SOIL SAMPLING PLAN

CSX TRANSPORTATION, INC.
Wolf Coal Road Derailment
Breathitt County, KY

Submitted to:
Kentucky Department for Environmental Protection
Division of Waste Management – Superfund
Frankfort, Kentucky

Prepared for:
CSX Transportation, Inc.
Jacksonville, Florida

Submitted by:
Amec Foster Wheeler Environment & Infrastructure, Inc

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Amec Foster Wheeler
Project No. 3 -5100-1058

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) has developed this Soil Sampling Plan (SSP) for initial response soil sampling and excavation activities for the CSX Transportation, Inc. (CSXT) Wolf Coal Road Derailment Site located in Breathitt County, Kentucky **(Figure 1)**. This SSP presents the interim scope of work, specific methods, and procedures for soil sampling and excavation as shown on **Figure 2**.

2.0 INTERIM ACTION GOALS

The CSXT Wolf Coal Road Derailment involved the surface release of diesel fuel. This incident will be managed under the Kentucky Department for Environmental Protection (KDEP) guidance for surface petroleum releases of diesel fuel (DEP 7097C, September 2011). The constituents of concern under this guidance are polynuclear aromatic hydrocarbons (PAHs). The interim action goals for the initial response activities for soil and groundwater are summarized in **Table 1**, below.

Table 1: Interim Action Goals for PAHs in Soil and Groundwater

Constituent	Residential Soil[a] (mg/kg)	Groundwater[b] (µg/L)
Polynuclear Aromatic Hydrocarbons (PAHs)		
Acenaphthene	360	53
Acenaphthylene[c]	3,400	2,200
Anthracene	1,800	180
Benz(a)anthracene	0.16	0.2
Benzo(a)pyrene	0.016	0.2
Benzo(b)fluoranthene	0.16	0.2
Benzo(g,h,i)perylene[c]	1,700	1,100
Benzo(k)fluoranthene	1.6	0.2
Chrysene	16	0.2
Dibenz(a,h)anthracene	0.016	0.2
Fluoranthene	240	80
Fluorene	240	29
Indeno(1,2,3-cd)pyrene	0.16	0.2
Naphthalene	3.8	0.14
Phenanthrene[c]	3,400	2,200
Pyrene	180	12

[a] Pursuant to DEP 7097C, screening criteria for soil are the EPA Regional Screening Levels (RSLs).
[b] Pursuant to DEP 7097C, screening criteria for groundwater are 0.2 µg/L for carcinogenic PAHs, 0.14 µg/L for naphthalene, and the EPA tap water RSLs for noncarcinogenic PAHs.
[c] Screening criteria for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene determined by KDEP (DEP 7097C, September 2011).

Amec Foster Wheeler will analyze soil samples for PAH. Given the prevalence of PAHs in the region due to coal, Amec Foster Wheeler may also analyze soil samples for total petroleum hydrocarbons (TPH) during the interim remedial action.

3.0 SITE LOCATION AND DESCRIPTION OF RELEASE

At 0919 on Tuesday, January 26, 2016, Train W29126 was reported to have struck a rock slide causing two locomotives and eleven empty coal cars to derail near the Wolf Coal Road crossing south of Haddix in Breathitt County, Kentucky **(Figure 1)**. The subject site is located near the intersection of KY Highway 1110 and Wolf Coal Road in Breathitt County, Kentucky. The derailment site is on a slope along the North Fork of the Kentucky River, approximately 150 feet from the river bank. Diesel fuel from two overturned locomotives has been released to the ground surface downslope of the tracks, and has traveled to the river bank. Containment and recovery of diesel fuel from the river is on-going and actions are currently underway to remove the derailed rail cars to allow access for excavation of affected soils.

4.0 PRE-EXCAVATION ACTIVITIES

Prior to beginning excavation activities, stormwater controls will be implemented around the area of removal activities. Amec Foster Wheeler will evaluate the areas of excavation and assess if permit(s) are required based on the proximity to the surface water. A courtesy call will be made to the appropriate State and Local agencies prior to implementing field activities described in this SSP.

5.0 SOIL EXCAVATION

Once the release site is accessible by excavation equipment, soils with evidence of containing petroleum will be excavated and transported to a soil staging area located south of the derailment area on the river side of the tracks, see **Figure 2**. The staging area will be constructed by surficial clearing and grading to provide a level or near level area for staging soils prior to transport to an appropriate disposal facility. Soil berms will be constructed around the staging area to control surface run-on and run-off and silt fence will be placed around the perimeter. Booms will be placed around the perimeter as necessary for control of free liquids, and soils placed in the staging area will be covered with 8-mil plastic sheeting in the event of inclement weather.

