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LETTER REPORT REGARDING CORRECTIVE MEASURE STUDY ADDENDUM FOR SOLID
WASTE MANAGEMENT UNIT 17 NS MAYPORT FL
8/17/2005
TETRA TECH NUS



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Document No. 05JAX0119

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Project Number N0123

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Adrienne Wilson (Code ES31)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order Number 0118

Subject: Corrective Measure Study Addendum
SWMU 17
Naval Station (NAVSTA) Mayport, Mayport, Florida.

Dear Ms. Wilson:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit the Corrective Measure Study (CMS) Report Addendum for the additional field activities performed at Solid Waste Management Unit (SWMU) 17, the Carbonaceous Fuel Boil Area. This report was prepared for the United States Navy (Navy) Southern Division, Naval Facilities Engineering Command under Contract Task Order (CTO) 0118 for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. This letter report is an addendum to CMS Report for SWMUs 12 and 17 that was issued on March 31, 2001.

Purpose

The results and conclusions from additional field activities performed at SWMU 17 are presented herein. Additional information to be amended to the CMS for SWMU 17 is as follows:

- 1) Confirmatory field sampling results.
- 2) Concrete covering constructed as IM.
- 3) Revised SWMU chemicals of concern (COCs) and volumes of contaminated media.
- 4) Amended corrective measure alternatives.
- 5) Updated cost of amended corrective measure alternatives.

Background

Per the CMS for SWMU 17, there were COCs present in both surface soil and groundwater. The list of COCs included benzo(a)pyrene and dieldrin for surface soil and iron, manganese, and ammonia for groundwater. One surface soil sample, MPT-17-SS08, exceeded the media clean-up standard (MCS) for benzo(a)pyrene and another surface soil sample, MPT-17-SS02, exceeded the MCS for dieldrin. The MCSs for surface soil were based on industrial direct exposure. Of the three groundwater samples collected at SWMU 17 (MPT-17-MW01S, -MW02S and -MW03S), manganese exceeded the MCSs in all three wells, iron exceeded the MCSs in two wells, and ammonia exceeded the MCSs in only one well. (See Figure 1 in Attachment 1 for CMS surface soil



and groundwater sample locations.) All of the surface soil and groundwater samples determined in the CMS to contain COCs were collected and analyzed in June 1995.

To address surface soil concerns at the SWMU, the CMS recommended land use controls (LUCs), site monitoring, and concrete covering as the corrective measure alternative. The concrete covering was recommended to serve as an impermeable layer of protection against potential surface water infiltration and industrial exposure. Although no surface soil COCs were determined to be a concern in groundwater, the CMS concluded that providing the concrete covering in the uncovered contaminated areas would provide adequate and cost-effective protection of human health and the environment.

The CMS also recommended LUCs and site monitoring to address groundwater contamination at SWMU 17. This recommendation was deemed an appropriate corrective measure alternative as any elaborate treatment system would not be justified because the surficial aquifer is not currently used as a potable water source and there is no risk to the ecological receptors. Furthermore, the contaminants in the groundwater at SWMU 17 are not expected to affect the surface water at the Mayport Turning Basin because the basin is approximately 300 feet downgradient of SWMU 17. In addition, according to the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI), two layers of retaining walls constructed along the perimeter of the Mayport Turning Basin prevent or limit the direct interaction between groundwater and surface water.

Prior to a corrective measure implementation plan (CMIP) being written and implemented at SWMU 17, an interim measure (IM) to place a cap on the contaminated surface soil identified in the CMS was completed. In support of the IM, confirmatory surface soil samples were collected at two separate locations identified in the CMS as requiring capping. The results of this confirmatory sampling eliminated one of the two areas requiring capping. The confirmatory sampling conducted at SWMU 17 is discussed in more detail in the following section.

An addendum to the SWMU 17 CMS is warranted to document the changes in both volume and distribution of contamination present and remedial alternatives necessary to adequately protect human health and the environment.

Confirmatory Sampling

Surface Soil

In 2004, the Mayport Partnering Team decided to collect confirmatory samples prior to the IM (concrete capping) being completed. The confirmation samples were necessary because a significant amount of time (more than five years) had passed since the original samples were collected in 1995. On May 14, 2004, TtNUS collected eight confirmatory surface soil samples (MPT-17-SS01 through MPT-17-SS08). See Figure 1 in Attachment 1 for sample locations. These eight samples were collected in the grass median on the west side of Building 1430 where MPT-17-SS02 had been collected in 1995. The samples were analyzed for both residential and industrial exposure COCs identified in the CMS. As shown in Table 1 of Attachment 2, no COC was detected above residential soil cleanup target levels (SCTLs).

