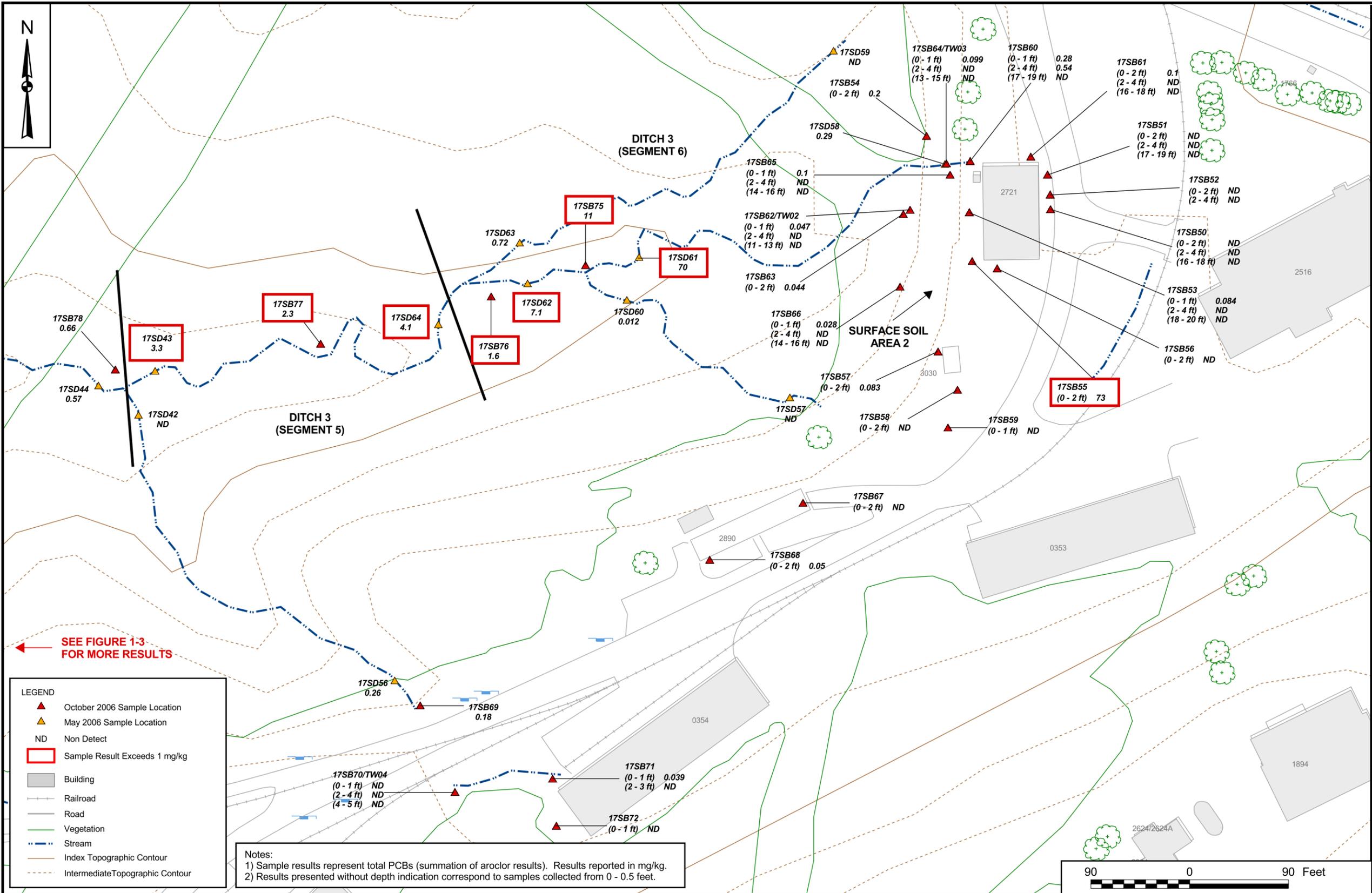


Notes:
 1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg.
 2) Results presented without depth indication correspond to samples collected from 0 - 0.5 feet.



CONTRACT NO. CTO F271	DATE	DATE	REV 0
APPROVED BY	DATE	DATE	DRAWING NO. FIGURE 1 - 3
RFI ADDENDUM 2005 AND 2006 SAMPLE RESULTS, 1 OF 2 SWMU 17 - BOGGS CREEK FIELD INVESTIGATION REPORT NSA CRANE CRANE, INDIANA			
		DATE 2/23/07	DATE 11/04/09
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SEE FIGURE 1-4 FOR MORE RESULTS



LEGEND

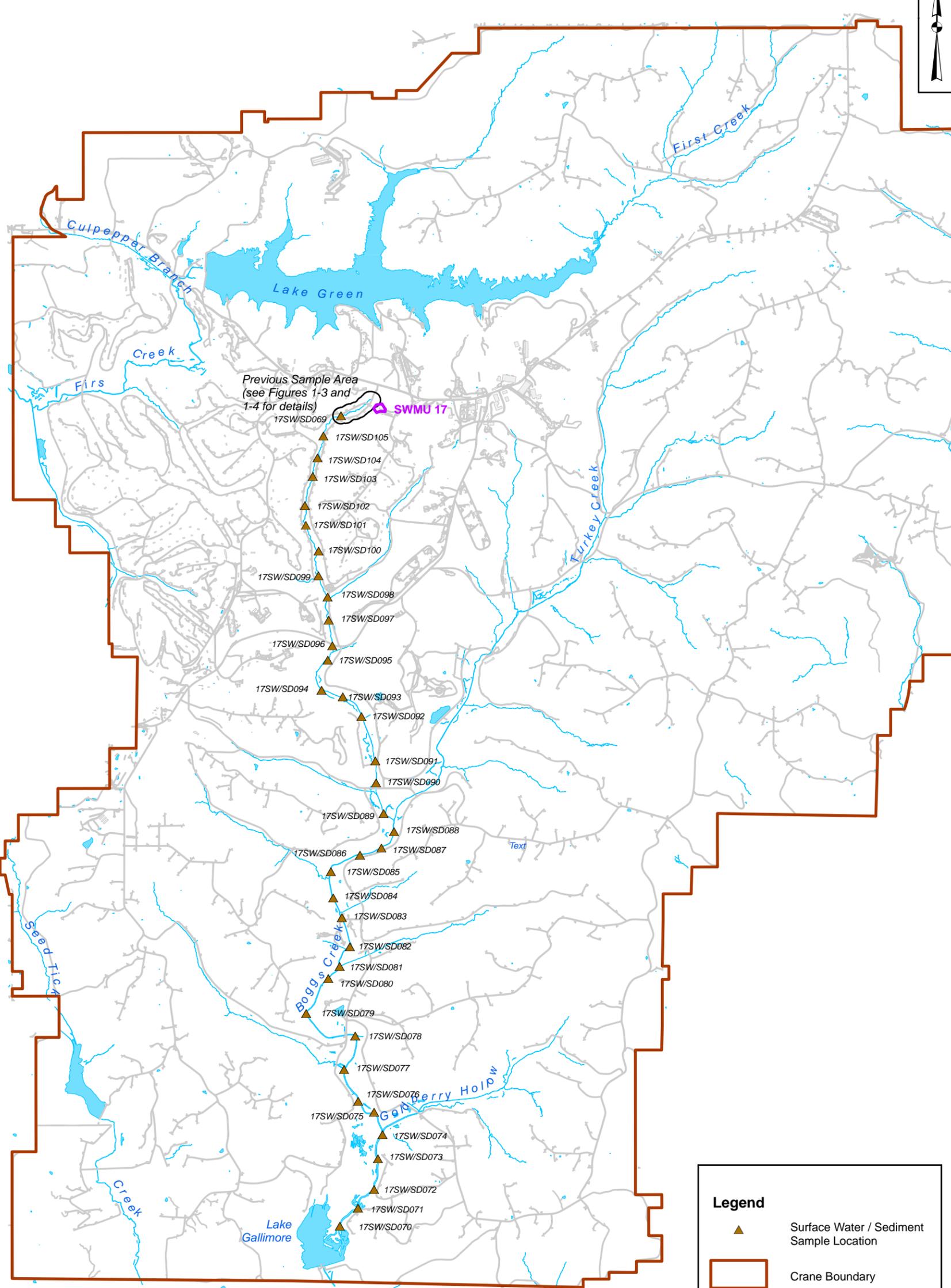
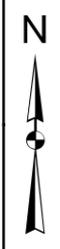
- ▲ October 2006 Sample Location
- ▲ May 2006 Sample Location
- ND Non Detect
- Sample Result Exceeds 1 mg/kg
- Building
- Railroad
- Road
- Vegetation
- Stream
- Index Topographic Contour
- Intermediate Topographic Contour

Notes:
 1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg.
 2) Results presented without depth indication correspond to samples collected from 0 - 0.5 feet.

SEE FIGURE 1-3 FOR MORE RESULTS



CONTRACT NO. CTO F271	DATE	RFI ADDENDUM 2005 AND 2006 SAMPLE RESULTS, 2 OF 2 SWMU 17 - BOGGS CREEK FIELD INVESTIGATION REPORT NSA CRANE CRANE, INDIANA	DATE	REV 0
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Legend

-  Surface Water / Sediment Sample Location
-  Crane Boundary
-  SWMU Boundary
-  Surface Water
-  Building
-  Road



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B. COLLINS	11/04/09
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FIELD INVESTIGATION SAMPLE LOCATIONS
SWMU 17 - BOGGS CREEK
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	
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FIGURE 1 - 5	0

2.0 FIELD ACTIVITIES

This section describes the sample activities, procedures, and documentation utilized during this field investigation. Field activities during this field event were conducted in accordance with the procedures and methodologies described in the QAPP Addendum No. 4 (TtNUS, 2008). All standard operating procedures (SOPs) that governed this field work and that are referenced throughout this report are included in Appendix A of the QAPP Addendum No. 4 (TtNUS, 2008).

The field activities included the following:

- Collection of 40 sediment samples along a 10-mile stretch of Boggs Creek. All sediment samples were composite samples as discussed further in Section 2.3.1.1.
- Collection of six surface water samples along a 10-mile stretch of Boggs Creek. All surface water samples were collected as described in Section 2.3.1.2.
- Marking of all sample locations with global positioning system (GPS) points.

2.1 MOBILIZATION/DEMobilIZATION

Mobilization occurred on December 12, 2008, activities were completed and demobilization occurred on December 19, 2008. Prior to beginning field activities, each field team member reviewed the associated QAPP, its appendices, and the Health and Safety Plan (HASP). The Field Operations Leader (FOL)/Site Safety Officer (SSO) ensured that all field equipment and all health and safety-related equipment was available and operational. The FOL also held a brief field team orientation meeting prior to the field investigation to ensure that team members were familiar with the scope of the field activities.

2.2 SAMPLE IDENTIFICATION SYSTEM

All samples collected for fixed-base laboratory analyses were properly labeled with an adhesive-backed sample label affixed to each sample container in accordance with SOP_CTO0020-01 located in Appendix A of the approved QAPP (TtNUS, 2008). The sample labels included the following information: project name, project location, sample tracking number, sampling date, sampling time, type of analysis required, matrix type, preservative, initials of sampler, and the name of the analytical laboratory to which the samples were submitted.

Each sample collected was assigned a unique sample tracking number in accordance with SOP_CTO0020-02 located in Appendix A of the approved QAPP (TtNUS, 2008).

2.3 SAMPLING LOCATIONS, ANALYSES, AND RATIONALE

This section identifies the sampling locations, quality assurance (QA)/quality control (QC) samples, analyses that were performed, and rationale for the sampling and analytical program. All samples collected were prepared and analyzed according to the laboratory protocol. Sample log sheets are provided in Appendix A.

2.3.1 Sampling Strategy

Prior to this field investigation, the furthest downstream sample location in Boggs Creek (17SW/SD069) was approximately 1/2 mile downstream from the headwaters originating near Building 2721 (see Figure 1-5). During this field activity the surface water and sediment samples were collected from approximately 10 linear miles of Boggs Creek between sample location 17SW/SD069 and the termination of Boggs Creek into Lake Gallimore.

All sample locations were marked with a colored pin flag along with brightly colored flagging tied to a nearby tree or underbrush to increase visibility. All sample locations were recorded using a GPS unit with sub-meter accuracy. Visual observations, including width and depth of the stream as well as sediment color, were made at each sample location and noted on the sample logs.

Sample locations were photographed in the field and the photos are presented in Appendix B at the end of this report. See Figure 1-5 for all sample locations in this field investigation.

2.3.1.1 Sediment

Forty composite sediment samples were collected within Boggs Creek at 36 sample locations between previous sample location 17SW/SD069 and Lake Gallimore (Figure 1-5). A sediment sample from 0- to 6-inches was collected from each location. A second sample was collected at a depth of 6- to 12-inches at four locations where sediment was available. The samples were submitted to a fixed-base laboratory for PCB analysis. Data from the sediment samples was used to evaluate whether PCB contamination is present along this portion of Boggs Creek. All sediment samples were collected within the defined channel of Boggs Creek and the number of sediment samples collected averaged 3-4 per mile of creek. Samples were collected from sediment traps (i.e., creek bends or areas of decreased flow velocity due to channel widening).

Each sediment sample was a composite sample comprised of three to four sample aliquots. See Table 2-1 for sample information. Sediment samples were collected by pushing a 2-inch diameter, 18-inch long clean plastic sleeve down into the sediment to the desired depth and covering the open end of the sleeve with a gloved-hand to capture the sample in the lower end of the sleeve. The sleeve was removed from the substrate and the lower end containing the sediment sample was placed inside the sample collection bag. Then, the samplers gloved-hand was removed from the end of the sleeve allowing the sediment to empty into the bag.