Affected soils at the release site will be excavated based on visual observations of petroleum and use of a Photoionization Detector (PID) to screen for the presence of organic vapors. The soils with the most field evidence of containing petroleum will be removed first. Soils will be excavated horizontally and vertically, to the extent possible given physical restraints, to the point of little to no impact based on visual observations and PID readings. The excavation may be completed in stages, based on the amount of clearing required, the amount of free product encountered, need for interceptor trenches, etc. Upon completion of excavation and removal of obvious petroleum containing soil, confirmation sampling of the excavation will be performed as described below.

6.0 SAMPLE PROCEDURES AND ANALYSIS

Once sufficient soil has been removed based on field screening and observations. Amec Foster Wheeler will collect confirmation soil samples from the walls and floors of the excavations for laboratory analysis to determine the concentration of PAHs remain in the soil after the assessable material containing obvious petroleum is removed.

6.1 Post-Excavation Confirmation Sampling

Post-excavation confirmation soil samples will be collected from the walls and floors of the excavations using clean, disposable nitrile gloves. Each sample will be a composite of the vertical height of the excavation wall and center of the excavation floor. The confirmation samples will be collected for every 20 linear feet for the walls and every 400 square ft. of floor. Grab samples will be collected from the exposed surfaces of the excavations. The samples will be placed directly into laboratory supplied containers, labeled, and immediately placed in an iced cooler.

TestAmerica Laboratory will perform the soil analyses for PAHs using U.S. Environmental Protection Agency (EPA) SW-846 Method 8270C. TPH may also be run on select samples using U.S. EPA Method 8015. Sample containers will be prepared by TestAmerica Laboratory using EPA Methods and transported to the field. Once filled, sample container lids will be secured tightly. Sample labels will be filled out at the time of sampling and affixed to each container. At a minimum, the following information will be recorded with a waterproof marker on each sample label:

- Project name;
- Sample identification number;
- Date and time of collection;
- Sampler's initials;
- Sample preservatives (if applicable); and,
- Analysis to be performed on the sample.

After the containers for each sample are properly filled and labeled, the samples will be placed in an insulated cooler and preserved at 4°C with crushed ice. Each insulated cooler will be secured with a chain of custody seal and packaging tape, and transported to the lab for analysis.

Chain of custody documents will be maintained for all sample containers throughout the handling of the samples. The field personnel collecting the samples will maintain chain of custody records for samples collected during this event. Field personnel are responsible for documenting each sample transfer and maintaining custody of all samples until they are delivered to the laboratory. The required analyses for each sample will be indicated on the chain of custody.

6.2 Decontamination

Soil samples will be collected using disposable nitrile gloves eliminating the need for the decontamination of sampling equipment.

6.3 QA/QC Sampling

In order to determine accuracy in quantifying sample concentrations, the following quality assurance samples will be collected and analyzed:

Duplicates – One duplicate per 10 samples will be collected as follows: Alternately fill a regular sample container and an identical duplicate sample container until both are full. The duplicate sample will be analyzed for the same constituents as the regular sample.

Equipment Rinsate – If non-disposable sampling equipment is used, one equipment rinsate per 10 samples will be collected as follows: Pour ASTM, Type II and organic free water over and/or through all parts of the sampling device and collect the runoff in the required

container. The equipment rinsate sample will be analyzed for the same constituents as regular samples.

6.4 Data Validation

Amec Foster Wheeler personnel will perform a Level II validation of laboratory data in accordance with the EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Final, EPA-540-R-08-01, August 2014. This validation will be conducted for 100% of the post- excavation confirmation samples collected during soil removal activities.

7.0 WASTE MANAGEMENT

Excavated soil containing petroleum hydrocarbons will be direct loaded from the soil stockpile into gondola railcars suitable for storage and transportation of hazardous waste. Amec Foster Wheeler will collect a minimum of one composite sample per approximately every 100 tons of material. Each gondola railcar will hold approximately 100 tons. Therefore, grab samples will be collected from three individual excavator buckets during loading activities to form a composite for each gondola. Amec Foster Wheeler will have the composite samples analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and the eight Resource Conservation and Recovery Act (RCRA) metals. Upon completion of sampling, profiling, and receipt of CSXT and disposal facility approvals, the excavated material will be transported to the appropriate preapproved disposal facility.

Decontamination fluids and personnel protection equipment (PPE) will be contained in 55 gallon steel storage drums. This material will be properly characterized and transported under manifest to an appropriate disposal facility.

8.0 REPORTING

Amec Foster Wheeler will prepare an interim action report for submittal to KDEP to summarize field activities conducted in accordance with this SSP. The report will include post-excavation confirmation soil analytical data.

9.0 SCHEDULE

Amec Foster Wheeler will proceed with soil removal activities in accordance with this work plan after the permits, if needed, have been approved and notifications made to appropriate agencies. Amec Foster Wheeler anticipates implementation of this work plan will begin on 28 January 2016. Amec Foster Wheeler will notify KDEP on-site in advance of implementing field activities.

