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Assessment of Soil-Gas Contamination at the 17th Street Landfill, Fort Gordon, Georgia, 2011

Open-File Report 2012–1127

U.S. Department of the Interior
U.S. Geological Survey

Cover photo shows grass-covered surface and the double silt fence along the eastern side of the landfill.
Photo by W. Fred Falls, USGS

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Conversion Factors and Datums

Multiply	By	To obtain
	Length	
inch (in.)	2.54	centimeter (cm)
inch (in.)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
acre	4,047	square meter (m^2)
acre	0.4047	hectare (ha)
acre	0.4047	square hectometer (hm^2)
acre	0.004047	square kilometer (km^2)

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83).

Soil-gas units

µg	microgram

Acronyms and Abbreviations

bdl	below detection level
BTEX	benzene, toluene, ethylbenzene, and xylene (total)
C_{11}, C_{13}, andC_{15}	undecane, tridecane, and pentadecane (total)
MDL	method detection level
MTBE	methyl *tert*-butyl ether
PAH	polycyclic aromatic hydrocarbon
PCE	perchloroethene (also known as perchloroethylene and tetrachloroethene)
SVOC	semivolatile organic compound
TCE	trichloroethene (also known as trichloroethylene)
TPH	total petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VOC	volatile organic compound

Assessment of Soil-Gas Contamination at the 17th Street Landfill, Fort Gordon, Georgia, 2011

By W. Fred Falls[1], Andral W. Caldwell[1], Wladmir G. Guimaraes[1], W. Hagan Ratliff[2], John B. Wellborn[3], and James E. Landmeyer[1]

Abstract

Assessments of contaminants in soil gas were conducted in two study areas at Fort Gordon, Georgia, in July and August of 2011 to supplement environmental contaminant data for previous studies at the 17th Street landfill. The two study areas include northern and eastern parts of the 17th Street landfill and the adjacent wooded areas to the north and east of the landfill. These study areas were chosen because of their close proximity to the surface water in Wilkerson Lake and McCoys Creek.

A total of 48 soil-gas samplers were deployed for the July 28 to August 3, 2011, assessment in the eastern study area. The assessment mostly identified detections of total petroleum hydrocarbons (TPH), and gasoline- and diesel-range compounds, but also identified the presence of chlorinated solvents in six samplers, chloroform in three samplers, 2-methyl naphthalene in one sampler, and trimethylbenzene in one sampler. The TPH masses exceeded 0.02 microgram (µg) in all 48 samplers and exceeded 0.9 µg in 24 samplers. Undecane, one of the three diesel-range compounds used to calculate the combined mass for diesel-range compounds, was detected in 17 samplers and is the second most commonly detected compound in the eastern study area, exceeded only by the number of TPH detections. Six samplers had detections of toluene, but other gasoline compounds were detected with toluene in three of the samplers, including detections of ethylbenzene, *meta*- and *para*-xylene, and octane. All detections of chlorinated organic compounds had soil-gas masses equal to or less than 0.08 µg, including three detections of trichloroethene, three detections of perchloroethene, three chloroform detections, one 1,4-dichlorobenzene detection, and one 1,1,2-trichloroethane detection. Three methylated compounds were detected in the eastern study area, but were detected at or below method detection levels.

A total of 32 soil-gas samplers were deployed for the August 11–24, 2011, assessment in the northern study area. All samplers in the survey had detections of TPH, but only eight of the samplers had detections of TPH greater than 0.9 µg. Four samplers had TPH detections greater than 9 µg; the only other fuel-related compounds detected in these four samplers included toluene in three of the samplers and undecane in the fourth sampler. Three samplers deployed along the western margin of the northern landfill had detections of both diesel- and gasoline-related compounds; however, the diesel-related compounds were detected at or below method detection levels. Seven samplers in the northern study area had detections of chlorinated compounds, including three perchloroethene detections, three chloroform detections, and one 1,4-dichlorobenzene detection. One sampler on the western margin of the landfill had detections of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenene below method detection levels.

Introduction

Fort Gordon is a U.S. Department of the Army facility located in east-central Georgia, approximately 10 miles southwest of Augusta, Georgia (fig. 1). A cantonment (military housing) area is located in the northeastern part of Fort Gordon. Several areas at Fort Gordon have been used for the disposal of waste related to the operation of the fort, including the 17th Street landfill (also known as Solid Waste Management Unit 24) near the southwestern part of the cantonment area (Ecology and Environment, Inc., 1995). Organic compounds have been detected during previous investigations in water samples from the five groundwater-monitoring wells on the slope between the 17th Street landfill and McCoys Creek (fig. 2). A previous soil-gas assessment completed in 2010, which was conducted on the wooded slope to the east of the 17th Street landfill in an area known as the McCoys Creek chemical training area, reported total petroleum hydrocarbons and gasoline compounds as the most frequently detected volatile organic compounds in the soil gas (Guimaraes and others, 2011).

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[2]Environmental Branch, Fort Gordon, Georgia.

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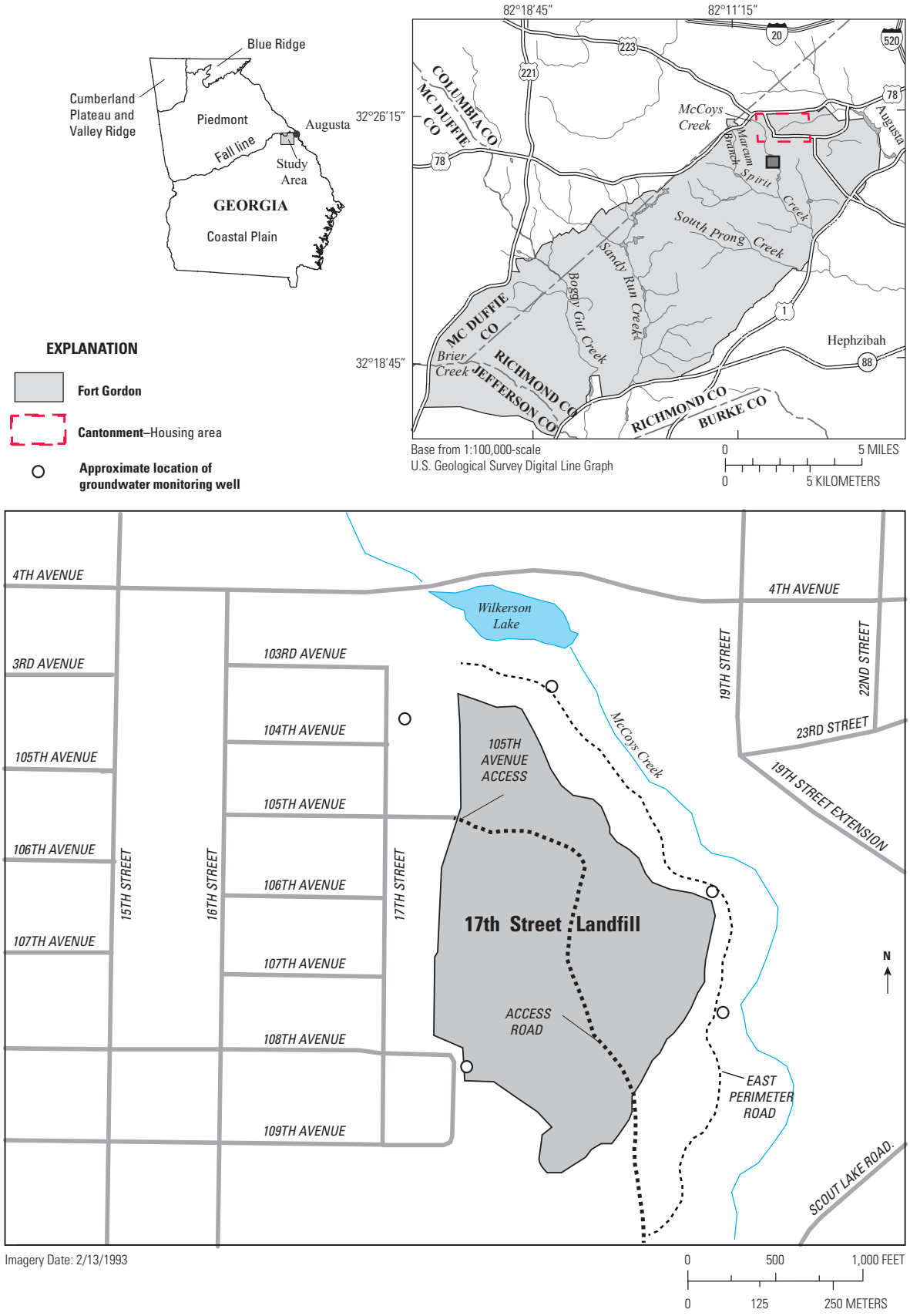

Figure 1. Locations of Fort Gordon, the 17th Street landfill, the former (prior to 2007) 105th Avenue access to the landfill, and groundwater-monitoring wells, Richmond County, Georgia, 2011.