All sediment sample aliquots were initially placed into a 1-gallon sealable bag where they were thoroughly homogenized. The sample bags were then placed inside a cooler in the transport vehicle and returned to the field office. Samples were again homogenized at the field office and a composite of the sample was transferred into a 4-ounce sample jar which was capped, labeled, and prepared for shipping to the fixed-base laboratory.

2.3.1.2 Surface Water

Six surface water samples were collected within Boggs Creek between previous sediment sample location 17SW/SD069 and Lake Gallimore. All samples were submitted to a fixed-base laboratory for PCB analysis. Data from the surface water samples was used to evaluate whether PCB contamination was being carried downstream along the length of Boggs Creek to its termination at Lake Gallimore.

All surface water samples were collected by direct fill of the sample bottle. The surface water samples were spaced out along the study area of Boggs Creek to determine whether PCB contamination is present in total and dissolved phases.

Field measurements of water quality parameters including pH, specific conductance, oxidation-reduction potential (ORP), temperature, dissolved oxygen (DO), and turbidity were collected at all surface water sample locations. These field measurements (excluding turbidity) were made using a Horiba multi-parameter water meter. Turbidity measurements were made using a LaMotte turbidity meter. All surface water turbidity measurements were less than 10 Nephelometric Turbidity Units (NTUs) and therefore, no surface water samples were filtered prior to submittal to the fixed-base laboratory for analysis.

2.4 QUALITY CONTROL SAMPLES

The following QC samples were collected during this field investigation:

- **Field Duplicates:** One duplicate sample was collected per medium for every 20 samples. During this field investigation, two sediment sample duplicates and one surface water sample duplicate was collected and submitted to the fixed-base laboratory for PCB analysis.
- **Matrix Spike/Matrix Spike Duplicates (MS/MSD):** One MS/MSD sample was collected per medium for every 20 samples. During this field investigation, two MS/MSD sediment samples and one MS/MSD surface water sample were collected and submitted to the fixed-base laboratory for PCB analysis.
- **Equipment Rinsate Blanks:** One equipment rinsate blank was collected by running analyte-free water through the plastic sampling sleeve after it was decontaminated in the field office allowing the rinse water to be collected into a 1-liter amber sample jar. The rinsate blank was submitted to the fixed-base laboratory for PCB analysis.
- **Source Blank:** One source blank was collected by pouring the analyte-free water used for decon purposes directly into a 1-liter amber sample jar. The source blank was submitted to the fixed-base laboratory for PCB analysis.

2.5 SAMPLE HANDLING, PACKAGING, AND SHIPPING

2.5.1 Sample Preservation

All samples were promptly chilled in the field by storing them in an insulated cooler with ice. Any samples stored overnight were kept in the field office refrigerator at a temperature of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Samples were then packaged as stated in Section 2.5.3.

2.5.2 Sample Labeling

Before samples were packaged, the sample labels were checked to ensure that all information on the labels was complete and correct and that it matched the information on the sample collection log sheets and chain-of-custody form.

2.5.3 Sample Packaging

Each sample container shipped to the laboratory was first placed in a sealable plastic bag to prevent cross-contamination and leakage. Only shipping containers that met all applicable state and federal standards for safe shipment were used. Cube ice was placed in and around the samples in sufficient

quantity that ensured the samples remained chilled ($4^{\circ}\text{C} \pm 2^{\circ}\text{C}$) during transport to the analytical laboratory. Each cooler shipped to the laboratory included a temperature blank so laboratory personnel could confirm the temperature of samples upon receipt.

2.5.4 Sample Shipping

Shipping containers (i.e., coolers) were sealed with nylon strapping tape in two places, and custody seals were signed, dated, and affixed in a manner that allowed the receiver to quickly identify any tampering that occurred during transport to the laboratory.

Shipment was made by a public courier (Federal Express) at the next scheduled pickup following completion of sample collection. Air bills were retained in the permanent record file.

2.5.5 Sample Custody

Custody of samples was maintained and documented at all times. A chain-of-custody form was maintained for all samples collected during this investigation.

2.6 RECORD KEEPING

Standard forms, field notebooks, and a field logbook were used to record all sample collection activities, field measurements, observations concerning site conditions, and other project-related information. Daily activity logs can be found in Appendix A.

2.6.1 Equipment Calibration Logs

An equipment calibration log sheet was maintained for each instrument used during this investigation. Field instruments were calibrated prior to each days' use in accordance with the manufacturer's procedures. Equipment calibration logs can be found in Appendix A.

2.6.2 Sample Collection Logs

All sample log sheets were completed in accordance with SOP_CTO0020-03 and can be found in Appendix A.

2.6.3 Chain-of-Custody Forms

A chain-of-custody form was maintained for all samples collected during this investigation. These forms are a record of the people having custody of the samples from the time the samples were collected to the time they were analyzed and disposed by the fixed-base laboratory. The completed chain-of-custody document was placed in a sealed plastic bag, and taped to the top inside lid of the shipping container before it was shipped. A copy of each chain-of-custody form has been retained by the FOL. The chain-of-custody forms used during this field event can be found in Appendix A.

2.6.4 Shipping Forms/Air Bills

Copies of all forms and/or air bills related to the shipment of coolers were retained by the FOL to trace the shipment, if necessary, and to communicate with the receiving laboratory.

2.6.5 Permanent Record File

At the completion of the field activities, the FOL submitted to the Task Order Manager (TOM) all field records, data, field notebooks, logbooks, chain-of-custody records, sample log sheets, daily activity logs, and other records concerning the project, including all of the forms and log sheets listed above. The FOL checked these records for legibility and completeness before submitting them to the TOM. These forms, data, and field notes have become part of the permanent project record.

2.7 EQUIPMENT DECONTAMINATION

All reusable equipment used to collect samples was decontaminated in accordance with SOP_CTO0020-04 (TtNUS, 2008).

2.8 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

This investigation generated the following types of investigation-derived waste (IDW):

- Personal protective equipment (PPE)
- Equipment decontamination fluids
- Plastic disposable trowels
- Plastic sealable bags

All IDW was handled in accordance with SOP_CTO0020-09 (TtNUS, 2008).

TABLE 2-1

SUMMARY OF ENVIRONMENTAL SAMPLES AND ANALYTICAL METHOD
 SWMU 17 - BOGGS CREEK
 NSA CRANE
 CRANE, INDIANA
 PAGE 1 OF 2

Sample Location	Sample ID	PCBs SW-846 8081B/8082A	
		Sediment	Surface Water
17SW/SD070	17SD0700006	X	
	17SD0700612	NA	
17SW/SD071	17SD0710006	X	X
	17SD0710612	NA	
17SW/SD072	17SD0720006	X	
	17SD0720612	X	
17SW/SD073	17SD0730006	X	
	17SD0730612	NA	
17SW/SD074	17SD0740006	X	
	17SD0740612	NA	
17SW/SD075	17SD0750006	X	
	17SD0750612	NA	
17SW/SD076	17SD0760006	X	
	17SD0760612	NA	
17SW/SD077	17SD0770006	X	
	17SD0770612	NA	
17SW/SD078	17SD0780006	X	X
	17SD0780612	NA	
17SW/SD079	17SD0790006	X	
	17SD0790612	NA	
17SW/SD080	17SD0800006	X	
	17SD0800612	NA	
17SW/SD081	17SD0810006	X	
	17SD0810612	NA	
17SW/SD082	17SD0820006	X	
	17SD0820612	NA	
17SW/SD083	17SD0830006	X	
	17SD0830612	X	
17SW/SD084	17SD0840006	X	
	17SD0840612	NA	
17SW/SD085	17SD0850006	X	
	17SD0850612	X	
17SW/SD086	17SD0860006	X	
	17SD0860612	NA	
17SW/SD087	17SD0870006	X	
	17SD0870612	NA	
17SW/SD088	17SD0880006	X	
	17SD0880612	NA	
17SW/SD089	17SD0890006	X	
	17SD0890612	NA	
17SW/SD090	17SD0900006	X	
	17SD0900612	X	
17SW/SD091	17SD0910006	X	X
	17SD0910612	NA	
17SW/SD092	17SD0920006	X	
	17SD0920612	NA	

TABLE 2-1

SUMMARY OF ENVIRONMENTAL SAMPLES AND ANALYTICAL METHOD
 SWMU 17 - BOGGS CREEK
 NSA CRANE
 CRANE, INDIANA
 PAGE 2 OF 2

Sample Location	Sample ID	PCBs SW-846 8081B/8082A	
		Sediment	Surface Water
17SW/SD093	17SD0930006	X	
	17SD0930612	NA	
17SW/SD094	17SD0940006	X	
	17SD0940612	NA	
17SW/SD095	17SD0950006	X	
	17SD0950612	NA	
17SW/SD096	17SD0960006	X	
	17SD0960612	NA	
17SW/SD097	17SD0970006	X	X
	17SD0970612	NA	
17SW/SD098	17SD0980006	X	
	17SD0980612	NA	
17SW/SD099	17SD0990006	X	
	17SD0990612	NA	
17SW/SD100	17SD1000006	X	
	17SD1000612	NA	
17SW/SD101	17SD1010006	X	
	17SD1010612	NA	
17SW/SD102	17SD1020006	X	X
	17SD1020612	NA	
17SW/SD103	17SD1030006	X	
	17SD1030612	NA	
17SW/SD104	17SD1040006	X	
	17SD1040612	NA	
17SW/SD105	17SD1050006	X	X
	17SD1050612	NA	
Total Samples		40	6

NA = Deep sediment not available due to bedrock substrate.

SD = Sediment.

SW = Surface water.

X = Sample collected as proposed.

3.0 DATA PRESENTATION

This section presents the analytical results obtained from the sediment and surface water samples collected during the PCB investigation within Boggs Creek at NSA Crane. Sediment and surface water samples were collected along Boggs Creek from previous sample location 17SD069 near SWMU 17 south to the termination of the creek into Lake Gallimore. All sample results are presented in Figure 3-1 and on Table 3-1.

3.1 SAMPLE ANALYSIS AND VALIDATION

As was shown on Table 2-1, all collected samples were analyzed for PCBs using EPA Method SW-846 8081B/8082A.

All laboratory results contained in sample data groups were validated to comply with data quality objectives for the following parameters:

- Data Completeness
- Hold Times
- GC/MS Tuning
- Initial and continuing calibration
- Blank results
- Surrogate spike recoveries
- Blank Spike/Blank Spike Duplicate Results
- Detection Limits
- Field Duplicate Results
- Compound Quantification
- Compound Identification

All quality control criteria for these parameters were met resulting in acceptable data quality. Validation reports are presented as Appendix D.

3.2 SAMPLING RESULTS

Table 3-1 presents a summary of PCB detections in the samples collected for this field investigation at SWMU 17, Boggs Creek.

3.2.1 Sediment

As indicated in Table 3-1, all sediment samples had either negligible concentrations of PCBs (PCB concentrations less than 1 mg/kg) or were non-detects, except sample 17SD1050006 which had a PCB concentration (Aroclor - 1260) of 2.8 mg/kg. Sample 17SD1050006 was collected at the northernmost sample location of this field investigation, location 17SW/SD105. Sampling results indicate that PCB contamination associated with sample 17SD1050006 at location 17SW/SD105 is an isolated case. All sample locations to the south had PCB concentrations less than 0.25 mg/kg, and the three closest samples to the north, which were collected in October 2006, had PCB concentrations of 0.96 mg/kg (17SW/SD069), 0.12 mg/kg (17SW/SD068), and 0.51 mg/kg (17SW/SD067). Based on these results, it appears that PCBs are not being transported downstream via Boggs Creek sediment.

Sample location 17SW/SD069 which was the southernmost sample location collected during the October 2006 investigation is located approximately 1,650 feet north of 17SW/SD105.

It should be noted that the Boggs Creek water depth, in the area of sample location 17SW/SD105, is relatively shallow (approximately 6 to 8 inches deep), and the sediment is mainly pebbles to coarse sand on top of underlying bedrock.

3.2.2 Surface Water

All surface water samples had non-detectable PCB concentrations (see Appendix C). Based on these six samples, it appears that PCBs are not being transported downstream via surface water in Boggs Creek from SWMU 17.

3.3 CONCLUSIONS AND RECOMMENDATIONS

The surface water and sediment sample results from this field investigation demonstrate that PCBs are not migrating into Lake Gallimore via Boggs Creek surface water or sediment. Based on the analytical results from the samples collected during this field investigation, the Lake Gallimore fish tissue study, and the SWMU 17 Interim Measures Work Plan, the Navy proposed the following removal actions at SWMU 17 and Boggs Creek:

- Spot removal of sediment in Boggs Creek around sample location 17SW/SD105 where PCB concentrations exceeded 1.0 mg/kg (Figure 3-2). This base level was mutually agreed upon by the U.S. EPA, the U.S. FWS, and the Navy.

- Approximately 440 cubic yards of surface soil from the areas around Buildings 357 and 2721 (Figure 3-3).
- Approximately 411 cubic yards of sediment from the northwestern ditch, Boggs Creek Stream Segment 1, Ditch 3 Stream Segment 2, and Ditch 3 Stream Segment 6 (Figure 3-3).

Excavation of the identified surface soil areas, stream segments, and drainage ditch segments, would remove the remaining PCB source contamination associated with SWMU 17, and approximately 88% (12.5 pounds) of the PCB contamination within the drainage ditches and stream segments that receive stormwater runoff from SWMU 17. Pre-excavation sampling is planned for Ditch 3 Stream Segment 6 and its flood zone to further delineate the extent of contamination.