FIGURES

SITE LOCATION MAP

CSX Emergency Response

Breathitt County, KY

Location of Site

FIGURE 1

Legend

- Wells
- USGS Station
- Railroads
- Rivers
- Riverine (NWI)

0 650

Feet

N

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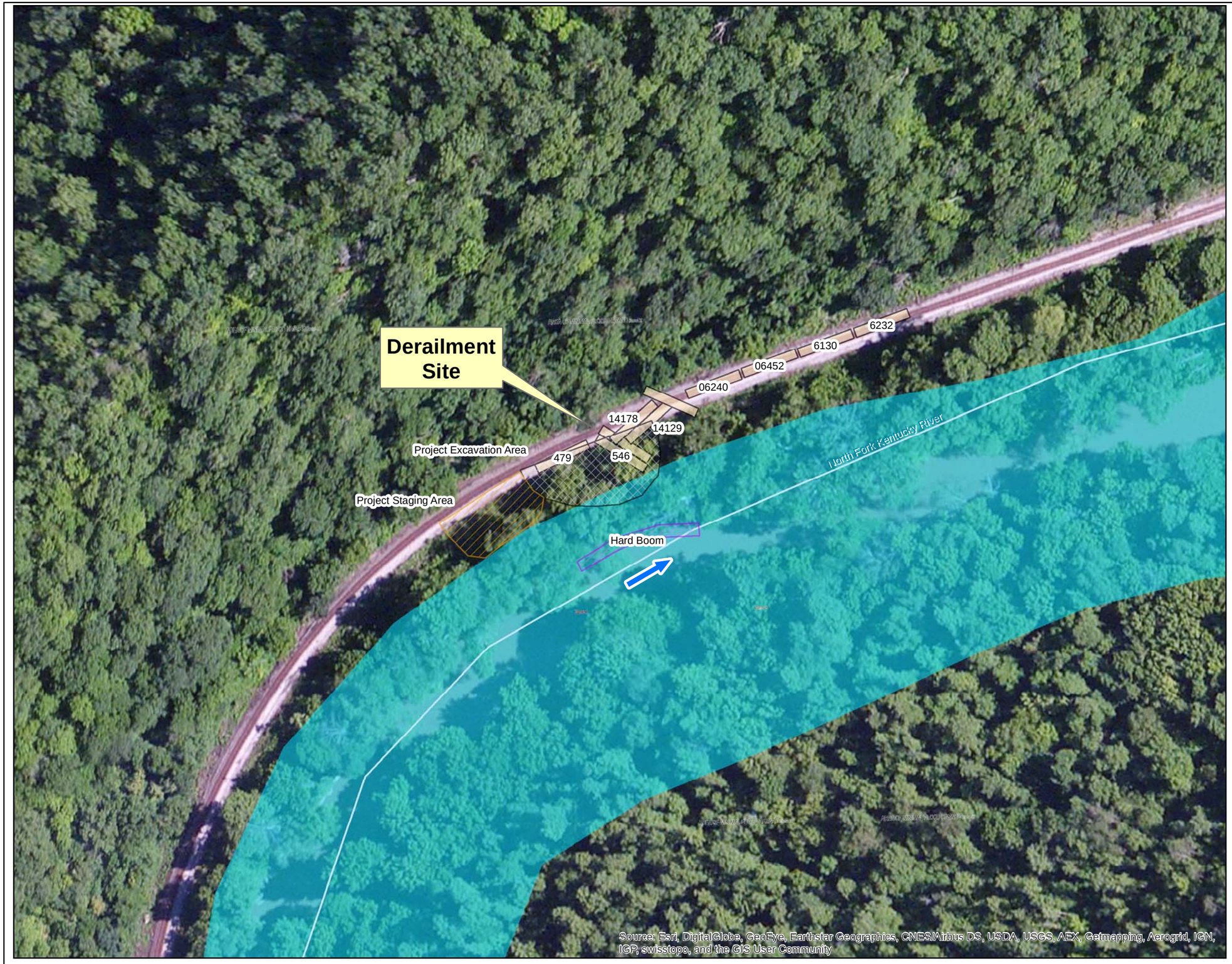
H:\CSX\Breathitt_County_KY\Task1\MXD\Fig1_Breathitt_County_KY.mxd January 26, 2016 DWN: andrew.nelson CHKD: AKN

Aerial Image by ESRI, 2012; Environmental Data Layers: KY Geography Network, various dates.



FLOOD ZONE MAP

CSX Emergency Response

Breathitt County, KY

Location of Site

FIGURE 1

Legend

Type

- Railroad Cars
- Hard Boom
- Project Excavation Area
- Project Staging Area
- Rivers
- River Flow Direction

0 100

Feet

N

amec foster wheeler

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Aerial Image by ESRI, 2012; Environmental Data Layers: KY Geography Network, various dates; Flood Zone Layer: FEMA, 2015.