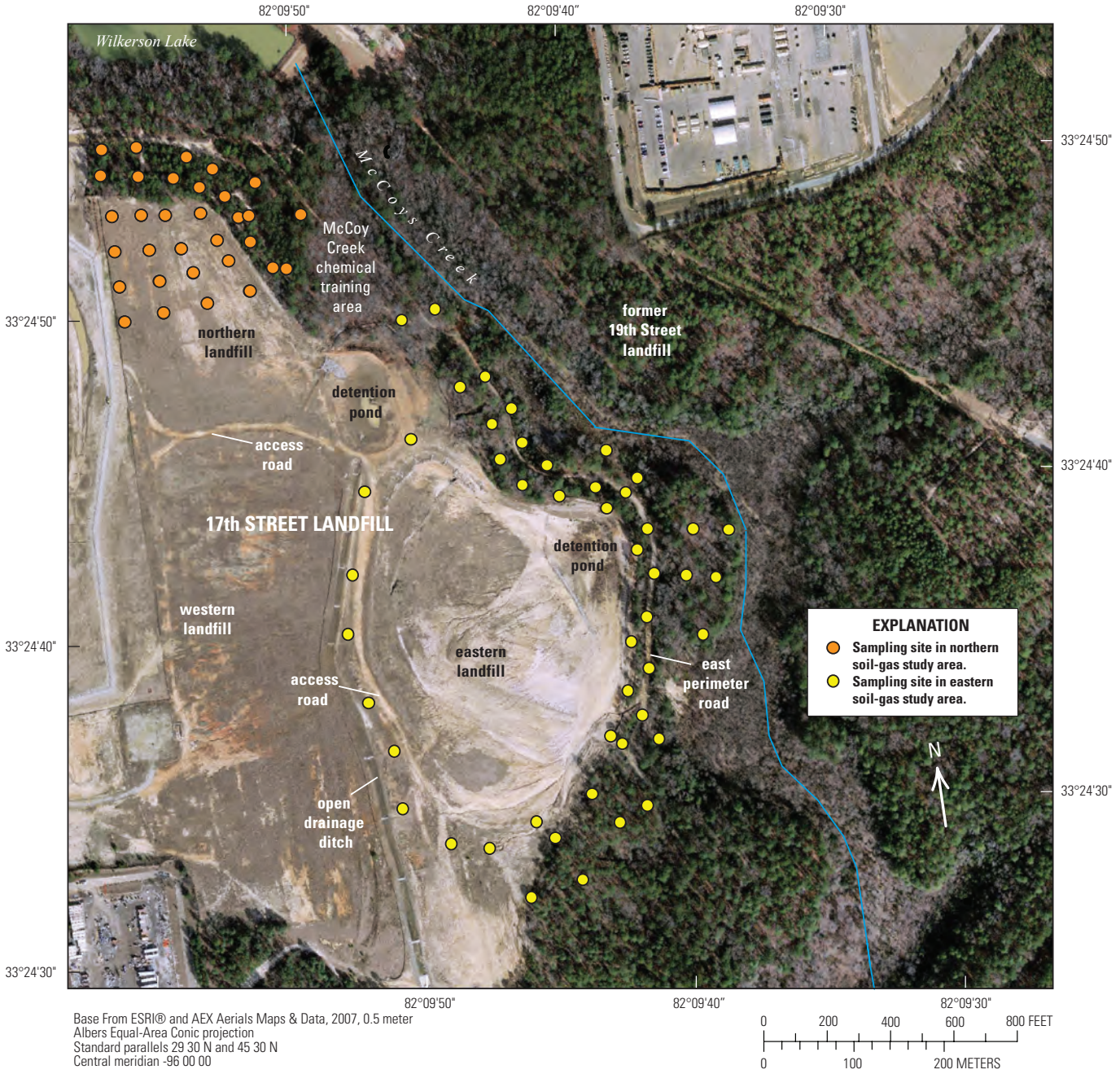

Figure 2. Approximate locations of soil-gas sampling sites in the northern and eastern study areas at 17th Street landfill, Fort Gordon, Richmond County, Georgia, 2011.

In 2011, soil-gas assessments were conducted in two study areas at the 17th Street landfill to provide screening-level environmental contamination data to Fort Gordon personnel to supplement the data collected during previous environmental studies at the landfill (fig. 2). These study areas were chosen because they are parts of the landfill and adjacent woodland in close proximity to the surface water in Wilkerson Lake and McCoys Creek (fig. 1).

The passive soil-gas approach was chosen for the two site assessments at 17th Street landfill because the approach is a more time, labor, and cost efficient for the rapid collection of environmental data for specific organic contaminants, relative to the installation, development, and sampling of monitoring wells (fig. 2). The two soil-gas assessments at the 17th Street landfill provide organic contaminant results for a broad coverage with 80 sampling sites at 17th Street landfill, relative to the five monitoring wells installed and sampled by previous studies in the study area. The screen-level data for soil-gas assessments, however, are semiquantitative, but are considered a good estimate of actual contaminant mass in soil gas (U.S. Environmental Protection Agency, 1998).

The two investigations that assessed potential environmental effects were warranted, because the 17th Street landfill is located in the outcrop area of the Dublin and Midville aquifer systems, which are water-supply sources of drinking water wells in the nearby towns of Augusta and Hephzibah (Williams, 2007; fig. 1). The assessments are further warranted, because the 17th Street landfill is located adjacent to McCoys Creek, wherein contaminants in groundwater, surface water, and eroded soil derived from the landfill could affect the local ecology and water quality of McCoys Creek and potentially be transported from Fort Gordon into the regional surface-water drainage system.

Purpose and Scope

The U.S. Geological Survey, in cooperation with the U.S. Department of the Army Environmental and Natural Resources Management Office of the U.S. Army Signal Center and Fort Gordon, Georgia, assessed the presence of volatile and semivolatile organic compounds (VOCs, SVOCs), and polycyclic aromatic hydrocarbons (PAHs) in soil gas of the shallow subsurface in two separate study areas at the 17th Street landfill in July and August 2011 (fig. 2). The two study areas include northern and eastern parts of the 17th Street landfill and the adjacent wooded areas to the north and east of the landfill. These areas were chosen because of their close proximity to the surface water in Wilkerson Lake and McCoys Creek.

This report provides analytical results for the soil-gas samples and maps showing the locations of the most commonly detected contaminants identified in the two study areas. This report also provides maps showing the locations of two less commonly detected chlorinated solvents.

Description of the Study Area

Fort Gordon is located south of the Fall Line in the northern part of the Coastal Plain Physiographic Province near Augusta, Georgia (fig. 1). Fort Gordon is underlain by Cretaceous and Tertiary geologic strata and is characterized by surficial soils and sediments of unconsolidated sands and semiconsolidated sandstones, and layers of clay that include kaolinite (Hetrick, 1992; Gregory and others, 2001).

Average annual precipitation (1942 to 2011) in the Fort Gordon/Augusta, Georgia, area is approximately 43 inches (in.) (Southeast Regional Climate Center website accessed February 17, 2012, for Augusta WSO Airport, Georgia station 090495, *http://www.sercc.com/*). With the porous sandy soil, hilly topography, and abundance of rain in the study area, perennial creeks and streams received an ample supply of year-round groundwater discharge to maintain streamflow (Faye and Mayer, 1990; Atkins and others, 1996). Flow was always observed in the segment of McCoys Creek below Wilkerson Lake adjacent to the 17th Street landfill during summer and fall site visits, even with the lower than normal annual precipitations in 2010 and 2011 of 28.6 and 28.2 in., respectively.

17th Street Landfill

The 17th Street landfill is an approximately 50-acre site located south of 4th Avenue between 17th Street and McCoys Creek (fig. 1). The landfill, opened in 1964 and closed in 1987, is unlined and was used as a disposal area for sanitary refuse, construction and demolition debris, solvents, paints, plastics, and infectious waste (Ecology and Environment, Inc., 1995). The landfill was accessible by way of 105th Avenue prior to 2007, but is now (2012) accessed from the south by way of an unpaved road (figs. 1, 2).

In this report, the 17th Street landfill is informally divided into the 20-acre eastern, 20-acre western, and 10-acre northern landfills (fig. 2). An open drainage ditch delineates the boundary between the eastern and western landfills. An east-west segment of the unpaved access road, which was an extension of the original 105th Avenue access road, delineates the boundary between the northern landfill and the two other landfills.

