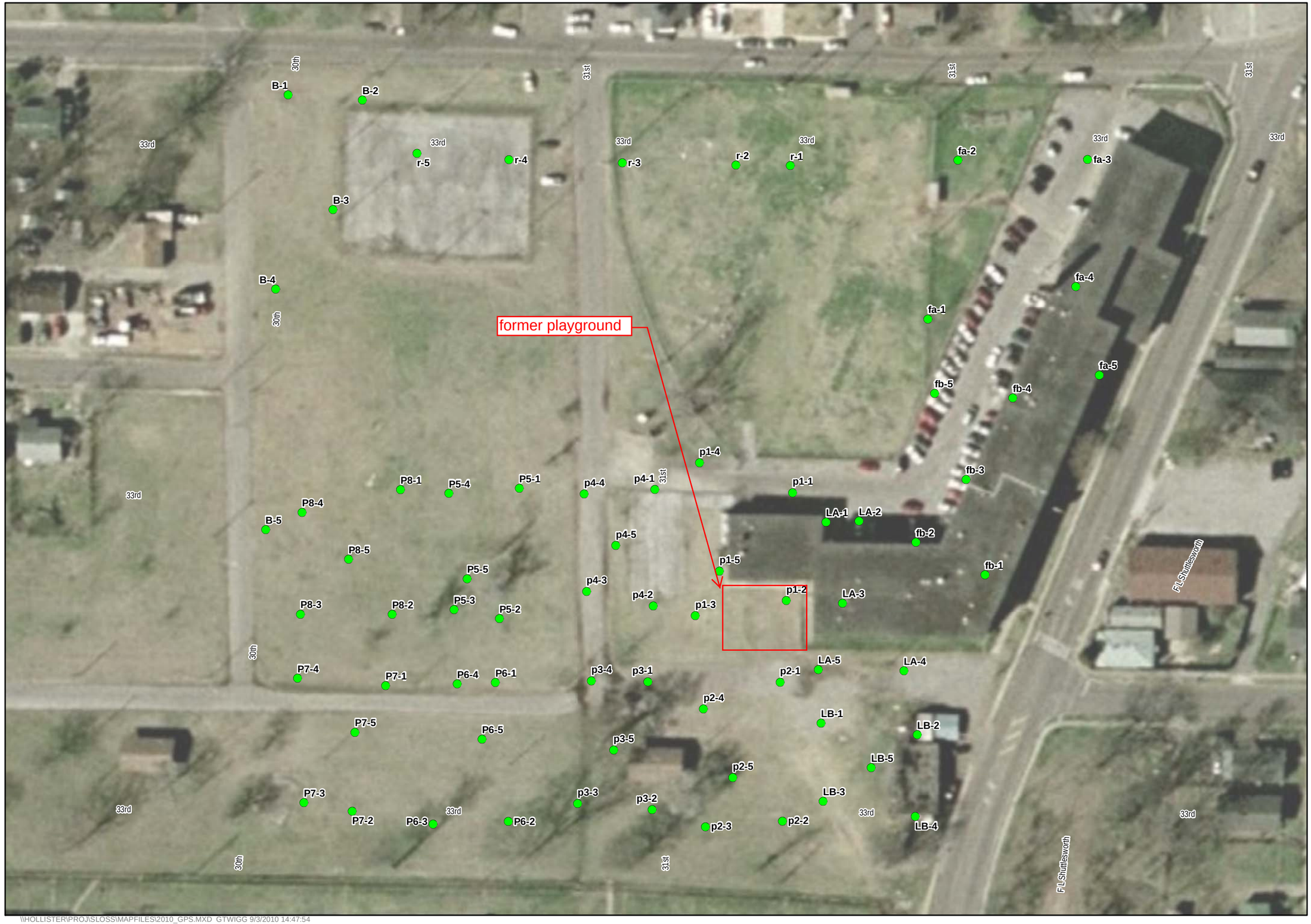

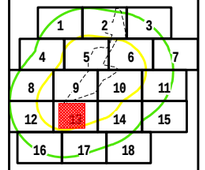

Legend

- GPS Location
- Site Boundary
- 1 Mile Radius
- 0.5 Mile Radius

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0 37.5 75

Feet

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2010 Surface Soil Sampling - Hudson School Walter Coke, Inc., Birmingham, AL