TABLE 3-1

**SUMMARY OF PCB DETECTIONS
SWMU 17 - BOGGS CREEK
NSA CRANE
CRANE, INDIANA**

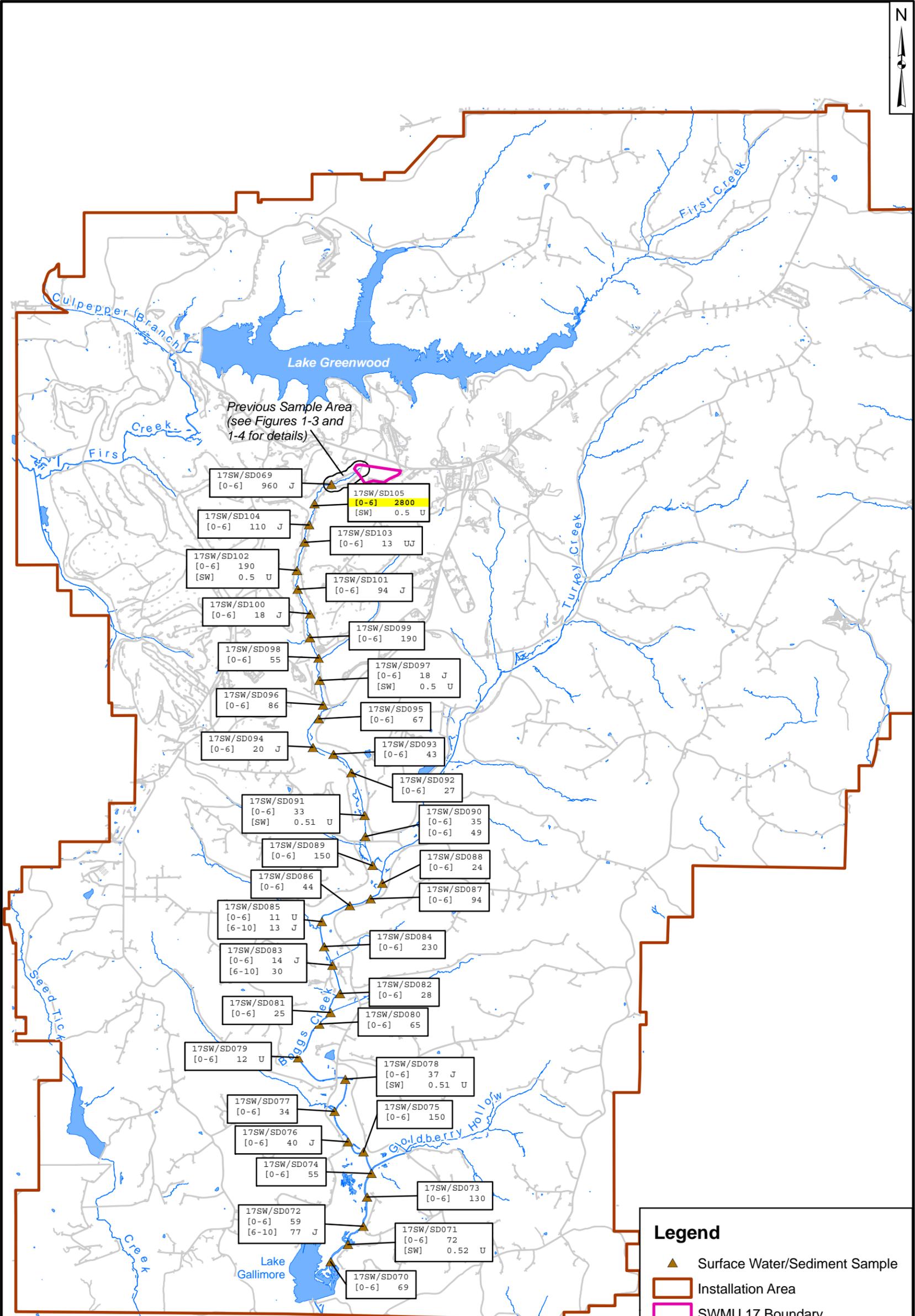
LOCATION ID	SAMPLE ID	SAMPLE DATE	PARAMETER	VAL RES	VAL QUAL	UNITS
17SW/SD070	17SD0700006	20081215	AROCLOR-1260	0.069		MG/KG
17SW/SD071	17SD0710006	20081215	AROCLOR-1260	0.072		MG/KG
17SW/SD072	17SD0720006	20081215	AROCLOR-1260	0.059		MG/KG
17SW/SD072	17SD0720612	20081215	AROCLOR-1260	0.077	J	MG/KG
17SW/SD073	17SD0730006	20081215	AROCLOR-1260	0.13		MG/KG
17SW/SD074	17SD0740006	20081215	AROCLOR-1260	0.055		MG/KG
17SW/SD075	17SD0750006	20081216	AROCLOR-1260	0.15		MG/KG
17SW/SD076	17SD0760006	20081216	AROCLOR-1260	0.04	J	MG/KG
17SW/SD077	17SD0770006	20081216	AROCLOR-1260	0.034		MG/KG
17SW/SD078	17SD0780006	20081216	AROCLOR-1260	0.037	J	MG/KG
17SW/SD080	17SD0800006	20081215	AROCLOR-1260	0.065		MG/KG
17SW/SD081	17SD0810006	20081215	AROCLOR-1260	0.025		MG/KG
17SW/SD082	17SD0820006	20081215	AROCLOR-1260	0.028		MG/KG
17SW/SD083	17SD0830006	20081215	AROCLOR-1260	0.014	J	MG/KG
17SW/SD083	17SD0830612	20081215	AROCLOR-1260	0.03		MG/KG
17SW/SD084	17SD0840006	20081215	AROCLOR-1260	0.23		MG/KG
17SW/SD085	17SD0850612	20081216	AROCLOR-1260	0.013	J	MG/KG
17SW/SD086	17SD0860006	20081216	AROCLOR-1260	0.044		MG/KG
17SW/SD087	17SD0870006	20081216	AROCLOR-1260	0.094		MG/KG
17SW/SD088	17SD0880006	20081216	AROCLOR-1260	0.024		MG/KG
17SW/SD089	17SD0890006	20081216	AROCLOR-1260	0.15		MG/KG
17SW/SD090	17SD0900006	20081216	AROCLOR-1260	0.035		MG/KG
17SW/SD090	17SD0900612	20081216	AROCLOR-1260	0.049		MG/KG
17SW/SD091	17SD0910006	20081217	AROCLOR-1260	0.033		MG/KG
17SW/SD092	17SD0920006	20081217	AROCLOR-1260	0.027		MG/KG
17SW/SD093	17SD0930006	20081217	AROCLOR-1260	0.043		MG/KG
17SW/SD094	17SD0940006	20081217	AROCLOR-1260	0.02	J	MG/KG
17SW/SD095	17SD0950006	20081217	AROCLOR-1260	0.067		MG/KG
17SW/SD096	17SD0960006	20081217	AROCLOR-1260	0.086		MG/KG
17SW/SD097	17SD0970006	20081217	AROCLOR-1260	0.018	J	MG/KG
17SW/SD098	17SD0980006	20081217	AROCLOR-1260	0.055		MG/KG
17SW/SD099	17SD0990006	20081217	AROCLOR-1260	0.19		MG/KG
17SW/SD100	17SD1000006	20081218	AROCLOR-1260	0.018	J	MG/KG
17SW/SD101	17SD1010006	20081218	AROCLOR-1260	0.094	J	MG/KG
17SW/SD102	17SD1020006	20081218	AROCLOR-1260	0.19		MG/KG
17SW/SD104	17SD1040006	20081218	AROCLOR-1260	0.11	J	MG/KG
17SW/SD105	17SD1050006	20081218	AROCLOR-1260	2.8		MG/KG

2.8

Value exceeds the decision criteria of 1 mg/kg

J

Estimated result



Legend

- ▲ Surface Water/Sediment Sample
- ▭ Installation Area
- ▭ SWMU 17 Boundary
- ▭ Building
- Road
- ▭ Surface Water

Note: All results shown in ug/kg
 [0-6] = Sample depth shown in inches below ground surface
 [SW] = Surface water sample

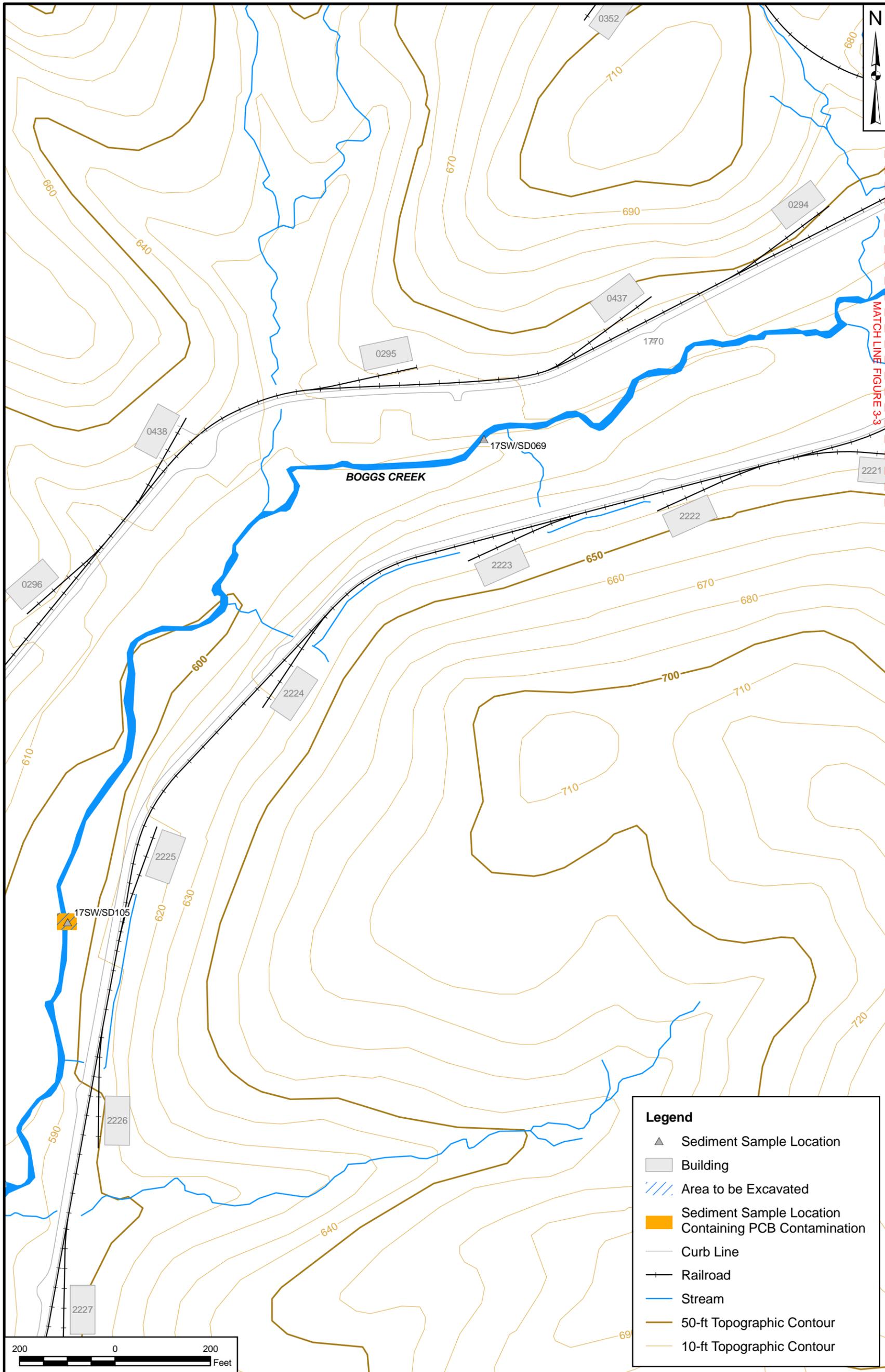


DRAWN BY	DATE
T. WHEATON	05/21/10
CHECKED BY	DATE
B. COLLINS	06/01/10
REVISOR	DATE
SCALE	AS NOTED



FIELD INVESTIGATION SAMPLE RESULTS
 SWMU 17 - BOGGS CREEK
 NSA CRANE
 CRANE, INDIANA

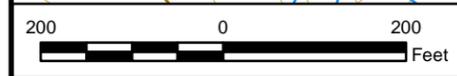
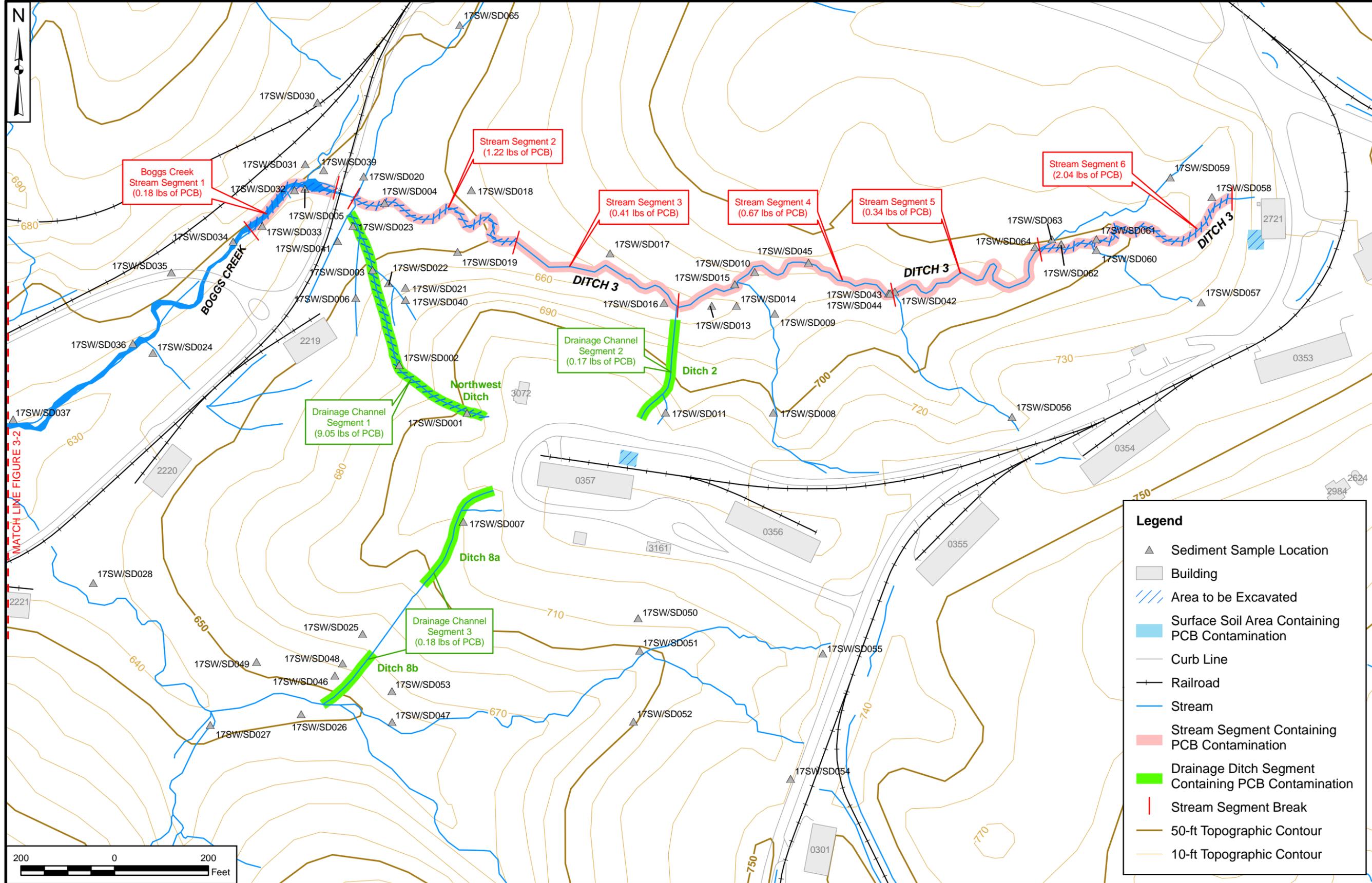
CONTRACT NUMBER	
F271	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
FIGURE 3-1	0