All three landfills are, for the most part, grass covered, in contrast to the moderately to heavily wooded areas outside the northern, eastern and southeastern boundaries of the 17th Street landfill (figs. 2; 3*A*, *B*, *C*). The eastern landfill has a gently rolling land surface that generally slopes toward a 1.6-acre detention pond along the eastern boundary of the landfill (figs. 3*A*, *D*). The eastern landfill has two parallel silt fences along the full length of its eastern boundary that were installed to impede soil erosion from the landfill to the wooded McCoys Creek valley (fig. 3*A*). The northern and western landfills are flatter than the eastern landfill (figs. 2 and 3*B*). Stormwater runoff from the western landfill drains to the east and is

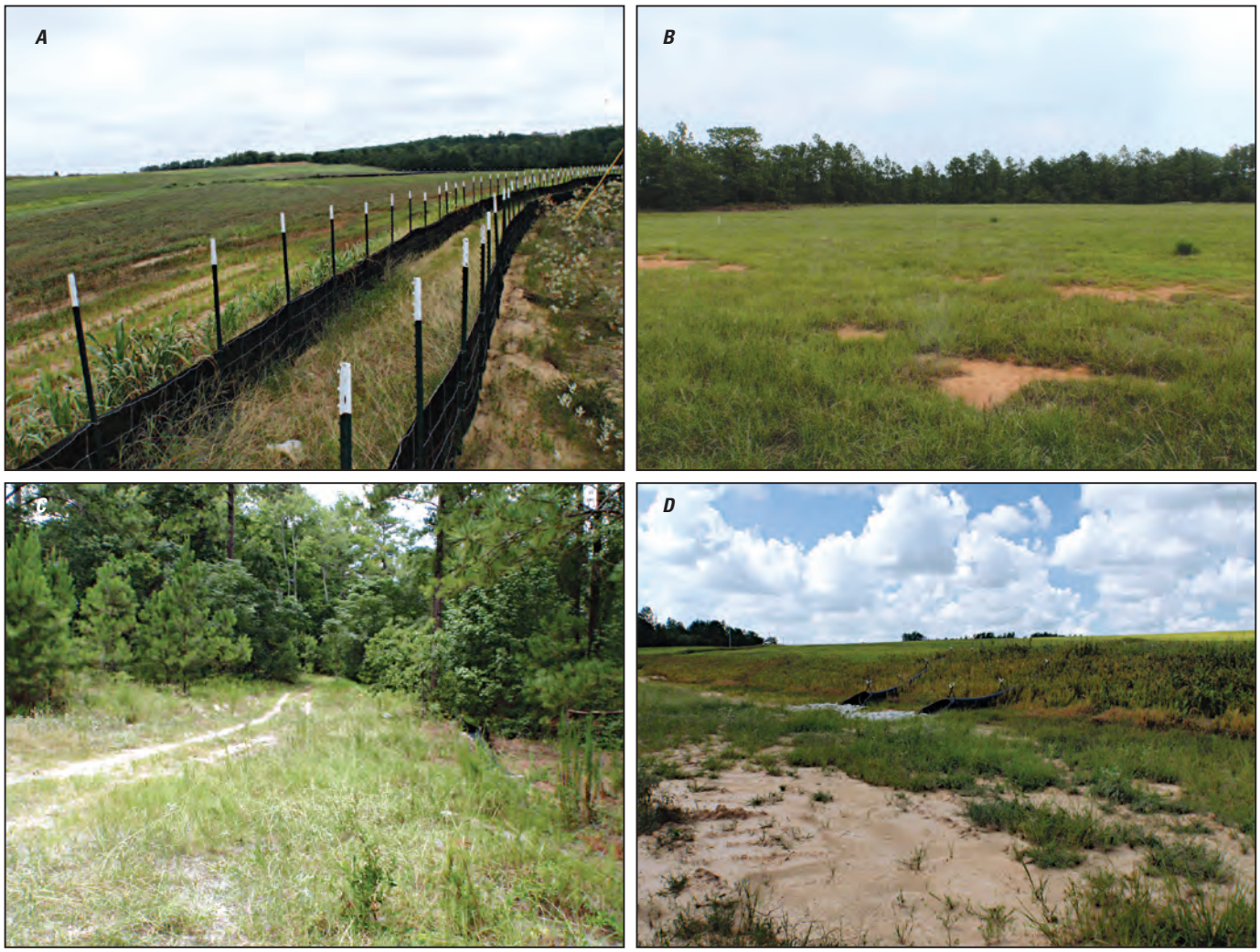

Figure 3. The 17th Street landfill showing: *A*, the gently rolling, grass-covered land surface and silt fences along the eastern margin of the eastern landfill area; *B*, the flat, grass-covered land surface in the northern landfill; *C*, the perimeter road between McCoys Creek and the wooded slope on the eastern side of the landfill; and *D*, the detention pond in the eastern landfill, Fort Gordon, Richmond County, Georgia, 2011.

intercepted by an open drainage ditch where it is diverted to either the 1.6-acre detention pond in the southeastern corner of the northern landfill or to a 1.3-acre detention pond at the southern end of the open drainage ditch. Stormwater runoff from the northern landfill drains to the 1.6-acre detention pond in the southeastern corner of the northern landfill.

The wooded land between the 17th Street landfill and McCoys Creek/Wilkerson Lake is accessible by way of an unpaved road, designated the east perimeter road in figures 1 and 2. Land surface between the boundary of the landfill and the east perimeter road is steep, compared with the generally flatter land surface between the perimeter road and McCoy Creek (fig. 3*C*)

Eastern and Northern Soil-Gas Study Areas

Passive soil-gas samplers were deployed in two study areas to assess the presence of VOCs and SVOCs inside and outside the 17th Street landfill in close proximity to McCoys Creek and Wilkerson Lake (fig. 2). The study areas are designated the eastern and northern study areas. Each study area included a part of the 17th Street landfill and an adjacent part of the wooded land outside the landfill in the McCoy Creek/Wilkerson Lake valley.

The 48 soil-gas samplers deployed in the eastern study area included 38 samplers deployed along the eastern boundary of the eastern landfill and in the woodlands to the east of the eastern landfill. The other 10 soil-gas samplers also were deployed along the southern and western edges of the eastern landfill.

The 32 soil-gas samplers deployed in the northern study area consisted of a grid of 16 samplers in approximately the northern half of the northern landfill and 16 samplers on the wooded slope to the north and east of the landfill. The six southernmost soil-gas samplers on the wooded slope to the east of the landfill were deployed in the northwestern part of the McCoys Creek chemical training area.

Methods

Soil-gas sampling is a semiquantitative approach for a rapid environmental assessment of the presence of particular organic compounds in a study area, relative to the time- and labor-intensive approach of installing, developing, and sampling monitoring wells. The results do not, however, reveal if the detection was derived from contaminants as nonaqueous-phase liquids (free product), residual-phase compounds adsorbed on soil particles, vapors in the unsaturated zone, or the dissolved compound in shallow and deep groundwater (unless the passive soil-gas sampler is deployed in direct contact with water). In unsaturated soil, higher soil-gas mass in a sampler tends to be related to the presence of residual compounds or free product that is close to the land surface where the soil-gas sampler is located. If such source material is located at greater depths, however, the soil-gas mass generally will be lower. A lower value near known sources may be due to various attenuation processes that affect the soil-gas mass prior to detection. In both cases, however, the passive soil-gas samplers help to indicate the presence or absence of contaminants.

Sample collection for the two soil-gas assessments was conducted at the 17th Street landfill by using the GORE™ passive soil-gas sampler, a commercially available soil-gas sampler based on GORE-TEX™ membrane technology (U.S. Environmental Protection Agency, 1998; W.L. Gore & Associates, Inc., 2004). Prior to the assessments, the passive soil-gas approach was approved for use at sites on Fort Gordon by the Hazardous Waste Management Branch, Georgia Environmental Protection Department (William Powell, P.E., Environmental Engineer, Department of Defense Remediation Unit, oral commun., December 10, 2008). The soil-gas sampler consists of proprietary adsorbent medium that is wrapped in a GORE-TEX™ membrane (fig. 4*A*). The proprietary medium can adsorb a wide variety of VOCs, SVOCs, and PAHs.

All soil-gas samplers were deployed in the unsaturated zone of the soil in the northern and eastern study areas at the 17th Street landfill during July and August 2011. The samplers were collected for assessments of VOCs, SVOC, and PAHs in the soil gas of the landfill and the adjacent McCoys Creek/Wilkerson Lake valley. The adsorption of contaminants on the sampler is dependent on the duration of exposure to soil gas in the soil; so the best application of the soil-gas approach is to deploy all samplers in a study area during the same time period.