In February 2005, two additional surface soil samples, MPT-17-SS08A and MPT-17-SS08B, were collected at and near sample MPT-17-SS08 during the 1995 RFI field activities. See Figure 1 in Attachment 1 for sample locations. These two samples were collected to determine if benzo(a)pyrene (industrial exposure COC) was still present and to determine if the concrete covering about to be installed was still required. These samples were also analyzed for several other polycyclic aromatic hydrocarbons (PAHs) that exceeded residential SCTLs in the CMS. Benzo(a)pyrene was not detected in surface soil location MPT-17-SS08A-01; however, it was detected in MPT-17-SS08B at a concentration of 0.38 milligrams per kilogram (mg/kg), which exceeded its site-specific MCS (0.28 mg/kg) for industrial exposure that was calculated in the CMS. See Table 1 in Attachment 2 for constituent concentrations.



The Florida Department of Environmental Protection (FDEP) updated Chapter 62-777 (SCTLs) of the Florida Administrative Code (F.A.C.) in April 2005. New regulations state that site concentrations for carcinogenic PAHs must be converted to benzo(a)pyrene equivalents before comparison with the appropriate direct exposure SCTL for benzo(a)pyrene. After proper conversions of site concentrations of PAHs to benzo(a)pyrene equivalents was completed, it was determined that none of the confirmatory surface soil samples exceeded the new industrial surface soil SCTL for benzo(a)pyrene, 0.7 mg/kg. One sample, MPT-17-SS03, equaled (0.10 mg/kg) and another sample, MPT-17-SS08B, exceeded (0.48 mg/kg) the residential SCTL for benzo(a)pyrene, 0.1 mg/kg. Benzo(a)pyrene equivalent concentrations for the confirmatory samples are provided in Table 1 of Attachment 2.

Updates to Chapter 62-777 caused the concrete cover installed in February 2004 as an IM to be no longer warranted. The concrete covering was installed to protect site workers from the surface soil COCs that exceeded industrial exposure criteria. Several PAHs and their cumulative carcinogenic effect caused benzo(a)pyrene to become a COC based on industrial exposure in the CMS. Calculation of a benzo(a)pyrene equivalent concentration for the same location resulted in a residential exceedance, but no industrial exceedance.

Groundwater

Groundwater collected in 1995 from monitoring well MPT-17-MW03S contained ammonia in excess of its respective groundwater cleanup target level (GCTL), thus, causing ammonia to become a groundwater COC in the CMS. On January 5, 2005, TtNUS collected a confirmatory groundwater sample from MPT-17-MW03S. Laboratory analytical results of the January 2005 groundwater sample indicate that ammonia is no longer present in MPT-17-MW03S above its GCTL.

The laboratory analytical data is provided in Table 2 of Attachment 2. Field data for this and all other confirmatory samples collected at SWMU 17 in support of this addendum are included as Attachment 3.

Interim Measure (Concrete Covering)

Eight confirmatory surface soil samples collected on the west side of Building 1430 in May 2004 indicated that no previously identified contaminants were still present in excess of SCTLs. However, February 2004 confirmatory surface soil sampling conducted on the east side of Building 1430 confirmed that contaminated surface soil was still present in excess of industrial exposure criteria.

Based upon the results of these sampling events, the construction of a concrete cover over the contaminated surface soil was completed as an IM in February 2004. Approximately 900 square feet (ft²) of concrete was placed on the east side of Building 1430. The IM, concrete covering, is no longer required due to the changes in regulatory criteria (Chapter 62-777) that took effect April 17, 2005.

Revised SWMU COCs & Volumes of Contaminated Media

Based upon confirmatory sampling, the list of surface soil COCs presented in the CMS was revised. Since dieldrin was not detected during the confirmatory sampling events, it was removed from the list of surface soil COCs. Therefore, it was determined that benzo(a)pyrene is the only remaining surface soil COC at SWMU 17 based upon residential exposure. As a result of additional delineation at the SWMU, the approximate area of impacted surface soil is 900 ft² and the approximate volume of impacted surface soil is 33 cubic yards (yd³).

Confirmatory groundwater sampling also resulted in a change in the list of groundwater COCs originally presented in the CMS. Laboratory analysis concluded that ammonia was no longer



present in excess of its GCTL at SWMU 17. Therefore, ammonia was removed from the list of groundwater COCs for the SWMU.

Both iron and manganese were listed as COCs for groundwater when the CMS was completed in 2001. Laboratory analysis showed that secondary contaminants iron and manganese were present in the groundwater in all three wells sampled. The exceedances of both of these inorganics were relative to background screening values for NAVSTA Mayport. Further investigation revealed that iron and manganese were also present in an upgradient well in excess of background concentrations. The iron and manganese levels detected at SWMU 17 appear to be characteristic for the two contaminants over the entire base. Iron and manganese are not believed to have been associated with any past or present activities at SWMU 17. Therefore, iron and manganese are not considered groundwater COCs for the SWMU.

Since ammonia, iron, and manganese were all removed from the list of groundwater COCs for SWMU 17, there are no groundwater COCs for the SWMU. Based upon these revisions, it was determined that there is no contaminated groundwater present at SWMU 17. Therefore, no contaminated volume calculations were performed for groundwater.