DRAWN BY J. ENGLISH	DATE 06/18/10	
CHECKED BY B. COLLINS	DATE 08/16/10	
REVISED BY	DATE	
SCALE AS NOTED		

AREAS OF PCB CONTAMINATION AND EXCAVATION
SWMU 17 BOGGS CREEK
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER CTO F271	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. FIGURE 3-2	REV 0



CONTRACT NUMBER	CTO F271
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	FIGURE 3-3
REV	0

AREAS OF PCB CONTAMINATION AND EXCAVATION
SWMU 17 PCB CAPACITOR BURIAL/POLE YARD
NSA CRANE
CRANE, INDIANA



DRAWN BY	DATE	DRAWN BY	DATE	DRAWN BY	DATE
J. ENGLISH	04/29/10	B. COLLINS	08/16/10	J. ENGLISH	08/16/10
CHECKED BY	DATE	REVISOR	DATE	SCALE	AS NOTED

REFERENCES

Tetra Tech NUS, Inc. (TtNUS), 2001. Quality Assurance Project Plan for PCB Capacitor Burial/Pole Yard Solid Waste Management Unit (SWMU) 17, Resource Conservation and Recovery Act Facility Investigation and Verification. December.

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TolTest (Tol Test Inc.), 2004. Interim Measures Report, PCB Capacitor Burial Pole Yard Remediation, NSWC Crane, Crane, Indiana, November.

APPENDIX A

SAMPLE LOG SHEETS AND OTHER FIELD FORMS

- A.1 SEDIMENT SAMPLE LOG SHEETS**
- A.2 SURFACE WATER SAMPLE LOG SHEETS**
- A.3 DAILY ACTIVITY LOGS**
- A.4 EQUIPMENT CALIBRATION LOGS**
- A.5 CHAIN OF CUSTODY RECORDS**

A.1 SEDIMENT SAMPLE LOG SHEETS



Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0700006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD070
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-15-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1430	0-6"		clay, some mud and organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0710006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD071
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-15-08	1445	0-6"		mostly clay with some mud and organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
---	-------------

Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0720006 and 0612
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD072
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-15-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1515	0-6"		clay with some mud, silt and organic matter
Method:	1515	6-12"		mostly clay
Plastic Sleeve				
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" and 6-12" depth	MAP:
---	-------------

Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0730006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD073
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-15-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1535	0-6"		clay with some silt and organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
---	-------------

Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0740006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD074
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-15-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1605	0-6"		some silt and organic matter, mostly clay
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerd Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0750006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD075
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-16-08	1000	0-6"		Clay with some organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0760006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD076
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-16-08	1025	0-6"		Silty with some organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:			
Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:	MAP:
Sediment Sample Collected at 0 - 6" depth	

Circle if Applicable:	Signature(s):
MS/MSD NA	James Goerdts Preston Smith
Duplicate ID No.: FD12160801	



Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0770006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD077
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-16-08	1050	0-6"		mostly silty with some clay
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0780006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD078
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-16-08	1115	0-6"		silty with a lot of organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0790006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD079
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-16-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1155	0-6"		mostly clay
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0800006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD080
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-15-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1220	0-6"		clay little silt
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerd Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0810006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD081
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-15-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1235	0-6"		clay little silt
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0820006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD082
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-15-08	1115	0-6"		clay little silt
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES: MAP:

Sediment Sample Collected at 0 - 6" depth	
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Circle if Applicable: Signature(s):

MS/MSD NA	Duplicate ID No.: NA	James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0840006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD084
<input type="checkbox"/> Surface Soil		Sampled By:	GoerdT and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4141
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-15-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1155	0-6"		clay little silt
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:		Signature(s): James GoerdT Preston Smith
MS/MSD NA	Duplicate ID No.: NA	



Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0860006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD086
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-16-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1450	0-6"		sandy, silty, some clay, little organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(3) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:	Signature(s):
MS/MSD Yes	James Goerd Preston Smith
Duplicate ID No.: NA	



Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0870006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD087
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-16-08	1510	0-6"		silty clay
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0880006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD088
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-16-08	1530	0-6"		sandy, some silt
Method:				
Plastic Sleeve				
Monitor Readings				
(Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerd Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0890006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD089
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

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

COMPOSITE SAMPLE DATA:				
Date: 12-16-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1545	0-6"		sandy, some silt and clay
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:			
Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:	MAP:
Sediment Sample Collected at 0 - 6" depth	

Circle if Applicable:		Signature(s): James Goerdts Preston Smith
MS/MSD NA	Duplicate ID No.: NA	



Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0900006 and 0612
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD090
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4143
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-16-08	1605	0-6"		sandy, little silt
Method:	1605	6-12"		sandy, little silt, some gravel and clay clumps
Plastic Sleeve				
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" and 6-12" depth

MAP:**Circle if Applicable:**

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0910006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD091
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4144
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-17-08	1000	0-6"		sandy, little silt, some organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerd Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0920006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD092
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4144
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-17-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1020	0-6"		sandy, little silt, some gravel, some organic matter
Method:				
Plastic Sleeve				
Monitor Readings				
(Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:	Signature(s):
MS/MSD NA	James Goerdts Preston Smith
Duplicate ID No.:	



Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0930006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD093
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4144
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-17-08	1035	0-6"		sandy, little silt, some clay, some organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0940006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD094
<input type="checkbox"/> Surface Soil		Sampled By:	GoerdT and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4144
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-17-08	1110	0-6"		sandy, little silt, some organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(3) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD Yes	Duplicate ID No.: NA	Signature(s): James GoerdT Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0950006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD095
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4144
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-17-08	1130	0-6"		silt, a lot of organic matter
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:		Signature(s): James Goerdts Preston Smith
MS/MSD NA	Duplicate ID No.: NA	



Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0960006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD096
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4144
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-17-08	1145	0-6"		silty with some pebbles
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerd Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSWC CRANE SWMU 17	Sample ID No.:	17SD0980006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD098
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4144
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-17-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1425	0-4"		silty with a little clay and pebbles
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerd Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD0990006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD099
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4144
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-17-08	1450	0-4"		silty, some clay and a little gravel
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6" depth	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSWC CRANE SWMU 17	Sample ID No.:	17SD1000006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD100
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4145
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-18-08	1005	0-4"		silty gravel
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 4" depth due to refusal	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD1010006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD101
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4145
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> 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.)
12-18-08	1015	0-3"		silty with a little gravel
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 3" depth due to refusal	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD1030006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD103
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4145
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-18-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1045	0-6"		silty, clayey with gray color
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6"	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerd Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD1040006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD104
<input type="checkbox"/> Surface Soil		Sampled By:	Goerd and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4145
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-18-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1100	0-4"		silty, mostly gravel
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm):				
NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 4" depth due to refusal	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: FD12180801	Signature(s): James Goerd Preston Smith
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Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	NSA CRANE SWMU 17	Sample ID No.:	17SD1050006
Project No.:	112G01573 CTO F271	Sample Location:	17SW/SD105
<input type="checkbox"/> Surface Soil		Sampled By:	Goerdts and Smith
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	4145
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date: 12-18-08	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1120	0-6"		silty gravel
Method:				
Plastic Sleeve				
Monitor Readings (Range in ppm): NA				

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8082	4°C	(1) 4 oz Glass Jar	Yes

OBSERVATIONS / NOTES:

Sediment Sample Collected at 0 - 6"	MAP:
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Circle if Applicable:

MS/MSD NA	Duplicate ID No.: NA	Signature(s): James Goerdts Preston Smith
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A.2 SURFACE WATER SAMPLE LOG SHEETS



Project Site Name: NSA Crane SWMU 17
Project No.: 112G01573 CTO F271

Sample ID No.: 17SW071
Sample Location: 17SW/SD071
Sampled By: Goerd and Smith
C.O.C. No.: _____

- Stream
- Spring
- Pond
- Lake
- Other: _____
- QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	12/15/2008	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time:	1445	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Depth:		Clear	6.37	0.148	3.95	9.92	10.47		270
Method:	Direct Fill								

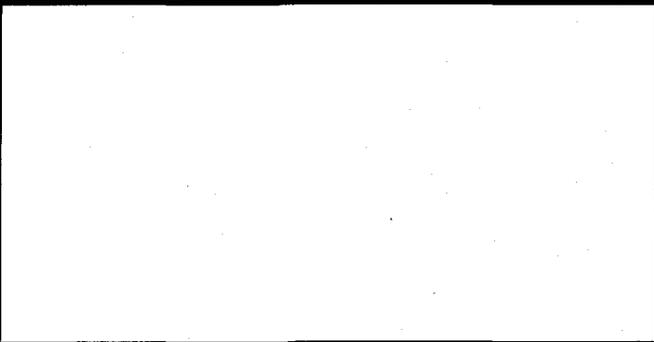
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8081B/8082A	Cool 4°C	(2) 1-liter amber glass bottles	Yes

OBSERVATIONS / NOTES:

MAP:

Creek was approx 30' wide wih unknown depth (appeared fairly deep). Shallow banks at 1-2'. Very little stream flow.
Area is the floodplain of Lake Gallimore.



Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.: _____

James Goerd
Preston Smith



Project Site Name: NSA Crane SWMU 17
Project No.: 112G01573 CTO F271

Sample ID No.: 17SW078
Sample Location: 17SW/SD078
Sampled By: Goerd and Smith
C.O.C. No.: _____

- Stream
- Spring
- Pond
- Lake
- Other: _____
- QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time:	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
12/16/2008	Clear	6.71	0.456	3.48	6.5	11.88		246
1115								
Depth:								
Method: Direct Fill								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8081B/8082A	Cool 4°C	(2) 1-liter amber glass bottles	Yes

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.: _____

James Goerd
Preston Smith



Project Site Name: NSA Crane SWMU 17
Project No.: 112G01573 CTO F271

Sample ID No.: 17SW091
Sample Location: 17SW/SD091
Sampled By: Goerd and Smith
C.O.C. No.: _____

- Stream
- Spring
- Pond
- Lake
- Other: _____
- QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time:	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
12/17/2008	Clear	6354	0.206	4.41	0.39	12.6		332
1000								
Depth:								
Method: Direct Fill								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8081B/8082A	Cool 4°C	(2) 1-liter amber glass bottles	Yes

OBSERVATIONS / NOTES:

MAP:

Slight flow in creek. 10' wide and approx 12" deep. pooled area.

Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.: _____

James Goerd
Preston Smith



Project Site Name: NSA Crane SWMU 17
Project No.: 112G01573 CTO F271

Sample ID No.: 17SW097
Sample Location: 17SW/SD097
Sampled By: Goerdts and Smith
C.O.C. No.: _____

- Stream
- Spring
- Pond
- Lake
- Other: _____
- QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time:	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
12/17/2008	Clear	7.01	0.216	5.12	1.51	15.19		263
1145								
Depth:								
Method: Direct Fill								

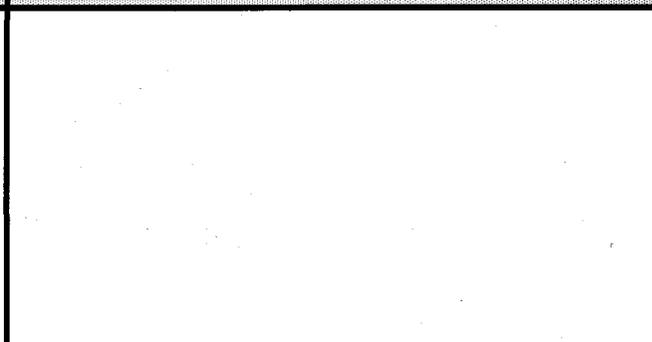
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8081B/8082A	Cool 4°C	(2) 1-liter amber glass bottles	Yes

OBSERVATIONS / NOTES:

MAP:

Creek approx 20' wide and 8' deep. Banks were 4-8'.
Creek had moderate flow.



Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.: _____

James Goerdts
Preston Smith



Project Site Name: NSA Crane SWMU 17
Project No.: 112G01573 CTO F271

Sample ID No.: 17SW102
Sample Location: 17SW/SD102
Sampled By: Goerdts and Smith
C.O.C. No.: _____

- Stream
- Spring
- Pond
- Lake
- Other: _____
- QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time:	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
12/18/2009	Clear	7.38	0.243	2.78	1.5	12.4		287
1030								
Depth:								
Method: Direct Fill								

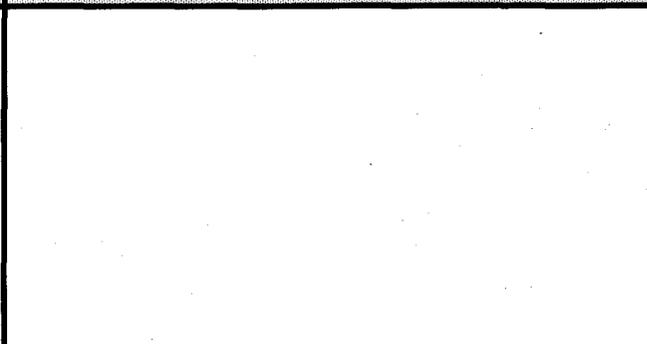
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8081B/8082A	Cool 4°C	(2) 1-liter amber glass bottles	Yes

OBSERVATIONS / NOTES:

MAP:

Moderate flow with average depth ~6".
Banks were 2-4' with pools
Rcky substrate



Circle if Applicable:

Signature(s):

MS/MSD
YES

Duplicate ID No.: _____

James Goerdts
Preston Smith



Project Site Name: NSA Crane SWMU 17
Project No.: 112G01573 CTO F271

Sample ID No.: 17SW105
Sample Location: 17SW/SD105
Sampled By: Goerd and Smith
C.O.C. No.: _____

- Stream
- Spring
- Pond
- Lake
- Other: _____
- QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time:	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
12/18/2008	Clear	7.26	0.213	2.31	0.75	11.3		264
Method: Direct Fill								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PCBs SW-846 8081B/8082A	Cool 4oC	(2) 1-liter amber glass bottles	Yes

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

FD12180802

James Goerd
Preston Smith

A.3 DAILY ACTIVITY LOGS



FIELD ACTIVITY DAILY LOG

DATE	12-12-08
NO.	01
SHEET	1 OF 2

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)	PROJECT NO: 112G001573 CTO: F271
--	---

FIELD ACTIVITY SUBJECT: Scouting of Access Points along Boggs Creek

0730 Jim Goerdt (JG) and Preston Smith (PS) to WalMart for field supplies.

0830 Arrive at NSWC Crane Visitor's Center to pick up security passes.

0845 Arrive at Building (B)-3245. Brief safety meeting to discuss safety issues associated with sampling activities along Boggs Creek. This includes cold weather, deep water, and hunting season. Archery hunting on Saturday and rifle hunting on Sunday is currently in season at Crane. Wearing of orange safety vests when in the field. Phoned Tom Brent's office, but no answer. Stopped at B-3260, but Tom is off today. Field equipment had arrived and was taken over to B-3245 and unpacked.

0920 JG and PS drove down to the confluence of Boggs Creek and Lake Gallimore to scout the area in regards to a starting point for sampling as well as additional access points.

1105 Stopped at B-2797, which is the base for the Ordnance Testing Area (OTA). Intent was to speak with Steve Schantz (Operations Manager) regarding access points inside this area. All doors were locked and all lights were off. No visible signs of any personnel in the area. Phoned Lee Leck (PGH) requesting GPS coordinates for 17SD069.

1300 Returned to B-3245 and reviewed a copy of the Gazateer and discussed potential sampling points and overall plan of action. Phoned Tom Brent on his cell to request plan of action for accessing OTA. He suggested we call Base Security and inform them of our intent to sample over the weekend at various locations along Boggs Creek.

1530 Stopped at Base Security (B-10) and spoke with Security Director. Informed him of our intentions for sampling over the weekend. Told him we would be in the area of the OTA. We would use magnetic company signs on vehicles and place contact information on dash of parked vehicles. He indicated he would pass along the information to all Security Supervisors this weekend. Departed Crane.



FIELD ACTIVITY DAILY LOG

DATE	12-14-08
NO.	01
SHEET	1 OF 2

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)	PROJECT NO: 112G001573 CTO: F271
FIELD ACTIVITY SUBJECT: Scouting of access points and marking locations along Boggs Creek	
<p>0730 Arrived at Wal Mart to purchase rain suit.</p> <p>0840 Arrived at B-3245. Loaded vehicles with equipment and supplies needed to mark out sampling locations.</p> <p>0905 Enroute to Boggs Creek to begin marking out sample locations. Began at the mile 5-6. Marked the following sample locations: 17SW/SD085, 86, 87, 88 (Mile 5-6), 17SW/SD089, 90, 91, 92 (mile 4-5), 17SW/SD093, 94, 95, 96 (mile 3-4), 17SW/SD097, 98, 99, 100, 101 (mile 2-3), 17SW/SD102, 103, 104, 105, 106 (mile 1-2), 17SW/SD107, 108, 109 (mile 0-1).</p> <p>Starting just north of mile 5, Boggs Creek begins to appear more like a smaller creek. The creek is smaller in width, has many more cut backs and thus more sediment deposits along the bank. The area between miles 5 and 6 runs through the OTA. Boggs Creek, south of mile 6, is fairly wide and deep. This portion of Boggs Creek was evidently dredged many years ago due to the straightness of the creek as well as the obvious dredge (spoil) piles located along the length of the creek.</p> <p>1215 Returned to B-3245 and unloaded supplies.</p> <p>1230 Departed Crane.</p>	



TETRA TECH NUS, INC.

DATE	12-14-08
NO.	01
SHEET	2 OF 2

FIELD ACTIVITY DAILY LOG

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)		PROJECT NO: 112G001573 CTO: F271	
FIELD ACTIVITY SUBJECT: Scouting of access points and marking locations along Boggs Creek			
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:			
VISITORS ON SITE: None		CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None	
WEATHER CONDITIONS: AM: Cloudy ~40°F, periods of light rain. PM: Cloudy, upper 40;s		IMPORTANT TELEPHONE CALLS: None	
PERSONNEL ON SITE: James Goerd (JG) – FOL Preston Smith (PS) – Ecologist			
SIGNATURE: James Goerd		DATE: 12-14-08	



TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	12-15-08
NO.	01
SHEET	1 OF 2

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)	PROJECT NO: 112G001573 CTO: F271
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FIELD ACTIVITY SUBJECT: Sediment and surface water sampling along Boggs Creek

0815 Arrived at B-3245. Met up with Tom Brent and discussed sample locations. Tom asked that I send a sediment sample from SWMU 13 to the laboratory for 24 hr turn. Calibrated water quality meter and turbidity meter. Loaded vehicles with sample equipment.

1030 Enroute to the OTA. Met with Steve Schantz (Range Safety Officer) at B-2927. Discussed access to OTA for sampling. Mr. Schantz indicated that we should collect samples now while the main area is not in use. Went through a quick briefing of the area in which we were instructed where and where not to go. Collected samples 17SD082, 83, 84. Utilized an 18" plastic tube to collect sediment samples by inserting tube to depth and while holding palm over top of tube pulled tube from sediment. Sample then emptied into 1-gallon plastic bag. Collect 4 aliquots per sample location.

1215 Returned to B-2927 to request access to the Rocket Testing Area. He indicated the guys were on lunch and we would need to collect the samples now. Collected 17SD080 and 81.

1250 Checked back-in at B-2927 to sign out of the area.

1320 Returned to B-3245 to decon sampling tubes.

1400 Returned to Boggs Creek and collected samples 17SD070, 71, 72, 73, 74.

1700 Back at B-3245. Homogenized sediment samples and placed in 4-ounce sample jar. Finished labels, COCs, and Fed Ex air bill. Packaged samples for shipment to analytical lab.

1815 Left Crane enroute to Fed Ex.

1845 Dropped off samples at Fed Ex.



TETRA TECH NUS, INC.

DATE	12-15-08
NO.	01
SHEET 2 OF 2	

FIELD ACTIVITY DAILY LOG

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)	PROJECT NO: 112G001573 CTO: F271
--	---

FIELD ACTIVITY SUBJECT: Sediment and surface water sampling along Boggs Creek

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

Collected samples at the following locations:

- 17SD070 – Sediment (0-6")
- 17SD071 – Sediment (0-6") and surface water sample
- 17SD072 – Sediment (0-6" and 6-10")
- 17SD073 – Sediment (0-6")
- 17SD074 – Sediment (0-6")
- 17SD080 – Sediment (0-6")
- 17SD081 – Sediment (0-6")
- 17SD082 – Sediment (0-6")
- 17SD083 – Sediment (0-6" and 6-10")

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
-------------------------------	--

WEATHER CONDITIONS: AM: Cloudy ~25°F, periods of light snow/freezing rain. PM: Cloudy, low 20's.	IMPORTANT TELEPHONE CALLS: None
---	--

PERSONNEL ON SITE: James Goerdt (JG) – FOL Preston Smith (PS) – Ecologist

SIGNATURE: James Goerdt	DATE: 12-15-08
--------------------------------	-----------------------



FIELD ACTIVITY DAILY LOG

DATE	12-16-08
NO.	01
SHEET	1 OF 2

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)	PROJECT NO: 112G001573 CTO: F271
--	--

FIELD ACTIVITY SUBJECT: Sediment and surface water sampling along Boggs Creek

0820 Arrived at B-3245. Stopped for fuel enroute to Crane. JG calibrated water quality meter and turbidity meter. PS decontaminated plastic sampling tubes and stainless steel trowels.

0930 Enroute to sample Boggs Creek.

1240 Stopped at Subway and returned to B-3245. Decon of sampling tubes and picked up additional sampling supplies.

1415 Returned to sampling points on Boggs Creek.

1615 Returned to B-3245 to drop off samples and sampling equipment. Freezing rain began and it was decided it was safest to leave the site before conditions worsened.

1630 Left Crane.



TETRA TECH NUS, INC.

DATE	12-16-08
NO.	01
SHEET 2 OF 2	

FIELD ACTIVITY DAILY LOG

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)		PROJECT NO: 112G001573	
		CTO: F271	
FIELD ACTIVITY SUBJECT: Sediment and surface water sampling along Boggs Creek			
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:			
Collected samples at the following locations:			
17SD075 – Sediment (0-6")		17SD089 – Sediment (0-6")	
17SD076 – Sediment (0-6")		17SD090 – Sediment (0-6")	
17SD077 – Sediment (0-6")			
17SD078 – Sediment (0-6")			
17SD079 – Sediment (0-6")			
17SD085 – Sediment (0-6" and 6-10")			
17SD086 – Sediment (0-6")			
17SD087 – Sediment (0-6")			
17SD088 – Sediment (0-6" and 6-10")			
VISITORS ON SITE: None		CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None	
WEATHER CONDITIONS: AM: Cloudy ~20°F. PM: Cloudy, low mid 20's freezing rain		IMPORTANT TELEPHONE CALLS: None	
PERSONNEL ON SITE: James Goerdts (JG) – FOL Preston Smith (PS) – Ecologist			
SIGNATURE: James Goerdts		DATE: 12-16-08	



FIELD ACTIVITY DAILY LOG

DATE	12-17-08
NO.	01
SHEET	1 OF 2

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)	PROJECT NO: 112G001573 CTO: F271
FIELD ACTIVITY SUBJECT: Sediment and surface water sampling along Boggs Creek	
<p>0840 Arrived at B-3245. JG calibrated water quality meter and turbidity meter. PS decontaminated plastic sampling tubes and stainless steel trowels.</p> <p>0930 Enroute to sample Boggs Creek.</p> <p>1155 Finished sampling at 17SD096. Returned to B-3245 to put GPS in its charger. Went to Area 9 to talk with contractor who is currently working in the area. This is a secured area. Contractor indicated the gates would be open from around 0730 to 1600. Stopped at Subway and returned to B-3245. Decon of sampling tubes and picked up additional sampling supplies.</p> <p>1320 Tom Brent stopped by field office to discuss sampling progress. Discussed access to area 9. He indicated he would contact Base Security regarding this issue.</p> <p>1350 Returned to Boggs Creek for additional sampling.</p> <p>1530 Returned to B-3245 to drop off samples and sampling equipment. Spoke with Tom Brent who indicated that we need to contact Steve Cummings (x4107) in the morning to discuss access to area 9. PS began decon of sampling tubes and then began processing samples. JG filling out COCs and sample labels.</p> <p>1545 Collected a Rinsate Blank from deconned sampling tube.</p> <p>1550 Collected a Source Blank. Lot number 0416218 with expiration date of April 2009.</p>	



TETRA TECH NUS, INC.

DATE	12-17-08
NO.	01
SHEET	2 OF 2

FIELD ACTIVITY DAILY LOG

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)		PROJECT NO: 112G001573 CTO: F271	
FIELD ACTIVITY SUBJECT: Sediment and surface water sampling along Boggs Creek			
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: 1800 Departed Crane. Collected samples at the following locations: 17SD091 – Sediment (0-6") and surface water 17SD092 – Sediment (0-6") 17SD093 – Sediment (0-6") 17SD094 – Sediment (0-6") 17SD095 – Sediment (0-6") 17SD096 – Sediment (0-6") 17SD097 – Sediment (0-6") 17SD098 – Sediment (0-6") 17SD099 – Sediment (0-6")			
VISITORS ON SITE: None		CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None	
WEATHER CONDITIONS: AM: Cloudy mid 20's. PM: Cloudy, low mid 20's		IMPORTANT TELEPHONE CALLS: None	
PERSONNEL ON SITE: James Goerd (JG) – FOL Preston Smith (PS) – Ecologist			
SIGNATURE: James Goerd		DATE: 12-17-08	



FIELD ACTIVITY DAILY LOG

DATE	12-18-08
NO.	01
SHEET	1 OF 2

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)

PROJECT NO: 112G001573
CTO: F271

FIELD ACTIVITY SUBJECT: Sediment and surface water sampling along Boggs Creek

0815 Arrived at B-3245. JG calibrated water quality meter and turbidity meter. PS decontaminated plastic sampling tubes and stainless steel trowels. JG phoned Steve Cummings (Security X-1407) to discuss access to Boggs Creek that falls within secure Area 9. Provided him with names of personnel, vehicle types and license numbers, and estimated amount of time inside area to be 3 hours. Mr. Cummings asked that we contact him when we are out of the area. The gate to Area 9 is currently unlocked due to work on the roadways in the area.