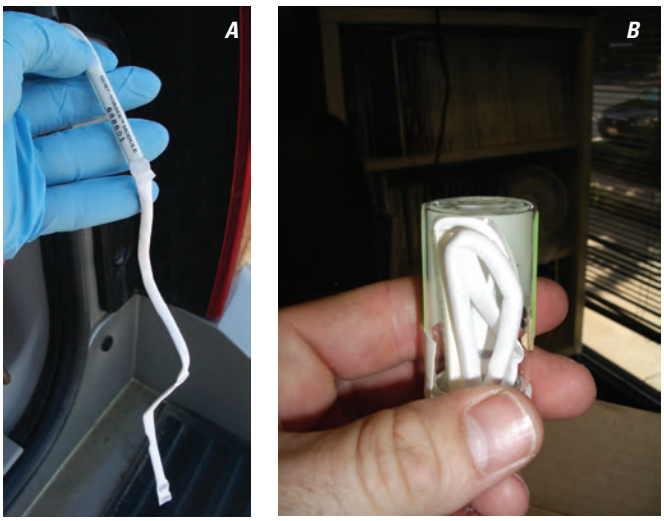

Figure 4. Soil-gas sampler *A*, prior to installation and *B*, in air-tight vial as received from the laboratory and shipped to the laboratory for analysis.

In the eastern study area, sample sites for the soil-gas sampler were created with a stainless steel bit attached to a cordless drill (fig. 5). The bit was used to drill a 0.5-in-diameter vertical borehole in the soil at a depth of 15 in. A string was attached to a cork plug at one end and the passive soil-gas sampler at the other end, and was used to lower and suspend the sampler in the borehole. The cork plug was used to seal the borehole at land surface to prevent surface water and ambient land-surface material from entering the borehole. The depth of 15 in. is similar to the depth recommended by the U.S. Environmental Protection Agency (USEPA) for soil-gas investigations (U.S. Environmental Protection Agency, 1998). All soil-gas samplers in the eastern study area were deployed on July 28 and recovered on August 3, 2011, after 6 days (144 hours) of exposure to the soil gas.

In the northern study area, sample sites for the soil-gas samplers were created in the sandy soil of the wooded slope to the east and north of the landfill with a stainless steel bit attached to a cordless drill (fig. 5). Sample sites were created in the hard-packed soil of the northern landfill with a 1-in-diameter stainless steel ship-auger bit attached to a generator-powered drill. The vertical boreholes on the wooded slope and in the grass-covered landfill had diameters of 0.5 in. and 1 in. respectively, and were drilled to a depth of approximately 15 in. All samplers in the northern study area were deployed on August 19 and recovered on August 24, 2011, after 5 days (120 hours) of exposure to the shallow soil gas.

Each soil-gas sampler was recovered in the field, was placed in its original 20-milliliter (mL) air-tight vial (fig. 4*B*), and sent to a commercial laboratory (W.L. Gore & Associates, Inc.) for analysis. Some of the samplers were kept in the air-tight vials during the deployment and recovery of environmental samplers, and were shipped back to the laboratory with the environmental samplers as trip blanks.

Figure 5. Installation of a soil-gas sampler, including: *A*, drilling a borehole in the soil with a stainless steel drill bit attached to a cordless drill; *B*, attaching one end of a string to a sampler and the other end to a cork plug; *C*, inserting the sampler into the borehole; and *D*, sealing the borehole with the cork plug to keep out surface contaminants.

Soil-gas samplers were analyzed by USEPA-verified technologies at the W.L .Gore & Associates Laboratory in Elkton, Maryland, in September 2011 (U.S. Environmental Protection Agency, 1998; W.L. Gore & Associates, Inc., 2004; American Society for Testing and Materials, 2006; table 1, at end of report). All samplers were processed and analyzed at the laboratory by using a modification of USEPA method 8260/8270 (U.S. Environmental Protection Agency, 2006). Prior to analysis, each sampler was processed in an automated thermal desorption unit to produce a VOC/SVOC gas sample. The gas sample was analyzed by a gas chromatograph equipped with mass-selective detectors. The laboratory analyzed a method blank of contaminant-free gas after every set of 30 environmental samplers and trip blanks for quality assurance and was in compliance with good laboratory practices and ISO Guide 25 (International Organization for Standardization, 1990). Results are expressed as mass (micrograms, μg) for all passive soil-gas samplers.

The laboratory results provided screening-level data for the assessment of 31 organic compounds. In addition, results of individual compounds were summed to calculate values for gasoline-range aliphatic compounds such as benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX); diesel-range aliphatic compounds such as undecane, tridecane, and pentadecane (collectively referred to as C_{11}, C_{13}, and C_{15}); 1,2,4- and 1,3,5-trimethylbenzene as trimethylbenzene; trans- and cis-1,2-dichloroethene as 1,2-dichlorothene; and naphthalene and 2-methyl naphthalene. The laboratory provided method detection levels (MDL) for each of the 31 organic compounds, but does not provide MDLs for the five combined masses, because individual compounds in the combined mass may have more than one MDL. A combined mass is considered estimated (E) if the measureable mass for at least one of the individual compounds is summed with a mass reported as below detection level for at least one of the other individual compounds in the combined mass. A value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if none of the individual compounds summed in the combined mass were detected above MDLs and at least one of the individual compounds was reported as below detection level. Total petroleum hydrocarbons (TPH) is one of the 31 organic analytes reported by the laboratory and is a laboratory-derived estimate based on the area under the chromatogram for all aliphatic hydrocarbons, including all gasoline-range (C_4 to C_{10}) and diesel-range (C_{10} to C_{20}) compounds.

Results

The results are discussed separately for each of the two study areas because the deployment conditions in the northern study area potentially were not the same as in the eastern study area. The samplers in the northern study area were deployed for 1 day less than those deployed in the eastern study area and were deployed 16 days after the eastern study area samplers were recovered (table 1). Therefore, this section describes the results for quality-assurance and quality-control samplers, environmental samplers 667448 to 667495 as the eastern study area assessment, and environmental samplers 667500 to 667512 and 667519 to 667537 as the northern study area assessment (tables 2, 3, 4, at end of report).

Quality Assurance and Quality Control

Results for the method and trip blanks were used to select the mass detection ranges plotted in figures 6–13 (table 2). The method blank results apply to both assessments, because the trip-blank and environmental samplers were not segregated by study area during the laboratory analysis period from September 9 to 13, 2011 (table 1). Trip blanks and MDLs also were considered in the selection of mass detection ranges in figures 6–13.

All masses and combined masses for organic compounds were reported as nondetects (nd) in each of the four method detection blanks, except for one TPH mass of 0.09 µg and one TPH mass reported as below the MDL of 0.02 µg for TPH (table 2). The TPH mass of 0.09 µg in the method blank analyzed on September 9, 2011, exceeded the largest TPH masses detected in the trip blanks, which included 0.02 µg in trip blank 667496 from the eastern study area and 0.05 µg in trip blank 667540 from the northern study areas (table 2). Therefore, the lowest mass detection range chosen for TPH in the explanations on figures 6 and 10 is for detections with masses of less than 0.9 µg. The value of 0.9 µg was calculated by multiplying the highest TPH mass detected in the blanks (0.09 µg) by 10 (one order of magnitude). A TPH mass of 0.9 µg or greater is presumed to represent a detection of an environmental TPH source with little or no effects from other contaminant TPH sources. An environmental sampler with a TPH mass of less than 0.9 µg has a greater likelihood of representing the effect of TPH sources other than an environmental source in the study area.

Excluding the TPH detections in the trip blanks, all masses and combined masses for organic compounds in the eight trip blanks are reported as nondetects, except for the detection of toluene with a mass of 0.02 µg in trip blanks 667497 for the eastern study area (table 2). The combined mass for BTEX includes toluene, so BTEX also is reported as 0.02 µg in trip blank 667497. Therefore, the lowest mass detection range chosen for BTEX in the eastern study area is for detections less than 0.2 µg (one order of magnitude greater than the detection reported in the trip blank). The lowest mass detection range chosen for BTEX in the northern study area also is for detections less than 0.2 µg, because other organic compounds used to calculate BTEX mass, including ethylbenzene and *meta*- and *para*-xylene, have MDLs of 0.02 µg.

Eastern Study Area

A total of 48 soil-gas samplers were deployed from July 28 to August 3, 2011, in the eastern study area (fig. 2). The survey mostly identified detections of TPH, and gasoline- and diesel-range compounds, but also identified the presence of TCE, PCE, chloroform, 2-methyl naphthalene, and trimethylbenzene (table 3).