Amended Corrective Measure Alternatives

Since the confirmatory sampling concluded there were no industrial surface soil exceedances at SWMU 17, the concrete covering recommended in the CMS is no longer a recommended corrective action measure. Based on current site conditions, the corrective measure alternative for this area of surface soil is LUCs and site monitoring. LUCs should restrict residential use and prohibit soil disturbances within 50 feet of sample location MPT-17-SS08B. Since no groundwater COCs were detected at SWMU 17, no corrective measure is required to address groundwater at the SWMU.

Cost of Amended Corrective Measure Alternatives

The CMS for SWMU 17 was completed in 2001. Per the CMS, the present worth cost of the original corrective measure alternative for addressing surface soil at SWMU 17 (LUCs, site monitoring, and a concrete cover) was approximately \$168,000 over 30 years. Since the completion of the CMS, the concrete covering was eliminated from the recommended corrective measure alternative for SWMU 17 and relevant cost data has changed. Therefore, the cost of the corrective measure alternatives for surface soil has been revised.

The estimated capital cost for surface soil LUCs and site monitoring at SWMU 17 over a period of 30 years would be \$18,000. Present worth cost over a period of 30 years would be \$109,000. Both five-year site reviews and LUC monitoring are factored into the present worth cost. All cost figures have been rounded to the nearest \$1000. Detailed cost estimates can be found in Attachment 4.

LUCs and site monitoring were recommended in the CMS to address groundwater contamination at SWMU 17. However, now there is no further action required for groundwater at SWMU 17 as there are no groundwater COCs present. Therefore, the estimated present worth cost of \$655,000 over 30 years for LUCs and site monitoring at the SWMU presented in the CMS has been eliminated as there is no cost associated with corrective measures for groundwater at SWMU 17.

Conclusion

Confirmatory surface soil sampling on the west side of Building 1430 concluded that dieldrin is no longer present. Dieldrin should not be considered a COC for SWMU 17. In addition, no other individual constituents were detected in excess of their respective residential SCTL. The benzo(a)pyrene equivalent concentration for one of the eight confirmatory samples equaled the



residential SCTL (0.1 mg/kg). Due to spatial distribution (clean samples around this sample), detection is exactly equal to the residential SCTL, natural attenuation at the SWMU, and the sample being located in a grass covered area, it was concluded that no further action is required to address surface soil contamination on the west side of Building 1430.

On the east side of Building 1430, confirmatory sampling confirmed that the benzo(a)pyrene equivalent for one location (MPT-17-SS08B) is in excess of its MCS for residential exposure.

Confirmatory groundwater sampling confirmed that ammonia is no longer present in excess of its GCTL and should not be considered a COC for the SWMU. Also, because both iron and manganese were present in an upgradient well in excess of base background concentrations, there is no evidence that either iron or manganese have been associated with any past or present activities at SWMU 17, and the detected levels appear to be characteristic for these two contaminants over the entire base, neither is considered to be a COC for the SWMU. Therefore, no further action is required to address groundwater at SWMU 17.

LUCs and site monitoring are recommended as the amended corrective measure alternative for SWMU 17. LUCs should restrict residential use and prohibit soil disturbance/removal of the area at and around MPT-17-SS08B (east of Building 1430) until such time as it can be determined there are no longer any residential surface soil exceedances at the SWMU.

If you have any questions with regard to this submittal, please contact me at (850) 385-9899 or via e-mail at hansent@ttnus.com.

