

US EPA ARCHIVE DOCUMENT

**ABBREVIATED SAMPLING PLAN
BATTELEFIELD GOLF CLUB SITE
TDD Nos.: E43-026-09-07-026 and E43-030-09-07-004
September 2, 2009**

Site Name: Battlefield Golf Club Fly Ash Site

Site Location: 1001 South Centerville Turnpike Chesapeake, VA

Site Activities: Surface Water, Sediment and Soil Sampling and Receipt of Split Groundwater Samples

EPA WAMs: Christine Wagner (026-09-07-026) and Donna Santiago (030-09-07-004)

Tetra Tech Project Manager: Donna Davies

Proposed Dates of Activities: September 8 through 11, 2009

OBJECTIVE OF SAMPLING: The Battlefield Golf Club Fly Ash site consists of an active golf course that was constructed over fly ash. The objective of this sampling event is to collect samples to determine if the fly ash placed on the property has impacted the surface water or underlying groundwater in the vicinity of the golf course. The samples will be submitted to a contract laboratory program (CLP) laboratory assigned by EPA Region 3's Analytical Services and Quality Assurance Branch (ASQAB) for target analyte list (TAL) metals analysis plus boron.

SURFACE WATER AND SEDIMENT SAMPLING: Tetra Tech will collect up to 15 (including one duplicate sample) surface water and 15 (including one duplicate sample) sediment samples during this sampling event. A surface water and collocated sediment sample will be collected from each pond located on the property. In addition, Tetra Tech will collect surface water and sediment samples from the surface water body that flows along the southern boundary of the property. The exact sampling locations will be determined during field activities. The surface water samples will be collected in accordance with Tetra Tech Standard Operating Procedure (SOP) No. 009, Revision No. 4, "Surface Water Sampling" June 2009 and the sediment samples will be collected in accordance with SOP No. 006, Revision No. 3, "Sludge and Sediment Sampling" January 2000.

Each surface water sample will be collected into one 1-liter certified-clean plastic container, which will be preserved with nitric acid immediately after collection. After collection of the surface water sample,

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a trowel will be used to collect the sediment from the sampling location. This sediment will be placed into a plastic mixing container and homogenized prior to placement into one 8-ounce glass jar.

SOIL BACKGROUND SAMPLING: Five soil samples, including one duplicate sample, will be collected from two sampling locations at the fire station that is located north of the golf course. These locations are outside the potential influence of the fly ash placed on the property. Analytical results from these sampling locations will be used to document the background metals concentrations in local soils. Tetra Tech will collect the soil samples in accordance with Tetra Tech SOP No. 005, "Soil Sampling" December 1999. From each of the two sampling locations, Tetra Tech will use a decontaminated hand auger to collect a sample from 0 to 6 inches bgs. The soil will be removed from the auger and transferred to a plastic mixing container for homogenization. After homogenization, Tetra Tech will place the soil into one 8-ounce glass jar for shipment to the laboratory. Tetra Tech will collect a second soil sample from the soil located 6 to 12 inches bgs from the same boring. The soil will also be homogenized in a plastic mixing container prior to placement into one 8-ounce glass jar.

GROUNDWATER SAMPLING: The City of Chesapeake's environmental consultant, Camp Dresser & McKee, Inc. (CDM) will be collecting groundwater samples from the 16 monitoring wells located on the property. Tetra Tech will be accepting split samples of the groundwater collected by CDM from these wells. Each split sample will be collected in one 1-liter plastic container and preserved with nitric acid immediately after collection.

SAMPLE HANDLING: Each sampling location will be determined using a global positioning system (GPS) device, photographed and recorded in the site logbook in accordance with Tetra Tech SOP No. 024, "Recording of Notes in Field Logbook," November 1999. The collected samples will be labeled, packaged, and shipped in accordance with Tetra Tech SOP No. 019, "Packaging and Shipping Samples" December 2000 to the assigned CLP laboratory. Chain-of-custody tracking will be provided by the EPA

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Forms-II Lite program. Table 1 summarizes the analytical parameters, methods, and detection limits for this sampling event.

TABLE 1 ANALYTICAL PARAMETERS						
NO.OF SAMPLES	ANALYSIS	ANALYTICAL METHOD	MATRIX	CONTAINER TYPE (per location)	PRESERVATIVE	QA / QC @ AND/OR DETECTION LIMIT NEEDED
15	TAL Metals plus Boron	CLP SOW ILM 05.4 ICPMS & Boron	Surface Water	(1) 1-liter plastic container	Nitric Acid pH <2 Ice	TAL metals - CRDL Boron -7 ppb
15	TAL Metals plus Boron	CLP SOW ILM 05.4 ICPAES & Boron	Sediment	(1) 8-ounce glass jar	Ice	TAL metals - CRDL Boron -5 ppm
5	TAL Metals plus Boron	CLP SOW ILM 05.4 ICPAES & Boron	Soil	(1) 8-ounce glass jar	Ice	TAL metals - CRDL Boron -5 ppm
19	TAL Metals plus Boron	CLP SOW ILM 05.4 ICPMS & Boron	Groundwater	(1) 1-liter plastic container	Nitric Acid pH <2 Ice	TAL metals - CRDL Boron -7 ppb
1	TAL Metals plus Boron	CLP SOW ILM 05.4 ICPMS & Boron	Aqueous (Rinsate Blank)	(1) 1-liter plastic container	Nitric Acid pH <2 Ice	TAL metals - CRDL Boron -7 ppb

Notes:

CLP = Contract Laboratory Program	ppb = parts per billion
CRDL = Contract-required detection limit	ppm = parts per million
ICPAES = Inductively coupled plasma atomic emission spectroscopy	SOW = Statement of Work
ILM = Inorganic low to medium	TAL = Target Analyte List

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QUALITY ASSURANCE/QUALITY CONTROL: Field quality assurance/quality control (QA/QC) measures will be applied in accordance with Tetra Tech’s “Quality Assurance Project Plan (QAPP) for START,” 2006. Field QC measures will consist of collecting matrix spike (MS) samples, field duplicate samples, and a rinsate blank. The MS samples will be used to measure the precision and accuracy of the laboratory analytical program. The field duplicate samples will be used to test the reproducibility of sampling procedures and results. The field rinsate blank sample will be used to verify the effectiveness of the decontamination procedures.

DECONTAMINATION USED: Dedicated, disposal sampling equipment such as personal protective equipment (PPE) used during this sampling event will be double-bagged and disposed of as dry, industrial waste. Non-dedicated equipment such as the hand auger and plastic mixing containers will be decontaminated in accordance with Tetra Tech SOP No. 002, “General Equipment Decontamination” December 1999. Decontamination will consist of a tap water and Liquinox wash, a de-ionized water rinse, and air drying.

DATA VALIDATION AND LABORATORY DELIVERABLES: All samples collected as part of the sampling event will be analyzed by a CLP laboratory. The CLP laboratories will generate all forms and deliverables required under the Statement of Work. Validation of all analytical data will be performed under the direction of the EPA Region 3 ASQAB in accordance with EPA Region 3 modifications to the EPA CLP national functional guidelines for data review (EPA 1994 and 1993). Specifically, the inorganic data will be validated at the IM2 level in accordance with the EPA Region 3 “Innovative Approaches to Data Validation” (EPA 1995). The IM2 data validation level is the highest validation level for inorganic data.

A 14-day verbal turn-around-time (TAT) will be requested for the analytical results. Validated data reports from the CLP laboratory are due 21 days after samples are received by the laboratory.