TPH masses exceeded the MDL of 0.02 µg in all 48 samplers and exceeded 0.9 µg in 24 samplers, including 5 of the 10 samplers deployed along the southern and western edges of the eastern landfill (fig. 6). TPH mass exceeded 9 µg in three samplers deployed east of the perimeter road near McCoys Creek (72.11 µg in sampler 667484; 9.31 µg in sampler 667485; 11.70 µg in sampler 667486) and two samplers deployed high on the wooded slope near the eastern margin of the landfill (75.09 µg in sampler 667476; 17.50 µg in sampler 667477). Almost 70 percent of the TPH mass in sampler 667476 consists of diesel-related compounds, including the highest detections of undecane, tridecane, and pentadecane in the eastern study area; no other specific compounds were detected in this sampler (table 3). Less than 1 percent of the TPH mass in sampler 667484 consists of gasoline-related compounds, which included the highest detections of toluene in the eastern study area; but no other fuel-related compounds were identified except for *meta*- and *para*-xylene.

All six samplers with BTEX detections had detections of toluene, but other BTEX compounds were detected with toluene in three of the samplers (fig. 7, table 3). The BTEX detections exceeding 0.2 µg had BTEX soil-gas masses of 0.55 µg in sampler 667484 near the bank of McCoys Creek and 0.27 µg in sampler 667463 near the access road along the western side of the eastern landfill. Toluene did not exceed a mass of 0.2 µg in sampler 667463, but it included an ethylbenzene detection of 0.18 µg that resulted in a BTEX mass greater than 0.2 µg. Toluene was the only BTEX compound detected in samplers 667448, 667459, and 667473 and had soil-gas masses ranging from 0.02 to 0.12 µg for toluene. Other BTEX compounds identified with toluene in the eastern study area included detections of ethylbenzene (0.06 µg) and *meta*- and *para*-xylene (bdl) in sampler 667471, and a detection of *meta*- and *para*-xylene (0.05 µg) in sampler 667484 (table 3). Octane, a gasoline-related compound not included in the calculation of BTEX, also was detected in the eastern study area in two samplers (667463 and 667471) with BTEX and one sampler (667488) without BTEX.

Diesel-range organic compounds were detected in 17 samplers, including two samplers on the western side of the eastern landfill and 15 samplers in the wooded area between the eastern margin of the landfill and McCoys Creek (fig. 8). Diesel-range compounds exceeded a soil-gas mass of 1 µg in samplers 667476 (52.13 µg) and 667478 (3.91 µg) which are deployed high on the wooded slope near the eastern margin of the eastern landfill. Undecane, one of the three diesel-related compounds used by the laboratory to calculate the combined mass reported as diesel, was detected in all 17 samplers and is the second most commonly detected analyte in the eastern study area, exceeded only by the number of TPH detections. Other diesel-range compounds detected in the 17 samplers included tridecane detections in seven samplers and pentadecane detections in two samplers.

All detections of chlorinated organic compounds had soil-gas masses equal to or less than 0.08 µg and were detected in only 8 of the 48 samplers in the eastern study area (table 3). The three detections of TCE and the three detections of PCE consisted of detections along the southern margin of the landfill and in the wooded area to the east and north of the eastern landfill (fig. 9). In addition to PCE, sampler 667459, located along the southern margin of the landfill, had the only detection of 1,4-dichlorobenzene and the only chloroform detection to coexist with other chlorinated compounds in the eastern study area (table 2). In addition to TCE, sampler 667486 had the only detection of 1,1,2-trichloroethane (bdl) in the eastern study area. Two of the three chloroform detections occurred in samplers 667488 and 667490 deployed in the wooded area southeast of the landfill with no other detections of chlorinated compounds.

Three methylated compounds were detected in the eastern study area, but were detected at or below MDLs (table 3). Sampler 667463 along the access road on the western side of the landfill had detections of 1,2,4-trimethylbenzene (0.01 µg) and 1,3,5-trimethylbenzene (bdl). Excluding TPH, the soil-gas mass of 0.01 µg for 2 methyl naphthalene was the only compound detected in sampler 667480 which is located in the wooded area east of the landfill near McCoy Creek.

Northern Study Area

A total of 32 soil samplers were deployed from August 19–24, 2011, in the northern study area (fig. 2). As in the eastern study area, all samplers in the survey identified detections of TPH, but less than 35 percent of the samples had detections of specific gasoline- and (or) diesel-range compounds. The survey also identified the presence of chlorinated solvents, chloroform, and trimethylbenzene compounds (table 4).

Eight of the samplers had detections of TPH greater than 0.9 µg (fig. 10). Four of the eight samplers have TPH detections greater than 9 µg and were deployed on the wooded slope to the east and northeast of the northern landfill margin. The four samplers with TPH detections ranging from 0.9 to less than 9 µg include two samplers along the western margin of the northern landfill and two on the wooded slope near the southeastern margin of the northern landfill. Toluene was the only fuel-related compound detected in three of these samplers (667526, 667527, and 667533) deployed in the wooded area to the northeast of the northern landfill (fig. 11). Sampler 667526 was deployed in approximately the same location as a sampler in the McCoy Creek Chemical Training area study (2010) and confirmed the presence of toluene as the only gasoline-related compound and the absence of diesel-related compounds (Guimaraes and others, 2011). The only fuel-related compound detected in four samplers in the wooded area east of the northern landfill was undecane, a diesel-related compound found in three samplers (667522, 667523 and 667537) with TPH detections greater than 0.9 µg and one sampler 667524 with TPH less than 0.9 µg (fig. 12). Undecane also was the only fuel-related compound detected in sampler 667529 which had a TPH mass of 0.73 µg and was deployed in the wooded area to the north of the landfill. The two samplers (667500 and 667502) with TPH detections greater than 0.9 µg and sampler 667501 with a TPH detection of 0.44 µg, deployed along the western margin of the northern landfill, have detections of both diesel- and gasoline-related compounds; however, the diesel-related compounds were detected at or below an MDL of 0.01 µg (table 4).

Seven samplers in the northern study area had detections of chlorinated compounds (table 4). Detections of PCE include a mass of 0.08 µg in sampler 667504 and a bdl in sampler 667508 along the northern margin of the landfill and 0.14 µg in sampler 667527 in the wooded area north of the northern landfill (fig. 13). The only detection of 1,4-dichlorobenzene in the northern study area is below the MDL of 0.01 µg in sampler 667503, which also is along the northern margin of the landfill. The three detections of chloroform in the northern study area have masses of 0.01 µg in sampler 667523 and 0.04 µg in samplers 667524 and 667525 in the wooded area east of the landfill margin.

The only methylated PAHs detected in the northern study area were in sampler 667501 on the western margin of the landfill (table 4). The compounds include 1,2,4-trimethylbenzene and 1,3,5-trimethylbenene and were detected below MDLs of 0.01 and 0.02 µg, respectively.