Sincerely,



Terry Hansen P.G.
Task Order Manager

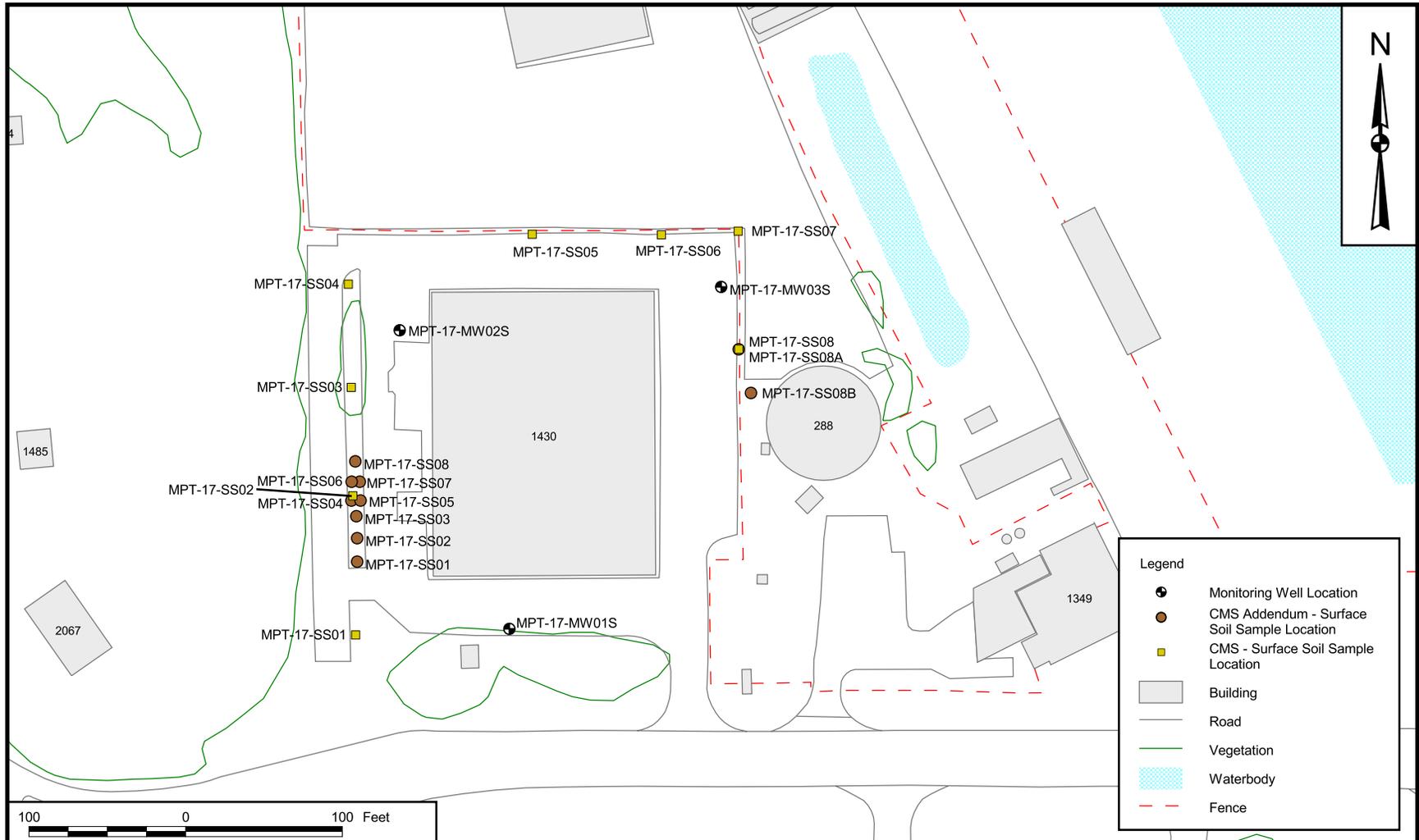
TH/sb

Attachments (4)

c: Mr. J. Cason P.G., FDEP (2 copies)
Mr. C. Benedikt, USEPA
Ms. C. Mitchell, NAVSTA Mayport
Ms. D. Lancaster, NAVSTA Mayport
Mr. M. Halil P.E., JA Jones
Mr. M. Albert P.E., TtNUS
Ms. D. Humbert, TtNUS (cover letter only)
Mr. M. Perry, TtNUS (unbound copy)

ATTACHMENT 1

FIGURES



DRAWN BY C. FOSTER	DATE 7/21/05
CHECKED BY S. BALLARD	DATE 7/21/05
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SURFACE SOIL AND GROUNDWATER SAMPLING LOCATIONS
 SWMU 17
 CMS ADDENDUM REPORT
 NAVAL STATION MAYPORT
 MAYPORT, FLORIDA

CONTRACT NUMBER 0118	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV 0

ATTACHMENT 2

TABLES

SWMU 17 CMS Addendum Report - Surface Soil Laboratory Results

Table 1

Round			2004Q2	2005Q2	2005Q2								
Location			MPT-17-SS01	MPT-17-SS02	MPT-17-SS03	MPT-17-SS04	MPT-17-SS05	MPT-17-SS06	MPT-17-SS07	MPT-17-SS08	MPT-17-SS08	MPT-17-SS08	TBD
Sample			MPT-17-SS-01	MPT-17-SS-02	MPT-17-SS-03	MPT-17-SS-04	MPT-17-SS-05	MPT-17-SS-06	MPT-17-SS-07	MPT-17-SS-08	MPT-17-SS08A-01	MPT-17-SS08B-01	
Matrix			SS	SS									
GIS Date			20040514	20040514	20040514	20040514	20040514	20040514	20040514	20040514	20050209	20050209	
Sample Date			5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	2/9/2005	2/9/2005	
	Residential (mg/kg)	Industrial (mg/kg)											
Semivolatile Organics (mg/kg)													
BENZO(A)ANTHRACENE	#	#	0.034 U	0.038	0.07	0.035 U	0.066	0.038	0.056	0.051	0.039 U	0.29 J	
BENZO(A)PYRENE	0.1	0.7	0.034 U	0.041	0.077	0.035 U	0.066	0.041	0.063	0.054	0.039 U	0.38 J	
BENZO(B)FLUORANTHENE	#	#	0.034 U	0.064	0.14	0.035 U	0.098	0.058	0.1	0.088	0.039 U	0.36 J	
BENZO(G,H,I)PERYLENE	2500	52000	0.034 U	0.044	0.06	0.035 U	0.063	0.034 U	0.053	0.034 U	---	---	
BENZO(K)FLUORANTHENE	#	#	0.034 U	0.034 U	0.049	0.035 U	0.042	0.034 U	0.042	0.034 U	---	---	
CHRYSENE	#	#	0.034 U	0.044	0.08	0.035 U	0.08	0.041	0.074	0.064	---	---	
FLUORANTHENE	3200	59000	0.034 U	0.058	0.045	0.035 U	0.12	0.061	0.1	0.058	---	---	
INDENO(1,2,3-CD)PYRENE	#	#	0.034 U	0.041	0.045	0.035 U	0.035 U	0.034 U	0.042	0.034 U	0.039 U	0.30 J	
PHENANTHRENE	2200	36000	0.034 U	0.034 U	0.035 U	0.035 U	0.039	0.034 U	0.035 U	0.034 U	---	---	
PYRENE	2400	45000	0.034 U	0.048	0.07	0.035 U	0.095	0.048	0.08	0.068	---	---	
<i>BENZO(A)PYRENE EQUIVALENT</i>	0.1	0.7	NA	0.055	0.10	NA	0.08	0.05	0.08	0.07	NA	0.48	
Pesticides/PCBs (mg/kg)													
4,4'-DDE	2.9	15	0.15	0.2	0.15	0.025	0.72	0.12	1.7	0.046	---	---	
4,4'-DDT	2.9	15	0.034 U	0.064	0.077	0.01	0.26	0.18	0.59	0.039	---	---	
CHLORDANE	3.1	12	0.034 U	0.034 U	0.035 U	0.0034 U	0.12	0.034 U	0.35 U	0.017 U	---	---	