0830 Tom Brent stopped over at field office to discuss sampling activities at SWMU 13.

0915 Enroute to sample Boggs Creek.

0945 Arrived at Area 9 to begin sampling activities on Boggs Creek.

1125 Exited Area 9.

1140 Phoned Steve Cummings to notify him that we were finished working inside Area 9. Began prep for sampling at SWMU 13. Worked at SWMU 13 from 1200 – 1530.

1530 Returned to B-3245. Began the processing of all samples and preparing equipment for return to vendors.

1745 PS departed Crane enroute to Fed Ex with sample coolers and equipment. JG remained at B-3245 to finish activities including decon and general clean up of the office.



TETRA TECH NUS, INC.

DATE	12-18-08
NO.	01
SHEET 2 OF 2	

FIELD ACTIVITY DAILY LOG

PROJECT NAME: NSA Crane: SWMU 17 Boggs Creek Sediment and Surface Water Sampling (PCBs)	PROJECT NO: 112G001573 CTO: F271
--	---

FIELD ACTIVITY SUBJECT: Sediment and surface water sampling along Boggs Creek

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

2030 JG departed Crane.

Collected samples at the following locations:

- 17SD100 – Sediment (0-4")
- 17SD101 – Sediment (0-3")
- 17SD102 – Sediment (0-4") and surface water (MS/MSD surface water)
- 17SD103 – Sediment (0-6")
- 17SD104 – Sediment (0-4")
- 17SD105 – Sediment (0-6") and surface water (duplicate surface water)

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
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WEATHER CONDITIONS: AM: Cloudy mid 20's. PM: Cloudy, low 30's	IMPORTANT TELEPHONE CALLS: None
---	--

PERSONNEL ON SITE: James Goerdts (JG) – FOL Preston Smith (PS) – Ecologist

SIGNATURE: James Goerdts	DATE: 12-18-08
---------------------------------	-----------------------

A.4 EQUIPMENT CALIBRATION LOGS

A.5 CHAIN-OF-CUSTODY LOG SHEETS



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER

4141

PAGE 1 OF 1

NSWC Crane

PROJECT NO: 112601573	FACILITY: Summu 17	PROJECT MANAGER S. Ruffing	PHONE NUMBER 412-921-8989	LABORATORY NAME AND CONTACT: Kara Pace Analytical/Godineau x
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER J. Goerdt	PHONE NUMBER 412-921-8425	ADDRESS 940 So. Harney St
		CARRIER/WAYBILL NUMBER Fed Ex 863125265565		CITY, STATE Seattle, WA 98108

STANDARD TAT
RUSH TAT
 24 hr. 48 hr. 72 hr. 7 day 14 day

DATE YEAR	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	CONTAINER TYPE PLASTIC (P) or GLASS (G)		PRESERVATIVE USED		COMMENTS
									TYPE OF ANALYSIS				
12/15/08	1430	17SD0700006	070	0	6	SD	C	1					
		1445	071	0	6			1					
		1515	072	0	6			1					
		1515	0720610	6	10			1					
		1535	073	0	6			1					
		1605	074	0	6			1					
		1220	080	0	6			1					17SD0800006
		1235	081	0	6			1					
		1115	082	0	6			1					
		1135	083	0	6			1					
		1135	0830610	6	10			1					
		1155	084	0	6			1					
		1445	071	-	-	SW	G	1					

1. RELINQUISHED BY <i>[Signature]</i>	DATE 12/15/08	TIME 1830	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER

4143

PAGE 1 OF 3

PROJECT NO: 112601573		FACILITY: Summu 17		PROJECT MANAGER S. Ruffing		PHONE NUMBER 412 921 8989		LABORATORY NAME AND CONTACT: Kara Pace Analytical/ Godineaux			
SAMPLERS (SIGNATURE) 				FIELD OPERATIONS LEADER J. Goerd		PHONE NUMBER 412 921 8425		ADDRESS 940 So. Harney St.			
				CARRIER/WAYBILL NUMBER Fed Ex/863125265587				CITY, STATE Seattle, WA 98108			
STANDARD TAT <input checked="" type="checkbox"/> RUSH TAT <input type="checkbox"/> <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day				CONTAINER TYPE PLASTIC (P) or GLASS (G) G		PRESERVATIVE USED					
				TYPE OF ANALYSIS PCBs SW-896 8061B/8062A 40C							
DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (ft) Inches	BOTTOM DEPTH (ft) Inches	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	COMMENTS		
12/16	1000	17SD0750006	075	0	6	SD	C	1	1		
	1025	17SD0760006	076					1	1		
	1050	17SD0770006	077					1	1		
	1115	17SD0780006	078					1	1		
	1155	17SD0790006	079					1	1		
	1430	17SD0850006	085	↓	↓			1	1		
	1430	17SD0850610	085	6	10			1	1		
	1450	17SD0860006	086	0	6			3	3	MS/MSD	
	1510	17SD0870006	087					1	1		
	1530	17SD0880006	088					1	1		
	1545	17SD0890006	089					1	1		
	1605	17SD0900006	090	↓	↓	↓	↓	1	1		
	1445	17SW078	078	NA	NA	SW	G	1	1		
1. RELINQUISHED BY 				DATE 12-18-08	TIME 1800	1. RECEIVED BY			DATE	TIME	
2. RELINQUISHED BY				DATE	TIME	2. RECEIVED BY			DATE	TIME	
3. RELINQUISHED BY				DATE	TIME	3. RECEIVED BY			DATE	TIME	
COMMENTS											

DISTRIBUTION:

WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R
FORM NO. TINUS-001



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER

4144

PAGE 2 OF 3

PROJECT NO: 112601573	FACILITY: Swmu 17	PROJECT MANAGER S. Ruffing	PHONE NUMBER 4129218989	LABORATORY NAME AND CONTACT: Kava Pace Analytical / Godineaux
SAMPLERS (SIGNATURE) 		FIELD OPERATIONS LEADER J. Goerdts	PHONE NUMBER 4129218425	ADDRESS 940 So. Harney St.
		CARRIER/WAYBILL NUMBER Fed Ex / 863125265587		CITY, STATE Seattle, WA 98108

STANDARD TAT <input checked="" type="checkbox"/>	CONTAINER TYPE PLASTIC (P) or GLASS (G)
RUSH TAT <input type="checkbox"/>	PRESERVATIVE USED
<input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day	

DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (ft/inches)	BOTTOM DEPTH (ft/inches)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS	COMMENTS	
12/17	1000	17SD0910006	091	0	6	SW	C	1	TYPE OF ANALYSIS RB 183 SW-856 80818/80822 40C G		
	1020	17SD0920006	092					1			
	1035	17SD0930006	093					1			
	1116	17SD0940006	094					3		3	MS/MSD
	1130	17SD0950006	095					1		1	
	1145	17SD0960006	096					1		1	
	1415	17SD0970006	097					1		1	
	1425	17SD0980006	098					1		1	
	1450	17SD0990006	099	↓	↓	↓	↓	1		1	
	1000	17SW091	091	NA	NA	SW	G	1		1	
	1415	17SW097	097	NA	NA	SW	G	1	1		
	1545	RB12170801	QC	NA	NA	QC	G	1	1	Rinsate Blank	
↓	1550	RB12170801	QC	NA	NA	QC	G	1	1	Source Blank	

1. RELINQUISHED BY 	DATE 12-18-08	TIME 1800	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER

4145

PAGE 3 OF 3

PROJECT NO: 112601573		FACILITY: Swmu 17		PROJECT MANAGER S. Ruffing		PHONE NUMBER 412 921 8989		LABORATORY NAME AND CONTACT: Kara Pace Analytical / Galmeaux												
SAMPLERS (SIGNATURE) 				FIELD OPERATIONS LEADER J. Goerd		PHONE NUMBER 412 921 8425		ADDRESS 940 So. Harney St												
				CARRIER/WAYBILL NUMBER Fed Ex/863125265587				CITY, STATE Seattle, WA 98108												
STANDARD TAT <input checked="" type="checkbox"/> RUSH TAT <input type="checkbox"/> <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day				CONTAINER TYPE PLASTIC (P) or GLASS (G) G		PRESERVATIVE USED		TYPE OF ANALYSIS PEBS SW-846 80818/ 80821A 401 G												
DATE YEAR 2008		TIME		SAMPLE ID		LOCATION ID						TOP DEPTH (ft) Inches		BOTTOM DEPTH (ft) Inches		MATRIX (GW, SO, SW, SD, QC, ETC.)		COLLECTION METHOD GRAB (G) COMP (C)		No. OF CONTAINERS
16	0000	FD12160801	QC	NA	NA	SD	C	1	1											
18	1005	17SD1000006	100					1	1											
	1015	17SD1010006	101					1	1											
	1030	17SD1020006	102					3	3											MS/MSD
	1045	17SD1030006	103					1	1											
	1100	17SD1040006	104					1	1											
	1120	17SD1050006	105					1	1											
	0000	FD12180801	QC	NA	NA	↓	↓	1	1											
	0000	FD12180802	QC	NA	NA	SW	G	1	1											
	1030	17SW102	102	NA	NA	↓	↓	3	3											MS/MSD
	1120	17SW105	105			↓	↓													
1. RELINQUISHED BY 				DATE 12-18-08		TIME 1800		1. RECEIVED BY				DATE		TIME						
2. RELINQUISHED BY				DATE		TIME		2. RECEIVED BY				DATE		TIME						
3. RELINQUISHED BY				DATE		TIME		3. RECEIVED BY				DATE		TIME						
COMMENTS																				

DISTRIBUTION:

WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

APPENDIX B

INVESTIGATION PHOTOGRAPHS

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Southern end of Boggs Creek where it enters into Lake Gallimore.

1
12/13/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Flood plain area in lower region of Boggs Creek where it enters Lake Gallimore.

2
12/13/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Typical view of the southern end of Boggs Creek before entering into Lake Gallimore.

3
12/13/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Typical view of the southern end of Boggs Creek before entering into Lake Gallimore..

4
12/13/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD071
Creek approximately 30' wide, unknown depth. Shallow banks at 1-2'. Very little stream flow.

5
12/13/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD072
View down the creek.

6
12/13/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD073
View south down the creek. Sample collected in cut-in area on left.

7
12/13/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD074
View north of the confluence of Goldsberry Hollow (on right) and Boggs Creek (left).

8
12/13/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD074
View upstream of Boggs Creek just before it merges with
Goldsberry Hollow. Sample collected just after merge.

9
12/13/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD075
View of Boggs Creek looking downstream.

10
12/13/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: Southeast

DESCRIPTION: Sample Location: 17SD077
View downstream. Small tributary on right entering Boggs Creek.

11
12/16/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD077
View of Boggs Creek looking upstream.

12
12/16/08

Naval Support Activity– Crane Division



SITE: SWMU 17 Boggs Creek	PHOTOGRAPHER: J. Goerdts VIEW: Northeast	DESCRIPTION: Sample Location: 17SD078 View of the large cut-in area of the east bank.	13 12/16/08
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SITE: SWMU 17 Boggs Creek	PHOTOGRAPHER: J. Goerdts VIEW: Northeast	DESCRIPTION: Sample Location: 17SD078 View of flood plain area located just north of the large cut-in area.	14 12/16/08
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Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD078
View downstream of the sample location.

15
12/16/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: West

DESCRIPTION: Sample Location: 17SD078
View upstream of the sample location.

16
12/16/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD079
View upstream at the sample location.

17
12/16/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD078
View downstream of the sample location.

18
12/16/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD085
View downstream at the sample location.

19
12/16/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD085
View of sediment sample technique utilizing an 18" clean plastic sleeve.

20
12/16/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD086
View downstream at the sample location.

21
12/16/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD086
View of bank cut away at sample location. Distance from water level to ground surface was approximately 12 feet.

22
12/16/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD087
View downstream of the sample location. Steep bank. Water depth approximately 3-5 feet. Creek width approximately 25-30 feet.

23
12/16/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD087
View upstream of the sample location.

24
12/16/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD088
View downstream of the sample location. Sample location is next to small tributary.

25
12/16/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD088
View upstream of the sample location.

26
12/16/08

Naval Support Activity– Crane Division



SITE: SWMU 17 Boggs Creek	PHOTOGRAPHER: J. Goerd VIEW: South	DESCRIPTION: Sample Location: 17SD089 View downstream of the sample location. Creek approximately 10 feet wide with low to moderate flow.	27 12/16/08
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SITE: SWMU 17 Boggs Creek	PHOTOGRAPHER: J. Goerd VIEW: North	DESCRIPTION: Sample Location: 17SD089 View upstream of the sample location.	28 12/16/08
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Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD090
View upstream at the sample location.

29
12/16/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD090
View downstream of the sample location. There is small flow on left side of photo.

30
12/16/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD091
View downstream of the sample location.

31
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD091
View upstream of the sample location.

32
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD091
Area from which the sample was collected.

33
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD092
Area from which the sample was collected.

34
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD092
View downstream from sample location.

35
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD092
View upstream from sample location.

36
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD093
View downstream towards sample location.

37
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD093
View to the north of sample location.

38
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: West

DESCRIPTION: Sample Location: 17SD093
View of the west bank.

39
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: East

DESCRIPTION: Sample Location: 17SD093
View of the east bank.

40
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD094
View downstream at sample location.