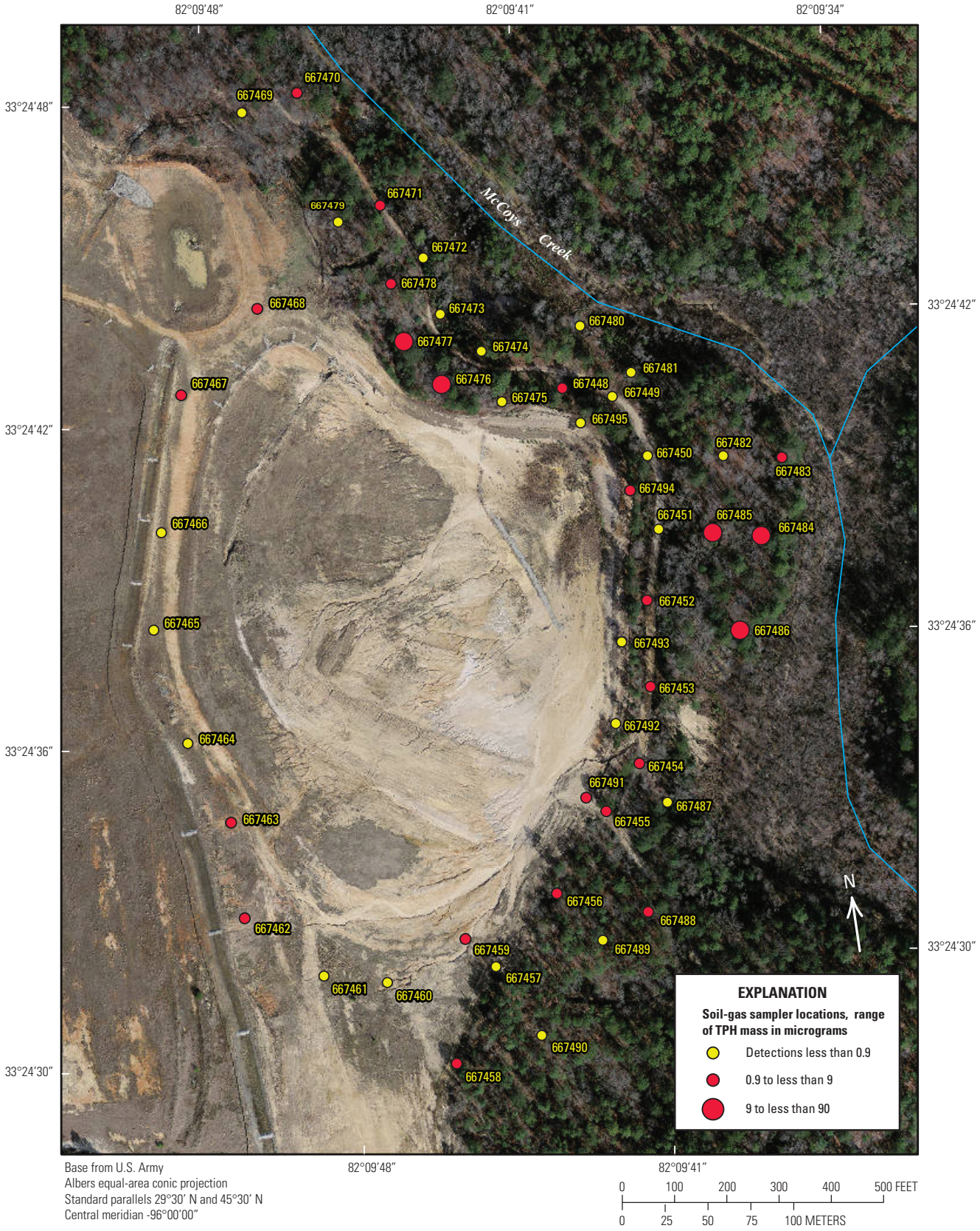

Figure 6. Locations and identification numbers for soil-gas samplers, and ranges of soil-gas mass for total petroleum hydrocarbons (TPH; in micrograms) in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011. Method detection level is 0.02 microgram.

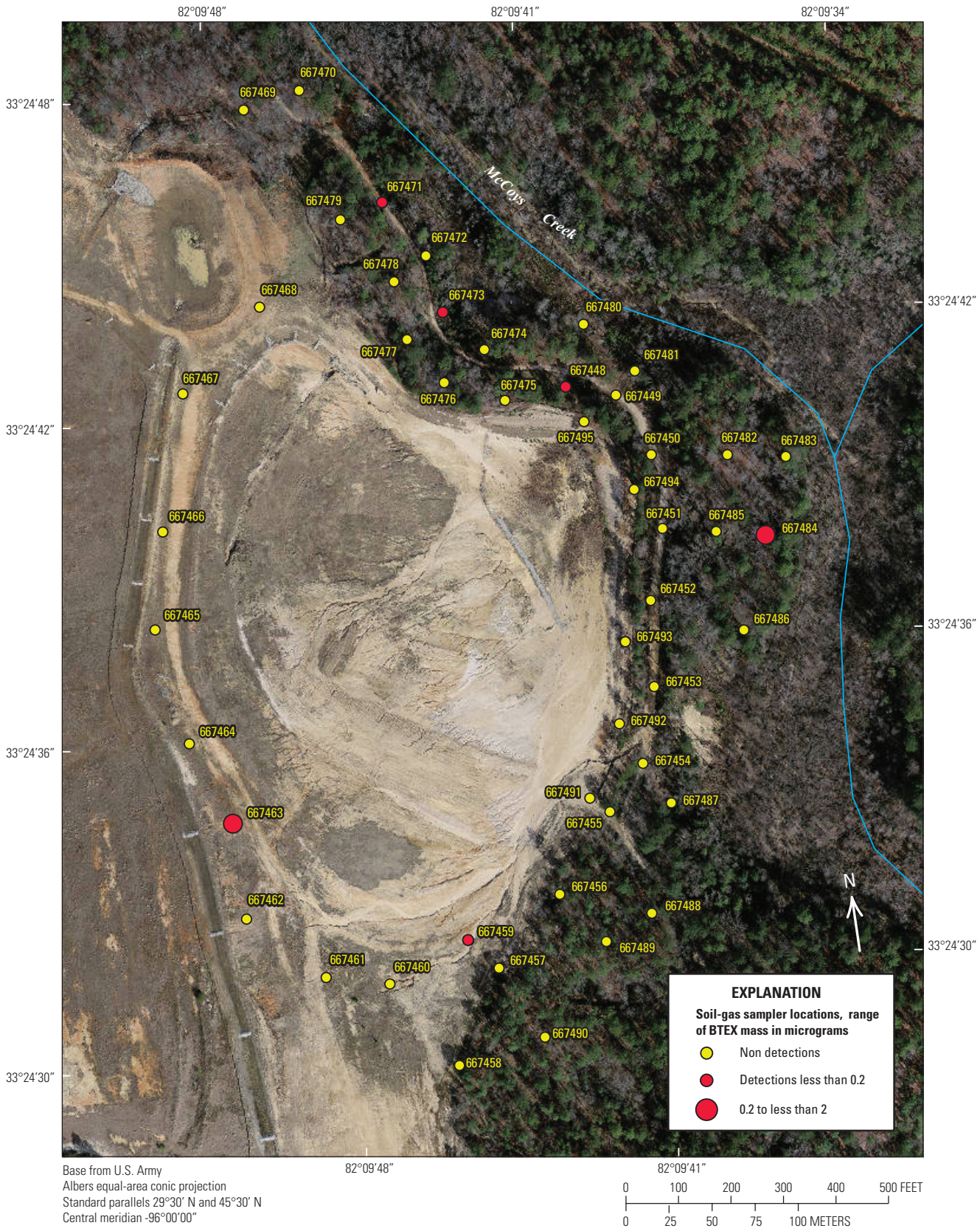

Figure 7. Locations and identification numbers for soil-gas samplers, and ranges for combined soil-gas masses of benzene, toluene, ethylbenzene, and xylene (BTEX, gasoline-range aromatic compounds; mass, in micrograms) in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.

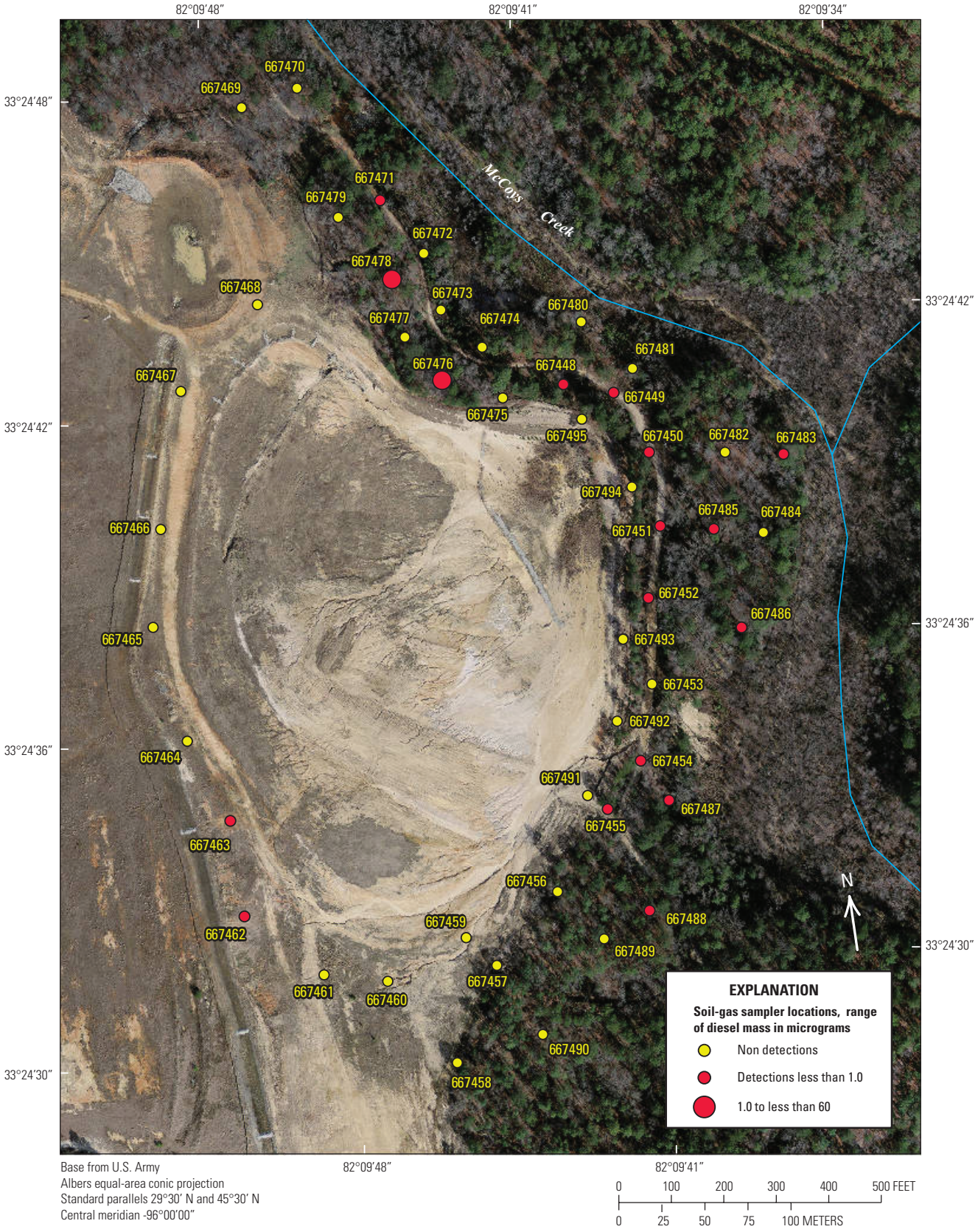

Figure 8. Locations and identification numbers for soil-gas samplers, and ranges of combined soil-gas mass for undecane, tridecane, and pentadecane (C_{11}, C_{13}, and C_{15}; diesel mass, in micrograms) in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.