Notes:

- Site concentrations for carcinogenic polycyclic aromatic hydrocarbons must be converted to Benzo(a)pyrene equivalents before comparison with the appropriate direct exposure SCTL for Benzo(a)pyrene.

"---" = Constituent was not tested in laboratory analysis of the given sample.

NA = Not applicable.

U = less than laboratory method detection limit.

J = estimated value

SWMU 17 CMS Addendum Report - Surface Soil Laboratory Results
Table 2

round	2004Q2	2005Q2	2005Q2								
location	MPT-17-SS01	MPT-17-SS02	MPT-17-SS03	MPT-17-SS04	MPT-17-SS05	MPT-17-SS06	MPT-17-SS07	MPT-17-SS08	MPT-17-SS08	MPT-17-SS08A-01	TBD
nsample	MPT-17-SS-01	MPT-17-SS-02	MPT-17-SS-03	MPT-17-SS-04	MPT-17-SS-05	MPT-17-SS-06	MPT-17-SS-07	MPT-17-SS-08	MPT-17-SS08A-01	MPT-17-SS08B-01	MPT-17-SS08B-01
sample	MPT-17-SS-01	MPT-17-SS-02	MPT-17-SS-03	MPT-17-SS-04	MPT-17-SS-05	MPT-17-SS-06	MPT-17-SS-07	MPT-17-SS-08	MPT-17-SS08A-01	MPT-17-SS08B-01	MPT-17-SS08B-01
matrix	SS	SS	SS								
gis_date	20040514	20040514	20040514	20040514	20040514	20040514	20040514	20040514	20040514	20050209	20050209
sample_dat	5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	5/14/2004	2/9/2005	2/9/2005
Semivolatile Organics (mg/kg)											
1-METHYLNAPHTHALENE	0.034 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.035 U	0.034 U			
2-METHYLNAPHTHALENE	0.034 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.035 U	0.034 U			
ACENAPHTHENE	0.034 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.035 U	0.034 U			
ACENAPHTHYLENE	0.034 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.035 U	0.034 U			
ANTHRACENE	0.034 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.035 U	0.034 U			
BENZO(A)ANTHRACENE	0.034 U	0.038	0.07	0.035 U	0.066	0.038	0.056	0.051	0.039 U	0.29 J	
BENZO(A)PYRENE	0.034 U	0.041	0.077	0.035 U	0.066	0.041	0.063	0.054	0.039 U	0.38 J	
BENZO(B)FLUORANTHENE	0.034 U	0.064	0.14	0.035 U	0.098	0.058	0.1	0.088	0.039 U	0.36 J	
BENZO(G,H,I)PERYLENE	0.034 U	0.044	0.06	0.035 U	0.063	0.034 U	0.053	0.034 U			
BENZO(K)FLUORANTHENE	0.034 U	0.034 U	0.049	0.035 U	0.042	0.034 U	0.042	0.034 U			
CHRYSENE	0.034 U	0.044	0.08	0.035 U	0.08	0.041	0.074	0.064			
DIBENZO(A,H)ANTHRACENE	0.034 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.035 U	0.034 U	0.039 U	0.42 U	
FLUORANTHENE	0.034 U	0.058	0.045	0.035 U	0.12	0.061	0.1	0.058			
FLUORENE	0.034 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.035 U	0.034 U			
INDENO(1,2,3-CD)PYRENE	0.034 U	0.041	0.045	0.035 U	0.035 U	0.034 U	0.042	0.034 U	0.039 U	0.30 J	
NAPHTHALENE	0.034 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.035 U	0.034 U			
PHENANTHRENE	0.034 U	0.034 U	0.035 U	0.035 U	0.039	0.034 U	0.035 U	0.034 U			
PYRENE	0.034 U	0.048	0.07	0.035 U	0.095	0.048	0.08	0.068			
Pesticides/PCBs (mg/kg)											
4,4'-DDD	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
4,4'-DDE	0.15	0.2	0.15	0.025	0.72	0.12	1.7	0.046			
4,4'-DDT	0.034 U	0.064	0.077	0.01	0.26	0.18	0.59	0.039			
ALDRIN	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ALPHA-BHC	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ALPHA-CHLORDANE	0.034 U	0.034 U	0.035 U	0.0034 U	0.12	0.034 U	0.35 U	0.017 U			
BETA-BHC	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
CHLORDANE (TECHNICAL)	0.34 U	0.34 U	0.35 U	0.034 U	0.70 U	0.34 U	3.5 U	0.17 U			
DELTA-BHC	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
DIELDRIN	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ENDOSULFAN I	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ENDOSULFAN II	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ENDOSULFAN SULFATE	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ENDRIN	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ENDRIN ALDEHYDE	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ENDRIN KETONE	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
GAMMA-BHC (LINDANE)	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
GAMMA-CHLORDANE	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
HEPTACHLOR	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
HEPTACHLOR EPOXIDE	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
ISODRIN	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
METHOXYCHLOR	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
MIREX	0.034 U	0.034 U	0.035 U	0.0034 U	0.069 U	0.034 U	0.35 U	0.017 U			
TOXAPHENE	0.67 U	0.67 U	0.70 U	0.069 U	1.4 U	0.67 U	6.9 U	0.34 U			