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DATE: September 28, 2010

This memorandum summarizes the field activities and results of a follow-up soil sampling event at the new Hudson School located within the Collegeville neighborhood adjacent to the Walter Coke, Inc. (Walter Coke), Birmingham, Alabama facility. The school property was initially sampled in 2009 as part of a residential sampling effort that Walter Coke completed in cooperation with EPA. Because the school was under construction at the time of the 2009 sampling and it was unknown whether the surface soil samples at that time represent current surface soil following property redevelopment, Walter Coke agreed to re-sample Hudson School.

This re-sampling effort was completed in accordance with the *Residential Sampling Work Plan* (CH2M HILL, March 2008; revised August 2008). The procedures for sample collection, preparation, chain-of-custody documentation, and shipping of the samples adhered to the *Field Branches Quality System and Technical Procedures* (EPA Region 4, November 2007). Sampling for arsenic was conducted using the *Superfund Lead-Contaminated Residential Sites Handbook* (EPA, 2003).

Field procedures and analytical results are summarized below, and will be incorporated into the final *Residential Sampling Report* pending resolution of EPA comments on the draft *Residential Sampling Report* (CH2M HILL, December 2009).

Field Procedures

Soil Sampling

On August 31 and September 1, 2010, surface soil samples were collected from 14 yards/areas on the new Hudson School property (Figure 1). As outlined in the work plan, the school property was divided into the 14 yards or subareas (each consisting of ¼ to ½ acre) based on similar use or similar visual appearance of the property. Several of the 2009 sample locations are now covered with asphalt, and were not accessible to be re-sampled during the 2010 event.

As was done in the 2009 sampling event, a 5-point composite soil sample was collected from each sizeable yard or subarea using a 5-on-dice composite pattern. To collect the discrete

sub-sample points that make up each composite sample, five sample locations were selected, taking into consideration the location of the school within the property boundary, physical barriers, presence of potentially pressure-treated lumber, roof drip lines, and other variables. The grass (if present) was lifted at each sub-sample location and a surface soil sample was collected from the 0- to 6-inch-depth interval using a stainless-steel scoop. Sufficient soil was collected to fill two 4-ounce (oz) glass jars plus a portion of the composite sample. The soil was placed into a dedicated stainless-steel bowl and thoroughly mixed. After the sub-sample jars were filled, one scoop from each sub-sample bowl was placed into a new stainless-steel bowl for the composite sample and the soils were mixed. The composite sample jars were then filled from the composited soil. Excess soil was returned to one or more of the sub-sample holes, which were additionally filled with top soil as needed. The grass was replaced on top of the sample location.

Before leaving the school, each discrete sub-sample location was surveyed using a Trimble Pro XRT global positioning system unit; each yard was also photographed. Table 1 lists the yards and sub-areas sampled and the quality assurance/quality control (QA/QC) samples collected during the sampling event.

Sample Handling and Analysis

After samples were collected, they were stored either in a refrigerator or iced cooler and shipped to Test America Laboratories, Mobile, Alabama, for sample analysis. Each composite sample was analyzed for arsenic (total) and sieved arsenic (250-micron mesh) by EPA SW-846 Method 6010B and for seven carcinogenic polycyclic aromatic hydrocarbons (cPAHs) using a low-level PAH method (EPA SW-846 Method 8270C).