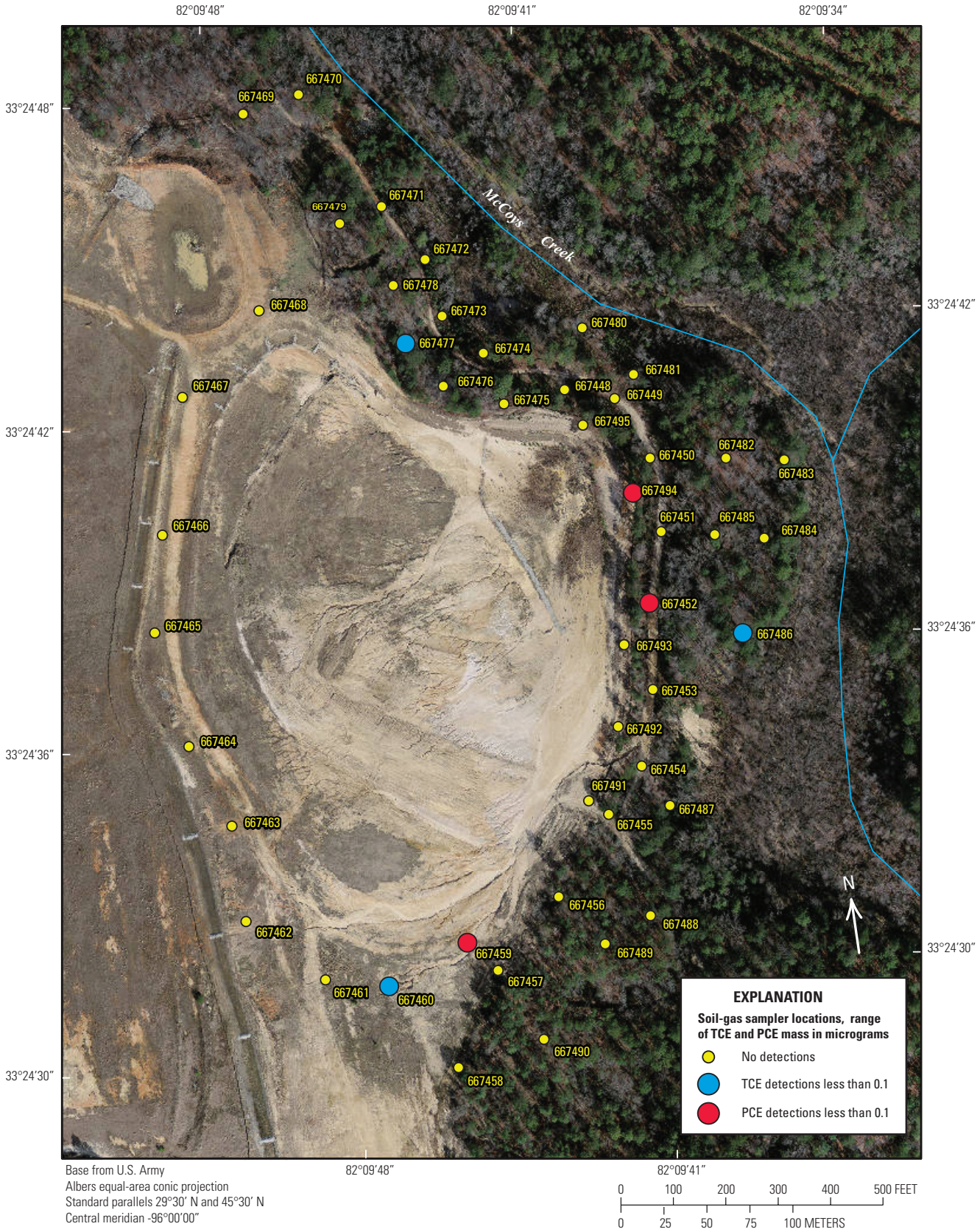

Figure 9. Locations and identification numbers for soil-gas samplers, and ranges of soil-gas mass less than 0.1 microgram for trichloroethene (TCE) and perchloroethene (PCE) in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011. Method detection levels for each chlorinated solvent is 0.02 microgram.

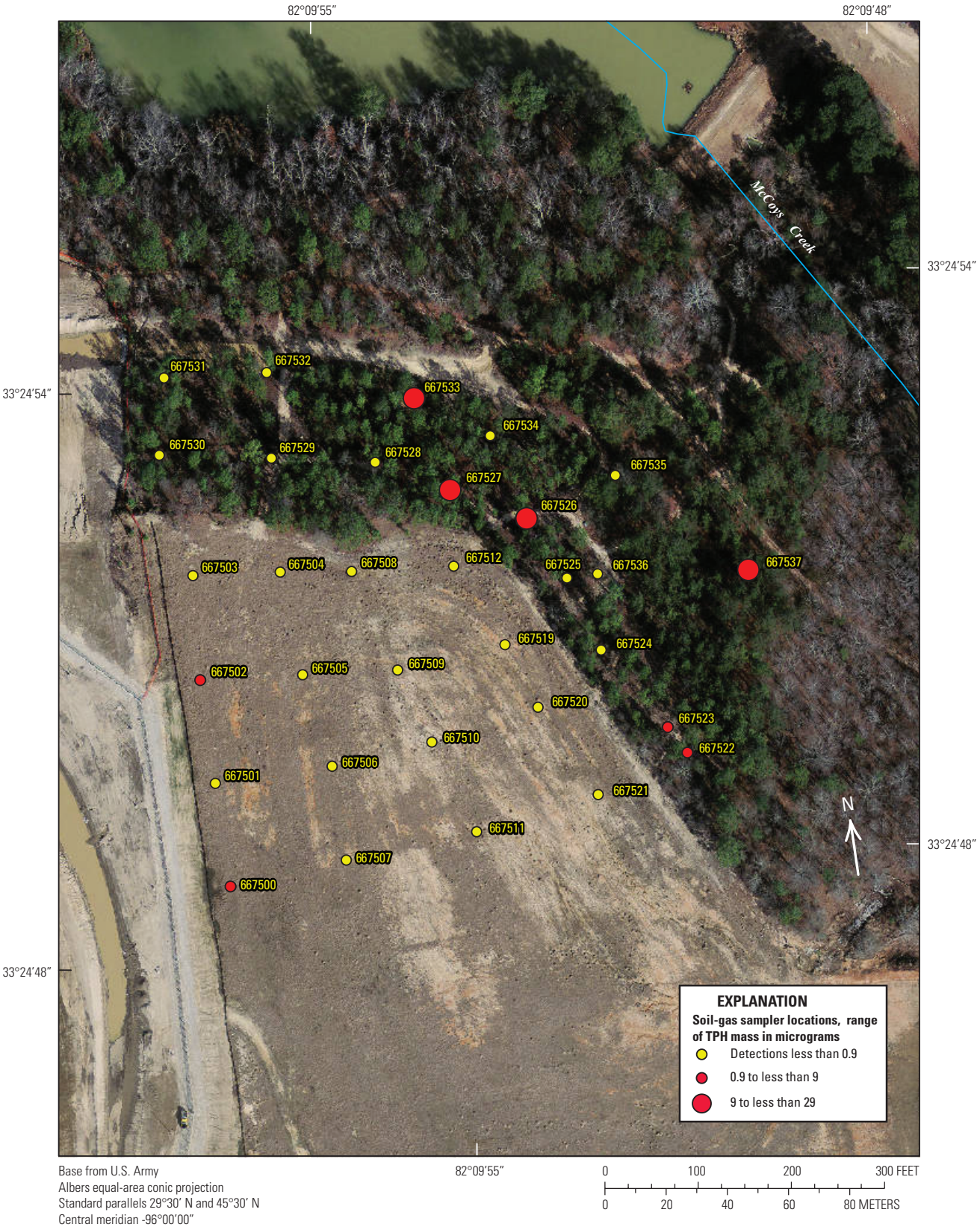

Figure 10. Locations and identification numbers for soil-gas samplers, and ranges of soil-gas mass for total petroleum hydrocarbons (TPH; in micrograms) in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011. Method detection level is 0.02 microgram.