Notes:
U = less than laboratory method detection limit.
J = estimated value

ATTACHMENT 3

FIELD DATA



PROJECT NO: NO123		FACILITY: NS MAYPORT, SWMU-17		PROJECT MANAGER TERRY HANSEN		PHONE NUMBER (950) 385-9866		LABORATORY NAME AND CONTACT: ENCO			
SAMPLERS (SIGNATURE) 				FIELD OPERATIONS LEADER PETE LEVERETTE		PHONE NUMBER (904) 636-6125		ADDRESS			
				CARRIER/WAYBILL NUMBER DROP OFF				CITY, STATE			
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)		PRESERVATIVE USED		TYPE OF ANALYSIS 8001, PERCENT SOL 8270/PAH/SIM NONE G NONE G			
DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)				
5/14	1216	MPT-17-SS-01				SO	G	2	1	1	
5/14	1225	MPT-17-SS-02				SO	G	2	1	1	
5/14	1233	MPT-17-SS-03				SO	G	2	1	1	
5/14	1240	MPT-17-SS-04				SO	G	2	1	1	NO123-P4200
5/14	1246	MPT-17-SS-05				SO	G	2	1	1	(SS)
5/14	1254	MPT-17-SS-06				SO	G	2	1	1	
5/14	1300	MPT-17-SS-07				SO	G	2	1	1	
5/14	1307	MPT-17-SS-08				SO	G	2	1	1	
1. RELINQUISHED BY 				DATE 5/14/04	TIME 1615	1. RECEIVED BY 				DATE 5/14/04	TIME 1615
2. RELINQUISHED BY				DATE	TIME	2. RECEIVED BY				DATE	TIME
3. RELINQUISHED BY				DATE	TIME	3. RECEIVED BY				DATE	TIME
COMMENTS Samples rec'd on wet ice											



PROJECT NO: NO123		FACILITY: NS Mayport (Sumu 17)		PROJECT MANAGER Terry Haasen		PHONE NUMBER		LABORATORY NAME AND CONTACT: Accura Analytic Services			
SAMPLERS (SIGNATURE) Charles Mc				FIELD OPERATIONS LEADER Chuck Metz		PHONE NUMBER 904-636-6125		ADDRESS			
				CARRIER/WAYBILL NUMBER 7904-2144-7521 (Fed Ex)				CITY, STATE Noxcross, GA			
STANDARD TAT <input checked="" type="checkbox"/> RUSH TAT <input type="checkbox"/>						CONTAINER TYPE PLASTIC (P) or GLASS (G) G		TYPE OF ANALYSIS 8270 PAH SIM * 5 CONSTITUENTS None			
<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						PRESERVATIVE USED					
DATE YEAR 2005 TIME SAMPLE ID LOCATION ID TOP DEPTH (FT) BOTTOM DEPTH (FT) MATRIX (GW, SO, SW, SD, QC, ETC.) COLLECTION METHOD GRAP (G) COMP (C) No. OF CONTAINERS											
2-9 0930		MPT-17-SS08A-01		0.5 1		So G 1 1				Cool To 4°C	
2-9 0935		MPT-17-SS08B-01		0.5 1		So G 1 1					
										* * * Only reporting *	
										1 - Benzo(A)Anthracene	
										2 - Benzo(a)pyrene	
										3 - Benzo(b)fluoranthene	
										4 - Dibenzo(a,h)anthracene	
										* 5 - Indeno(1,2,3-cd)pyrene	
										Work Release # 1001304	
1. RELINQUISHED BY Charles Mc				DATE 2-9-05		TIME 1600		1. RECEIVED BY		DATE	
2. RELINQUISHED BY				DATE		TIME		2. RECEIVED BY		DATE	
3. RELINQUISHED BY				DATE		TIME		3. RECEIVED BY		DATE	
COMMENTS											