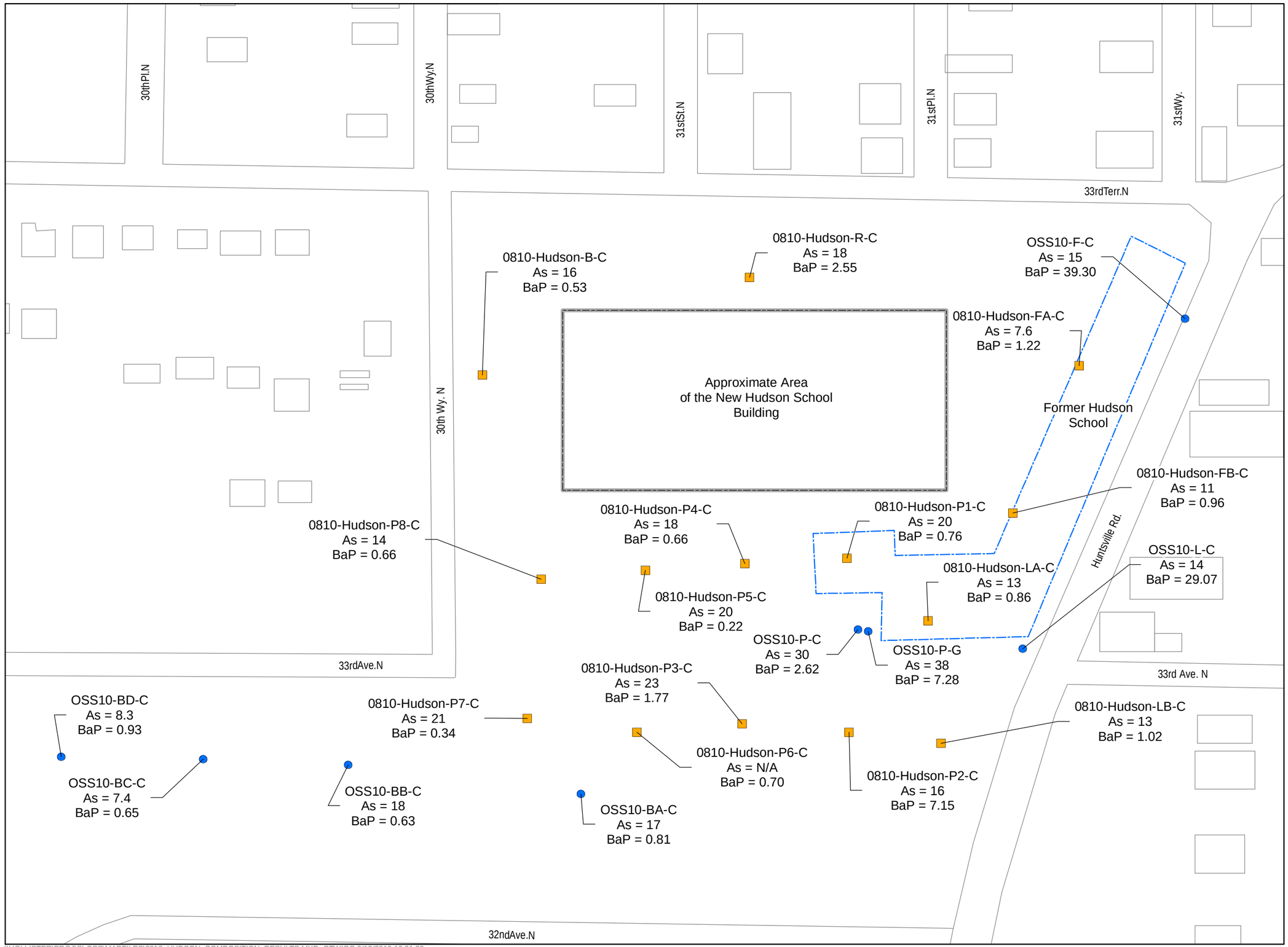
Summary of Analytical Results

Table 1 summarizes the reported concentrations of sieved arsenic and benzo(a)pyrene equivalents (BaP EQ) in the surface soil samples collected at the new Hudson School property in comparison to screening levels based on residential exposure. Complete laboratory reports that include both total and sieved arsenic and the individual cPAH compounds will be incorporated into the final *Residential Sampling Report*. The toxic equivalency factors used to calculate BaP EQ from the individual cPAH compounds are provided in Table 2.