41
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD095
View upstream at the sample location.

42
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD095
View downstream of the sample location.

43
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD096
View of sample location.

44
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD098
View upstream of the sample location.

45
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD098
View downstream of sample location.

46
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW:

DESCRIPTION: Sample Location: 17SD098
Typical rocky substrate in samples on northern part of stream.

47
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD099
View upstream of sample location.

48
12/17/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD099
View downstream at sample location.

49
12/17/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW:

DESCRIPTION: Sample Location: 17SD100
View of sample location.

50
12/18/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD100
View upstream at sample location.

51
12/18/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD100
View downstream of sample location.

52
12/18/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW:

DESCRIPTION: Sample Location: 17SD101
View of sample location.

53
12/18/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD101
View upstream of sample location.

54
12/18/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD101
View downstream of sample location.

55
12/18/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD102
View downstream of sample location.

56
12/18/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD102
View upstream of sample location.

57
12/18/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW:

DESCRIPTION: Sample Location: 17SD103
View of sample location within small cove.

58
12/18/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD103
View upstream of sample location.

59
12/18/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD103
View downstream of sample location.

60
12/18/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD104
View upstream of sample location.

61
12/18/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD104
View downstream of sample location.

62
12/18/08

Naval Support Activity– Crane Division



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Sample Location: 17SD105
View upstream at sample location.

63
12/18/08



SITE:
SWMU 17
Boggs Creek

PHOTOGRAPHER:
J. Goerd
VIEW: South

DESCRIPTION: Sample Location: 17SD105
View downstream of sample location.

64
12/18/08

APPENDIX C

ANALYTICAL DATA

PROJ_NO: 01573

SDG: F21707 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0700006
 samp_date 12/15/2008
 lab_id F21707-001
 qc_type NM
 units UG/KG
 Pct_Solids 61.0
 DUP_OF:

nsample 17SD0710006
 samp_date 12/15/2008
 lab_id F21707-002
 qc_type NM
 units UG/KG
 Pct_Solids 61.0
 DUP_OF:

nsample 17SD0720006
 samp_date 12/15/2008
 lab_id F21707-003
 qc_type NM
 units UG/KG
 Pct_Solids 64.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	15	U	
AROCLOR-1221	15	U	
AROCLOR-1232	15	U	
AROCLOR-1242	15	U	
AROCLOR-1248	15	U	
AROCLOR-1254	15	U	
AROCLOR-1260	69		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	15	U	
AROCLOR-1221	15	U	
AROCLOR-1232	15	U	
AROCLOR-1242	15	U	
AROCLOR-1248	15	U	
AROCLOR-1254	15	U	
AROCLOR-1260	72		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	14	U	
AROCLOR-1221	14	U	
AROCLOR-1232	14	U	
AROCLOR-1242	14	U	
AROCLOR-1248	14	U	
AROCLOR-1254	14	U	
AROCLOR-1260	59		

PROJ_NO: 01573

SDG: F21707 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0720610RX
 samp_date 12/15/2008
 lab_id F21707-004RX
 qc_type NM
 units UG/KG
 Pct_Solids 66.0
 DUP_OF:

nsample 17SD0730006
 samp_date 12/15/2008
 lab_id F21707-005
 qc_type NM
 units UG/KG
 Pct_Solids 71.0
 DUP_OF:

nsample 17SD0740006
 samp_date 12/15/2008
 lab_id F21707-006
 qc_type NM
 units UG/KG
 Pct_Solids 58.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	UJ	R
AROCLOR-1221	13	UJ	R
AROCLOR-1232	13	UJ	R
AROCLOR-1242	13	UJ	R
AROCLOR-1248	13	UJ	R
AROCLOR-1254	13	UJ	R
AROCLOR-1260	97	J	R

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	U	
AROCLOR-1221	13	U	
AROCLOR-1232	13	U	
AROCLOR-1242	13	U	
AROCLOR-1248	13	U	
AROCLOR-1254	13	U	
AROCLOR-1260	130		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	15	U	
AROCLOR-1221	15	U	
AROCLOR-1232	15	U	
AROCLOR-1242	15	U	
AROCLOR-1248	15	U	
AROCLOR-1254	15	U	
AROCLOR-1260	55		

PROJ_NO: 01573

SDG: F21710 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0750006RX
 samp_date 12/16/2008
 lab_id F21710-001RX
 qc_type NM
 units UG/KG
 Pct_Solids 69.0
 DUP_OF:

nsample 17SD0760006RX
 samp_date 12/16/2008
 lab_id F21710-002RX
 qc_type NM
 units UG/KG
 Pct_Solids 74.0
 DUP_OF:

nsample 17SD0770006RX
 samp_date 12/16/2008
 lab_id F21710-003RX
 qc_type NM
 units UG/KG
 Pct_Solids 67.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	U	
AROCLOR-1221	13	U	
AROCLOR-1232	13	U	
AROCLOR-1242	13	U	
AROCLOR-1248	13	U	
AROCLOR-1254	13	U	
AROCLOR-1260	150		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	40	J	G

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	U	
AROCLOR-1221	13	U	
AROCLOR-1232	13	U	
AROCLOR-1242	13	U	
AROCLOR-1248	13	U	
AROCLOR-1254	13	U	
AROCLOR-1260	34		

PROJ_NO: 01573

SDG: F21707 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0800006
 samp_date 12/15/2008
 lab_id F21707-007
 qc_type NM
 units UG/KG
 Pct_Solids 75.0
 DUP_OF:

nsample 17SD0810006
 samp_date 12/15/2008
 lab_id F21707-008
 qc_type NM
 units UG/KG
 Pct_Solids 77.0
 DUP_OF:

nsample 17SD0820006
 samp_date 12/15/2008
 lab_id F21707-009
 qc_type NM
 units UG/KG
 Pct_Solids 74.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	65		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	25		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	28		

PROJ_NO: 01573

SDG: F21707 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0830006
 samp_date 12/15/2008
 lab_id F21707-010
 qc_type NM
 units UG/KG
 Pct_Solids 82.0
 DUP_OF:

nsample 17SD0830610
 samp_date 12/15/2008
 lab_id F21707-011
 qc_type NM
 units UG/KG
 Pct_Solids 80.0
 DUP_OF:

nsample 17SD0840006
 samp_date 12/15/2008
 lab_id F21707-012
 qc_type NM
 units UG/KG
 Pct_Solids 73.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	14	J	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	30		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	230		

PROJ_NO: 01573

SDG: F21710 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0780006RX
 samp_date 12/16/2008
 lab_id F21710-004RX
 qc_type NM
 units UG/KG
 Pct_Solids 65.0
 DUP_OF:

nsample 17SD0790006RX
 samp_date 12/16/2008
 lab_id F21710-005RX
 qc_type NM
 units UG/KG
 Pct_Solids 75.0
 DUP_OF:

nsample 17SD0850006RX
 samp_date 12/16/2008
 lab_id F21710-006RX
 qc_type NM
 units UG/KG
 Pct_Solids 80.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	14	U	
AROCLOR-1221	14	U	
AROCLOR-1232	14	U	
AROCLOR-1242	14	U	
AROCLOR-1248	14	U	
AROCLOR-1254	14	U	
AROCLOR-1260	37	R	U

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	12	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	11	U	

PROJ_NO: 01573

SDG: F21710 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0850610RX
 samp_date 12/16/2008
 lab_id F21710-007RX
 qc_type NM
 units UG/KG
 Pct_Solids 82.0
 DUP_OF:

nsample 17SD0860006RX
 samp_date 12/16/2008
 lab_id F21710-008RX
 qc_type NM
 units UG/KG
 Pct_Solids 77.0
 DUP_OF:

nsample 17SD0870006RX
 samp_date 12/16/2008
 lab_id F21710-009RX
 qc_type NM
 units UG/KG
 Pct_Solids 77.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	13	J	P

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	44		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	94		

PROJ_NO: 01573

SDG: F21710 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0880006RX
 samp_date 12/16/2008
 lab_id F21710-010RX
 qc_type NM
 units UG/KG
 Pct_Solids 78.0
 DUP_OF:

nsample 17SD0890006RX
 samp_date 12/16/2008
 lab_id F21710-011RX
 qc_type NM
 units UG/KG
 Pct_Solids 67.0
 DUP_OF:

nsample 17SD0900006RX
 samp_date 12/16/2008
 lab_id F21710-012RX
 qc_type NM
 units UG/KG
 Pct_Solids 80.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	24		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	U	
AROCLOR-1221	13	U	
AROCLOR-1232	13	U	
AROCLOR-1242	13	U	
AROCLOR-1248	13	U	
AROCLOR-1254	13	U	
AROCLOR-1260	150		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	35		

PROJ_NO: 01573

SDG: F21710 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0910006RX
 samp_date 12/17/2008
 lab_id F21710-014RX
 qc_type NM
 units UG/KG
 Pct_Solids 81.0
 DUP_OF:

nsample 17SD0920006RX
 samp_date 12/17/2008
 lab_id F21710-015RX
 qc_type NM
 units UG/KG
 Pct_Solids 83.0
 DUP_OF:

nsample 17SD0930006RX
 samp_date 12/17/2008
 lab_id F21710-016RX
 qc_type NM
 units UG/KG
 Pct_Solids 76.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	33		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	27		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	43		

PROJ_NO: 01573

SDG: F21710 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0940006RX
 samp_date 12/17/2008
 lab_id F21710-017RX
 qc_type NM
 units UG/KG
 Pct_Solids 79.0
 DUP_OF:

nsample 17SD0950006RX
 samp_date 12/17/2008
 lab_id F21710-018RX
 qc_type NM
 units UG/KG
 Pct_Solids 67.0
 DUP_OF:

nsample 17SD0960006RX
 samp_date 12/17/2008
 lab_id F21710-019RX
 qc_type NM
 units UG/KG
 Pct_Solids 72.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	20	J	P

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	U	
AROCLOR-1221	13	U	
AROCLOR-1232	13	U	
AROCLOR-1242	13	U	
AROCLOR-1248	13	U	
AROCLOR-1254	13	U	
AROCLOR-1260	67		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	86		

PROJ_NO: 01573

SDG: F21710 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0970006RX
samp_date 12/17/2008
lab_id F21710-020RX
qc_type NM
units UG/KG
Pct_Solids 81.0
DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	18	J	P

PROJ_NO: 01573

SDG: F21711 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD0900610RX
 samp_date 12/16/2008
 lab_id F21711-018RX
 qc_type NM
 units UG/KG
 Pct_Solids 83.0
 DUP_OF:

nsample 17SD0980006RX
 samp_date 12/17/2008
 lab_id F21711-001RX
 qc_type NM
 units UG/KG
 Pct_Solids 96.0
 DUP_OF:

nsample 17SD0990006RX
 samp_date 12/17/2008
 lab_id F21711-002RX
 qc_type NM
 units UG/KG
 Pct_Solids 70.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	49		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	9.3	U	
AROCLOR-1221	9.3	U	
AROCLOR-1232	9.3	U	
AROCLOR-1242	9.3	U	
AROCLOR-1248	9.3	U	
AROCLOR-1254	9.3	U	
AROCLOR-1260	55		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	U	
AROCLOR-1221	13	U	
AROCLOR-1232	13	U	
AROCLOR-1242	13	U	
AROCLOR-1248	13	U	
AROCLOR-1254	13	U	
AROCLOR-1260	190		

PROJ_NO: 01573

SDG: F21711 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD1000006RX
 samp_date 12/18/2008
 lab_id F21711-008RX
 qc_type NM
 units UG/KG
 Pct_Solids 79.0
 DUP_OF:

nsample 17SD1010006
 samp_date 12/18/2008
 lab_id F21711-009
 qc_type NM
 units UG/KG
 Pct_Solids 79.0
 DUP_OF:

nsample 17SD1020006
 samp_date 12/18/2008
 lab_id F21711-010
 qc_type NM
 units UG/KG
 Pct_Solids 80.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	18	J	P

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	UJ	R
AROCLOR-1221	11	UJ	R
AROCLOR-1232	11	UJ	R
AROCLOR-1242	11	UJ	R
AROCLOR-1248	11	UJ	R
AROCLOR-1254	11	UJ	R
AROCLOR-1260	94	J	R

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	190		

PROJ_NO: 01573

SDG: F21711 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD1030006
 samp_date 12/18/2008
 lab_id F21711-011
 qc_type NM
 units UG/KG
 Pct_Solids 70.0
 DUP_OF:

nsample 17SD1040006RX
 samp_date 12/18/2008
 lab_id F21711-012RX
 qc_type NM
 units UG/KG
 Pct_Solids 70.0
 DUP_OF:

nsample 17SD1050006 **IX**
 samp_date 12/18/2008
 lab_id F21711-013 **107**
 qc_type NM
 units UG/KG
 Pct_Solids 79.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	UJ	R
AROCLOR-1221	13	UJ	R
AROCLOR-1232	13	UJ	R
AROCLOR-1242	13	UJ	R
AROCLOR-1248	13	UJ	R
AROCLOR-1254	13	UJ	R
AROCLOR-1260	13	UJ	R

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	13	U	
AROCLOR-1221	13	U	
AROCLOR-1232	13	U	
AROCLOR-1242	13	U	
AROCLOR-1248	13	U	
AROCLOR-1254	13	U	
AROCLOR-1260	110	J	G

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	

PROJ_NO: 01573

SDG: F21711 MEDIA: SEDIMENT DATA FRACTION: PEST/PCB

nsample 17SD1050006-DL
 samp_date 12/18/2008
 lab_id F21711-013DL
 qc_type NM
 units UG/KG
 Pct_Solids 79.0
 DUP_OF:

nsample FD12160801RX
 samp_date 12/16/2008
 lab_id F21711-007RX
 qc_type NM
 units UG/KG
 Pct_Solids 74.0
 DUP_OF: 17SD076006

nsample FD12180801RX
 samp_date 12/18/2008
 lab_id F21711-014RX
 qc_type NM
 units UG/KG
 Pct_Solids 83.0
 DUP_OF: 17SD1040006