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: AOC C	SITE LOCATION: Naval Station Mayport
WELL NO: MW03s	SAMPLE ID: MPT-17-MW03s DATE: 1-5-05

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 4 feet to 14 feet	STATIC DEPTH TO WATER (feet): 4.85	PURGE PUMP TYPE OR BAILER: Peristaltic
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY only fill out if applicable) Liters 9' H₂O = 5.6 L/well volume				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) Liters NA				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 10	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 10	PURGING INITIATED AT: 1530	PURGING ENDED AT: 1558	TOTAL VOLUME PURGED (Liters): 14

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (mL/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1530	0	0	500	4.85	—	—	—	—	—	—	—
1540	5	5	↓	4.80	6.72	23.35	1.080	0.61	12.2	clear	None
1550	5	10	↓	4.79	6.72	23.21	1.062	0.39	4.81	↓	↓
1555	2.5	12.5	↓	4.79	6.72	23.22	1.058	0.35	1.85	↓	↓
1558	1.5	14	✓	4.79	6.72	23.19	1.050	0.33	1.18	↓	↓
1600 = Sample Time											

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Charles Metz / TNUS	SAMPLER(S) SIGNATURES: <i>Charles Metz</i>	SAMPLING INITIATED AT: 1600	SAMPLING ENDED AT: 1602
PUMP OR TUBING DEPTH IN WELL (feet): 10	SAMPLE PUMP FLOW RATE (mL per minute): 500	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y <input checked="" type="radio"/> N <input type="radio"/>	FIELD-FILTERED: Y <input checked="" type="radio"/> N <input type="radio"/> FILTER SIZE: _____ µm	DUPLICATE: Y <input checked="" type="radio"/> N <input type="radio"/>	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
PP	3	CG	40 ml	HCL	NONE	<2	Select VOCs	SM
PP	1	PP	500 ml	NONE	NONE	<2	Aluminum	REPP
PP	1	PP	1L	H ₂ SO ₄	None	<2	Ammonia	PP

REMARKS: **None**

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)



PROJECT NO: <u>N2877</u>	FACILITY: <u>AOC-C</u>	PROJECT MANAGER <u>Terry Hansen</u>	PHONE NUMBER <u>904-636-6125</u>	LABORATORY NAME AND CONTACT: <u>Accura</u>
SAMPLERS (SIGNATURE) <u>Charles Metz</u>		FIELD OPERATIONS LEADER <u>Chuck Metz</u>	PHONE NUMBER <u>904-636-6125</u>	ADDRESS
CARRIER/WAYBILL NUMBER			CITY, STATE <u>Norcross, GA</u>	

STANDARD TAT <input checked="" type="checkbox"/>	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)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS										COMMENTS						
									Select VOCs *	Cyanide	Aluminum	Ammonia	Select PAHs *	Select PCBs *	Arsenic + Barium *	Select Pesticides *	HCl	HNO3		H2SO4	-	-	-		
1-05	1100	MPT-TC-DPW07D				GW	G	3	3																
1-05	1140	MPT-AC-DPW01D				GW	G	1																	* See Attached
1-05	1240	MPT-TC-DPW02D				GW	G	3	3																Table for
1-05	1320	MPT-TC-DPW09I				GW	G	3	3																specific list.
1-05	1410	MPT-TC-DPW05F				GW	G	3	3																
1-05	1525	MPT-EP-DPW02I				GW	G	3	3																
1-05	1600	MPT-17-MW03s				GW	G	1																	
1-05	1045	MPT-AC-SW01				SW	G	1																	
1-05	1300	TSC00101				SO	C	3																	
1-05	1220	TSC00401				SO	C	2																	
		TB02237				QC	-	2	2																

1. RELINQUISHED BY <u>Charles Metz</u>	DATE <u>1-05-05</u>	TIME <u>1830</u>	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



Project Site Name: NS Mayport - SWMU 17 Sample ID No.: MPT-17-SS08B-01
 Project No.: N0123 Sample Location: SS08B
 Sampled By: Chuck Metz
 C.O.C. No.: 20905-02092005

Surface Soil (SS)
 Subsurface Soil (SU)
 Sediment (SD)
 Other: _____
 QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
<u>2-9-05</u>		<u>0.5-1</u>	<u>brown</u>	<u>fine silty sand</u>
Method: <u>Stainless Steel</u> <u>Hand Auger</u>				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	LAB
5 Select PAHs	(1) 8oz. Glass Jar	X	Accura
(1) Benzo(a)anthracene			
(2) Benzo(a)pyrene			
(3) Benzo(b)fluoranthene			
(4) Dibenzo(a,h)anthracene			
(5) Indeno(1,2,3-cd)pyrene			