Figure 1 shows the location of the former school, the approximate location of the new school, and the sample results for all samples collected on the property including the previous 2009 and recent 2010 sampling events.

As shown in Table 1 and Figure 1, the post-construction 2010 BaP EQ concentrations were above soil screening levels (1.5 mg/kg) for daily, long-term, residential exposure at three of the 14 sample locations, specifically locations R-C, P2-C, and P3-C. Arsenic did not exceed the short-term soil screening level (39 mg/kg) for daily residential exposure during the recent 2010 sampling event.

In comparison, BaP EQ concentrations detected in 2009 around the former Hudson School were considerably higher than those reported in 2010. Based on observations in the field during the 2009 sampling event, it is suspected that at least some of the soils located around the new school building, and perhaps elsewhere, were brought to the site by the contractor performing the work.



Legend

- 2010 Sample Location
- 2009 Sample Location
- Old Hudson School
- New Hudson School

Notes:
1. As = Arsenic (sieved)
2. BaP = Benzo(a)pyrene equivalents
3. All concentrations are reported in mg/kg.
4. mg/kg = milligrams per kilogram

N

0 50 100 Feet

Figure 1
Hudson School
Sampling Results

Walter Coke, Inc.
Birmingham, AL

CH2MHILL

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TABLE 1
Summary of Hudson School Sampling Results (August 31-September 1, 2010
Walter Coke Inc. - Birmingham, Alabama

Station ID	Seived Arsenic (mg/kg)	BaP Equivalents (mg/kg)
Screening Level	**39**	**1.5**
Front Yard		
0810-Hudson-FA-C	7.6	1.225
0810-Hudson-FB-C	11	0.970
Right Yard		
0810-Hudson-R-C	18	**2.559**
Back Yard		
0810-Hudson-B-C	16	0.537
Left Yard		
0810-Hudson-LA-C	13	0.863
0810-Hudson-LB-C	13	1.030
Playground		
0810-Hudson-P1-C	20	0.766
0810-Hudson-P2-C	16	**7.156**
0810-Hudson-P3-C	23	**1.776**
0810-Hudson-P4-C	18	0.668
0810-Hudson-P5-C	20	0.227
0810-Hudson-P6-C	18	0.707
0810-Hudson-P7-C	21	0.346
0810-Hudson-P8-C	14	0.666

Notes:
mg/kg = milligrams per kilogram

Benzo(a)pyrene Equivalents concentrations (BaP Equivalents) were calculated using Toxicity Equivalency Factor (TEF) methodology in accordance with EPA Region 4 Human Health Risk Assessment Bulletins (EPA Region 4, 2000).

Screening Levels – EPA Regional Screening Levels for Residential Soil based on excess life-time cancer risk of 1x10-4. (EPA, 05/2010)

Bold text indicates the sample exceeds the short-term action level for arsenic or long-term action level for cPAHs

cPAH = carcinogenic polycyclic aromatic hydrocarbons (refer to Table 2)

TABLE 2

Toxic Equivalency Factors Used to Calculate BaP Equivalents per Sample

Walter Coke Inc. - Birmingham, Alabama

Carcinogenic PAH	Toxic Equivalency Factor
Benzo[a]pyrene	1.0
Benzo[a]anthracene	0.1
Benzo[b]fluoranthene	0.1
Benzo[k]fluoranthene	0.01
Chrysene	0.001
Dibenz(a,h)anthracene	1.0
Indeno[1,2,3-cd]pyrene	0.1

Notes:

BaP = Benzo(a)pyrene

PAH = Polycyclic aromatic hydrocarbon

Toxicity Equivalency Factors (TEFs) were obtained from EPA Region 4 Human Health Risk Assessment Bulletins (EPA Region 4, 2000).