Parameter	Result	Val Qual	Qual Code
AROCLOR-1260	2800		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	12	U	
AROCLOR-1221	12	U	
AROCLOR-1232	12	U	
AROCLOR-1242	12	U	
AROCLOR-1248	12	U	
AROCLOR-1254	12	U	
AROCLOR-1260	20	J	P

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	11	U	
AROCLOR-1221	11	U	
AROCLOR-1232	11	U	
AROCLOR-1242	11	U	
AROCLOR-1248	11	U	
AROCLOR-1254	11	U	
AROCLOR-1260	11	UJ	G

PROJ_NO: 01573

SDG: F21707 MEDIA: WATER DATA FRACTION: PEST/PCB

nsample 17SW071
samp_date 12/15/2008
lab_id F21707-013
qc_type NM
units UG/L
Pct_Solids
DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.52	U	
AROCLOR-1221	0.52	U	
AROCLOR-1232	0.52	U	
AROCLOR-1242	0.52	U	
AROCLOR-1248	0.52	U	
AROCLOR-1254	0.52	U	
AROCLOR-1260	0.52	U	

PROJ_NO: 01573

SDG: F21710 MEDIA: WATER DATA FRACTION: PEST/PCB

nsample 17SW078
samp_date 12/16/2008
lab_id F21710-013
qc_type NM
units UG/L
Pct_Solids
DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.51	U	
AROCLOR-1221	0.51	U	
AROCLOR-1232	0.51	U	
AROCLOR-1242	0.51	U	
AROCLOR-1248	0.51	U	
AROCLOR-1254	0.51	U	
AROCLOR-1260	0.51	U	

PROJ_NO: 01573

SDG: F21711 MEDIA: WATER DATA FRACTION: PEST/PCB

nsample 17SW091
 samp_date 12/17/2008
 lab_id F21711-003
 qc_type NM
 units UG/L
 Pct_Solids
 DUP_OF:

nsample 17SW097
 samp_date 12/17/2008
 lab_id F21711-004
 qc_type NM
 units UG/L
 Pct_Solids
 DUP_OF:

nsample 17SW102
 samp_date 12/18/2008
 lab_id F21711-016
 qc_type NM
 units UG/L
 Pct_Solids
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.51	U	
AROCLOR-1221	0.51	U	
AROCLOR-1232	0.51	U	
AROCLOR-1242	0.51	U	
AROCLOR-1248	0.51	U	
AROCLOR-1254	0.51	U	
AROCLOR-1260	0.51	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.5	U	
AROCLOR-1221	0.5	U	
AROCLOR-1232	0.5	U	
AROCLOR-1242	0.5	U	
AROCLOR-1248	0.5	U	
AROCLOR-1254	0.5	U	
AROCLOR-1260	0.5	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.5	U	
AROCLOR-1221	0.5	U	
AROCLOR-1232	0.5	U	
AROCLOR-1242	0.5	U	
AROCLOR-1248	0.5	U	
AROCLOR-1254	0.5	U	
AROCLOR-1260	0.5	U	

PROJ_NO: 01573

SDG: F21711 MEDIA: WATER DATA FRACTION: PEST/PCB

nsample 17SW105
 samp_date 12/18/2008
 lab_id F21711-017
 qc_type NM
 units UG/L
 Pct_Solids
 DUP_OF:

nsample FD12180802
 samp_date 12/18/2008
 lab_id F21711-015
 qc_type NM
 units UG/L
 Pct_Solids
 DUP_OF: 17SW105

nsample RB12170801
 samp_date 12/17/2008
 lab_id F21711-005
 qc_type NM
 units UG/L
 Pct_Solids
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.5	U	
AROCLOR-1221	0.5	U	
AROCLOR-1232	0.5	U	
AROCLOR-1242	0.5	U	
AROCLOR-1248	0.5	U	
AROCLOR-1254	0.5	U	
AROCLOR-1260	0.5	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.52	U	
AROCLOR-1221	0.52	U	
AROCLOR-1232	0.52	U	
AROCLOR-1242	0.52	U	
AROCLOR-1248	0.52	U	
AROCLOR-1254	0.52	U	
AROCLOR-1260	0.52	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.52	U	
AROCLOR-1221	0.52	U	
AROCLOR-1232	0.52	U	
AROCLOR-1242	0.52	U	
AROCLOR-1248	0.52	U	
AROCLOR-1254	0.52	U	
AROCLOR-1260	0.52	U	

PROJ_NO: 01573

SDG: F21711 MEDIA: WATER DATA FRACTION: PEST/PCB

nsample SB12170801
samp_date 12/17/2008
lab_id F21711-006
qc_type NM
units UG/L
Pct_Solids
DUP_OF:

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	0.49	U	
AROCLOR-1221	0.49	U	
AROCLOR-1232	0.49	U	
AROCLOR-1242	0.49	U	
AROCLOR-1248	0.49	U	
AROCLOR-1254	0.49	U	
AROCLOR-1260	0.49	U	

APPENDIX D

DATA VALIDATION REPORTS



TO: S. RUFFING

DATE: APRIL 29th, 2009

FROM: MEGAN CARSON

COPIES: DV FILE

SUBJECT: ORGANIC DATA VALIDATION -PCB
CTO F271, NSWC CRANE
SAMPLE DELIVERY GROUP (SDG) - F21707

SAMPLES: 12/soil/ PCB via 8082:

17SD0700006	17SD0710006	17SD0720006
17SD0720610	17SD0730006	17SD0740006
17SD0800006	17SD0810006	17SD0820006
17SD0830006	17SD0830610	17SD0840006

1/water/ PCB via 8082:
17SW071

Overview

The sample set for CTO F271; NSWC Crane, SDG F21707 consists of twelve (12) soil environmental samples and one (1) surface water sample. The samples were analyzed for Polychlorinated Biphenyl Aroclors.

The samples were collected by TetraTech NUS on 12/15/08 and analyzed by Pace Analytical Services Inc. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using USEPA SW 846 8082 analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

- * • Data Completeness
- * • Holding Times
- * • Instrument performance and tuning
- * • Initial and Continuing Calibrations
- * • Laboratory Method Blank Analyses
- Surrogate Recoveries
- * • Laboratory Control Sample Results
- Matrix Spike/ Matrix Spike Duplicate Results
- * • Detection Limits

* - Quality control criteria were met for this parameter.

Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

PCB:

Sample 17SD020610 had a low percent recovery for the surrogate decachlorobiphenyl. A re-extraction of the sample yielded the same poor recoveries. The original results were used for validation. Positive and non-detected results were qualified as estimates J and UJ respectively.

Notes:

The matrix spike and matrix spike duplicate for sample 17SD020610 had poor percent recoveries for Aroclor 1260. No validation actions are required based on MS/MSD recoveries alone.

Positive results below the reporting limit but above the method detection limit were qualified as estimated, J.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: The surrogate recovery for decachlorobiphenyl was below the quality control limit for sample 17SD020610.

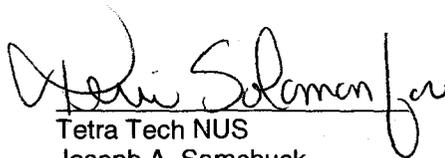
The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Review", October 1999 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", January 2006.

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 DoD QSM."



Tetra Tech NUS
Megan Carson
Chemist/Data Validator



Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

TO: S. RUFFING
DATE: 04/07/09

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SDG F21710

According to the laboratory narrative, all samples were re-extracted within holding times due to surrogate recoveries that were less than the laboratory lower acceptance limit. No results are presented from the original analyses.

The continuing calibration verification XC090821 run on 12/09/08 had percent difference results outside of the $\pm 15\%$ acceptance range for Aroclor-1248 on both columns. No action was necessary because no samples from this SDG were associated with this calibration.

The continuing calibration verification XC090834 run on 12/09/08 had percent difference results outside of the $\pm 15\%$ acceptance range for Aroclor-1260 on both columns. No action was necessary because no samples from this SDG were associated with this calibration.

The continuing calibration verification XC240812 run on 12/24/08 had percent difference results for Aroclor-1260 that were outside of the $\pm 15\%$ acceptance range. Samples 17SW078 and 17SD0960006 were affected. However, no action was taken because results from these samples are reported from the 12/29/08 and 12/31/09 analyses, respectively.

The continuing calibration verification XC300804 run on 12/30/08 had percent difference results outside of the $\pm 15\%$ acceptance range for Aroclor-1660 on the primary column and Aroclor-1260 on both columns. No action was necessary because no samples from this SDG were associated with this calibration.

The matrix spike duplicate (MSD) performed on sample 17SD0940006 had surrogate recoveries that were less than the laboratory lower acceptance limits and less than 10% for the surrogates decachlorobiphenyl (DCB) and tetrachloro-m-xylene (TCX). No action was taken on this basis.

The field duplicate pair FD12160801 (SDG F21711) / 17SD0760006 RPD results were greater than the quality control limits for Aroclor-1260. The positive results for Aroclor-1260 was qualified estimated, (J), in both samples.

The RPD between columns exceeded the 25% quality control limit for Aroclor-1260 in sample 17SD0780006. The RPD between columns was 162%. The positive result for Aroclor-1260 in sample 17SD0780006 was qualified as estimated (J).

Positive results between the method detection limit (MDL) and the reporting limit were qualified as estimated (J) due to uncertainty near the detection limit.

Notes

No project-specific detection limit requirements were available to evaluate the laboratory detection limits.

The MS/MSD form from the quality control section of the data package had hand-written corrections for the relative percent difference (RPD) results that were not included on this form in the summary package. All reported results are within limits. Both forms are included in this report.

The PCB Form IIs did not have percent surrogate recovery information for each GC column, primary and secondary. Only a single TCX and DBC result were on the forms.

The percent difference was presented for the difference between GC columns by the laboratory instead of RPD. The RPD was manually calculated.

TO: S. RUFFING
DATE: 04/07/09

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SDG F21710

EXECUTIVE SUMMARY

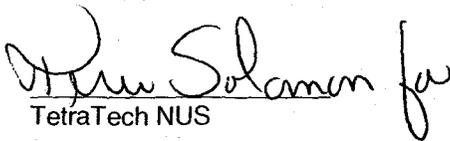
Laboratory Performance Issues: One result was qualified due to RPD between columns.

Other Factors Affecting Data Quality: Some positive results were qualified due to uncertainty near the detection limit. One result was qualified due to field duplicate imprecision.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.


Tetra Tech NUS

Leigh A. Ciofani
Data Validator/Environmental Scientist I


TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

PCB

The PCB surrogate % recoveries were less than the quality control limit for decachlorobiphenyl (DCB) for a number of SDG samples. Per the laboratory narrative, the samples 17SD1030006, 17SD0980006, 17SD0990006, FD121160801, 17SD1010006, 17SD1040006, FD12180801, and 17SD0900610 were re-extracted within the holding time, and with the exception of 17SD1010006 and 17SD1030006, had satisfactory surrogate recoveries upon re-extraction. Sample 17SD1030006 re-extraction was not successful and the original results were reported. Sample 17SD1010006 had a low % recovery for the surrogate DCB upon re-extraction and the original results were reported. The positive and non-detected results for samples 17SD1030006 and 17SD1010006 were qualified estimated, (J) and (UJ), respectively.

The matrix spike (MS) % recovery was less than the quality control limit for the associated sample 17SD0980006 for Aroclor-1260. No action was taken as the matrix spike duplicate (MSD) and the RPD for the MS/MSD were within the quality control limits for the same sample.

The matrix spike (MS)/matrix spike duplicate (MSD) RPDs were greater than the quality control limits for Aroclor-1016 and Aroclor-1260 for the associated samples 17SD1020006 and 17SW102. No action was taken as the MS and MSD % recoveries for both Aroclor-1016 and Aroclor-1260 were within the quality control limits for both samples.

The field duplicate pair FD12160801 / 17SD0760006(SDG F21710) RPD results were greater than the quality control limits for Aroclor-1260. The positive results for Aroclor-1260 was qualified estimated, (J), for both samples.

The field duplicate pair FD12180801 / 17SD1040006 RPD results were greater than the quality control limits for Aroclor-1260. The positive and non-detected results for Aroclor-1260 was qualified estimated, (J) and (UJ), respectively, for both samples.

Notes

Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J).

For the PCB data there was neither CLP type Form VIII's nor Blank Form IVs with adequate sequence information provided by the laboratory. This resulted in the expenditure of excessive time reviewing raw data for the analytical sequences. The PCB Form IIs did not have % surrogate recovery information for each GC column, primary and secondary. Only a single TCX and DBC result were on the forms.

The laboratory performed a 10X dilution for PCB analysis on sample 17SD1050006 due to the high level of aroclor-1260.

EXECUTIVE SUMMARY

Laboratory Performance Issues: PCB surrogate recoveries were outside the quality control limits.

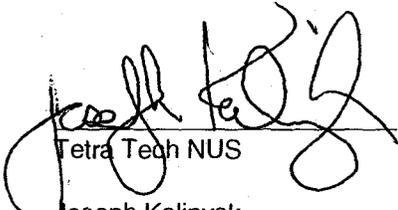
Other Factors Affecting Data Quality: Field duplicate imprecision was noted for sample pair FD12160801 / 17SD0760006(SDG F21710) and FD12180801 / 17SD1040006 for Aroclor-1260.

MEMO TO: S. RUFFING
DATE: 04/08/09

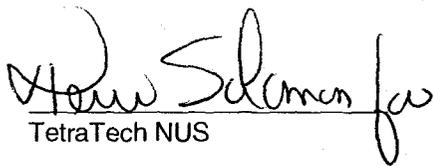
PAGE: 3
SDG: F21711

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). 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 DoD QSM for Environmental Laboratories."



Tetra Tech NUS
Joseph Kalinyak
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 - Support Documentation