OBSERVATIONS / NOTES:

XXXX = fence

MAP:

Bldg 1439

MPT-17-MC035

- MPT-17-SS08-01
- MPT-17-SS08A-01
- MPT-17-SS08B-01

288

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
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Project Site Name: NS Mayport - SWMU 17 Sample ID No.: MPT-17-SS08A-01
 Project No.: N0123 Sample Location: SS08A
 Sampled By: Chuck Metz
 C.O.C. No.: 209205 02092005

Surface Soil (SS)
 Subsurface Soil (SU)
 Sediment (SD)
 Other: _____
 QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

GRAB SAMPLE DATA:

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

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
2-9-05		0.5-1	brn	fine silty sand
Method: <i>Stainless Steel hand auger</i>				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	LAB
5 Select PAHs	(1) 8oz. Glass Jar	X	Accura
(1) Benzo(a)anthracene			
(2) Benzo(a)pyrene			
(3) Benzo(b)fluoranthene			
(4) Dibenzo(a,h)anthracene			
(5) Indeno(1,2,3-cd)pyrene			

OBSERVATIONS / NOTES: xxx = fence

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s): *Charles Metz*

ATTACHMENT 4
COST ESTIMATES

Naval Station (NS), Mayport
Mayport, FLORIDA
SWMU 17
AMENDED CORRECTIVE MEASURE ALTERNATIVE: LAND USE CONTROLS & SITE MONITORING
CAPITAL COSTS

Cost Item	Quantity	Unit	Unit Cost				Extended Cost				Subtotal	
			Subcontract	Material	Labor	Equipment	Subcontract	Material	Labor	Equipment		
1 PROJECT PLANNING												
1.1 Prepare Corrective Measures Implementation Plan												
Project Manager	8	hr			\$44.65			\$0	\$0	\$357	\$0	\$357
Staff Engineer	40	hr			\$34.33			\$0	\$0	\$1,373	\$0	\$1,373
Technical Staff	16	hr			\$25.31			\$0	\$0	\$405	\$0	\$405
Administrative Assistant	8	hr			\$19.77			\$0	\$0	\$158	\$0	\$158
ODCs (copying, shipping, telephone, etc.)	1	ls		\$200.00				\$0	\$200	\$0	\$0	\$200
1.2 Project Scheduling and Procurement												
Project Manager	4	hr			\$44.65			\$0	\$0	\$179	\$0	\$179
Administrative Assistant	6	hr			\$19.77			\$0	\$0	\$119	\$0	\$119
Subcontractor Administrative Assistant	6	hr			\$19.77			\$0	\$0	\$119	\$0	\$119
2 LAND USE CONTROLS												
2.1 Construction & Installation												
Crew and Equipment	8	hr	\$89.84					\$719	\$0	\$0	\$0	\$719
Land Use Control Signage	16	ea		\$19.79				\$0	\$317	\$0	\$0	\$317
2.2 Site Survey												
Crew and Equipment	8	hr	\$108					\$866	\$0	\$0	\$0	\$866
Site Survey Report	1	ls	\$500					\$500	\$0	\$0	\$0	\$500
2.3 Modify Master Plan	80	hours			\$34.33			\$0	\$0	\$2,746	\$0	\$2,746
Subtotal Direct Capital Costs less Subcontract									\$517	\$5,456	\$0	\$5,972
G & A on Labor Cost @ 10.16%										\$554		\$554
G & A on Material Cost @ 10.16%									\$52			\$52

Naval Station (NS), Mayport
Mayport, FLORIDA
SWMU 17
AMENDED CORRECTIVE MEASURE ALTERNATIVE: LAND USE CONTROLS & SITE MONITORING
CAPITAL COSTS

Cost Item	Quantity	Unit	Unit Cost				Extended Cost				Subtotal
			Subcontract	Material	Labor	Equipment	Subcontract	Material	Labor	Equipment	
Total Direct Capital Cost								\$569	\$6,010	\$0	\$6,579
Overhead on Total Direct Labor Cost @ 97.93%									\$5,886		\$5,886
Award Fee on Total Direct Cost @ 10%											\$658
Subtotal											\$13,123
Health & Safety Monitoring (including subcontractor cost) @ 3%											\$456
Health & Safety Training, Site-specific Training											\$456
Total Field Cost											\$14,035
Subtotal Subcontractor Cost								\$2,085			\$2,085
G & A on Subcontract Cost @ 1.6%								\$33			\$33
Award Fee on Subcontractor Cost @ 10%											\$208
Subcontractor Cost											\$2,327
Contingency on Total Field and Subcontractor Costs @ 10%											\$1,636
TOTAL Capital COST											\$17,998

Assumptions: No additional soil sampling would be performed. Land use controls would be implemented.