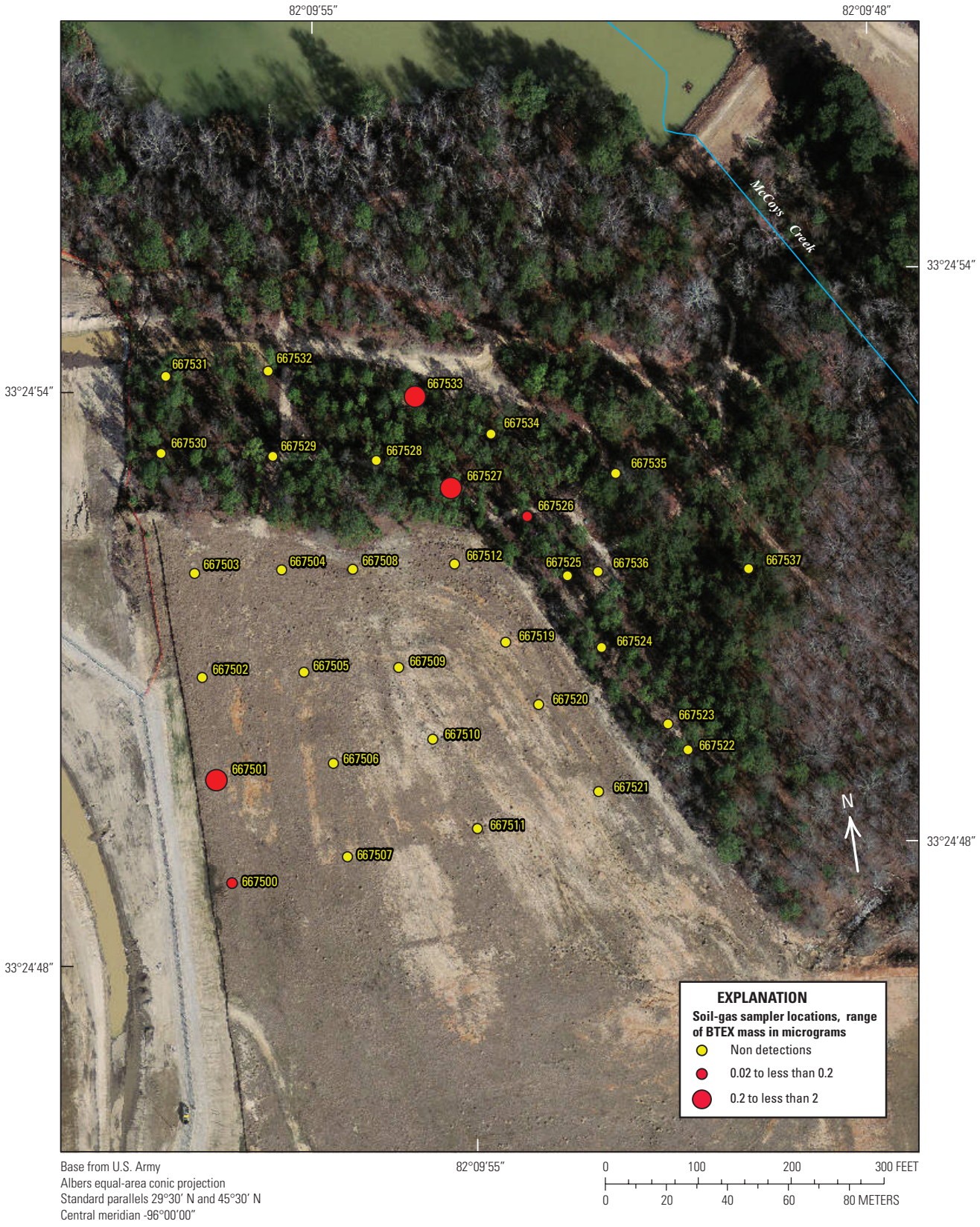

Figure 11. Locations and identification numbers for soil-gas samplers, and ranges for combined soil-gas masses of benzene, toluene, ethylbenzene, and xylene (BTEX, gasoline-range aromatic compounds; mass, in micrograms) in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.

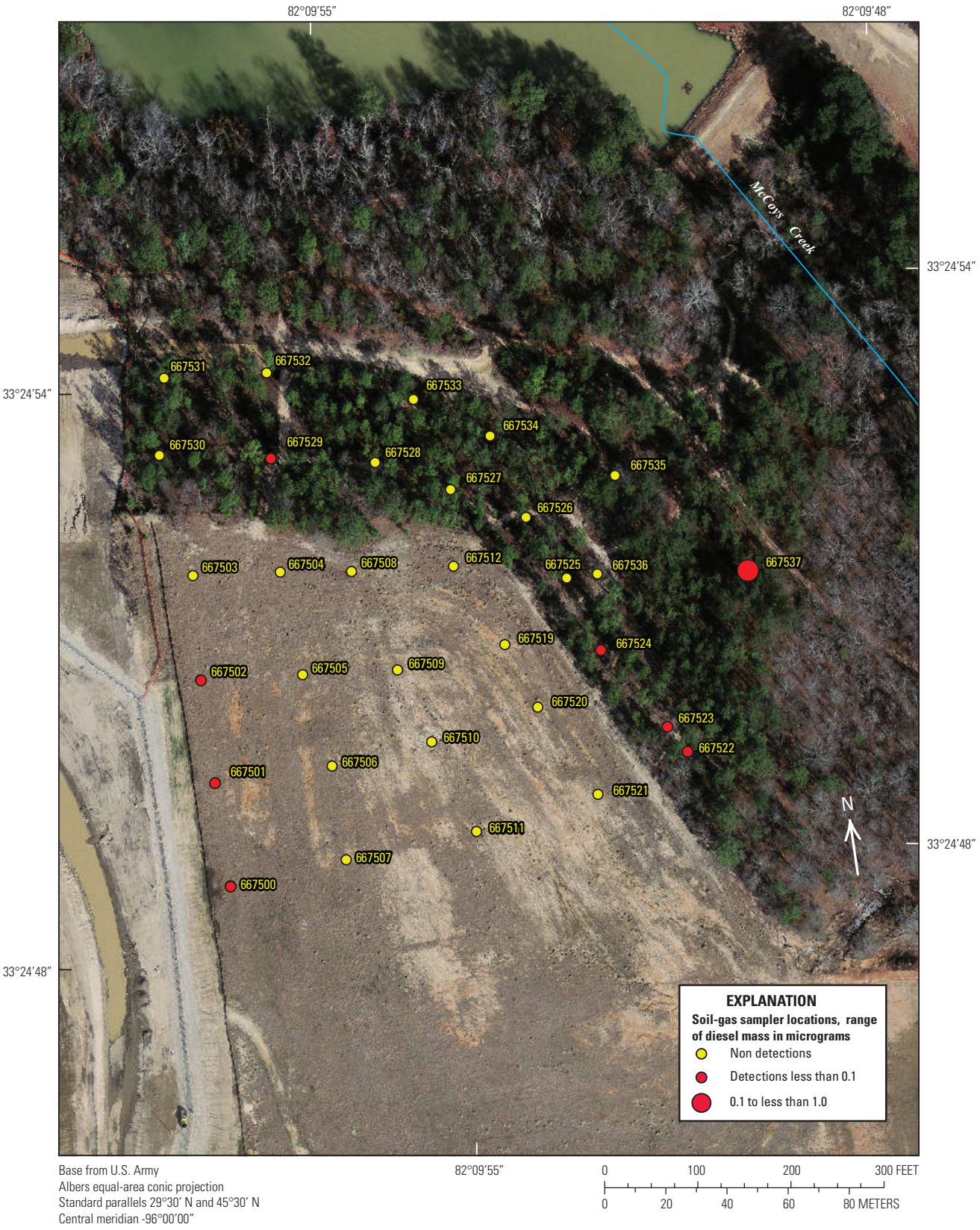

Figure 12. Locations and identification numbers for soil-gas samplers, and ranges of combined soil-gas mass for undecane, tridecane, and pentadecane (C_{11}, C_{13}, and C_{15}; diesel mass, in micrograms) in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.

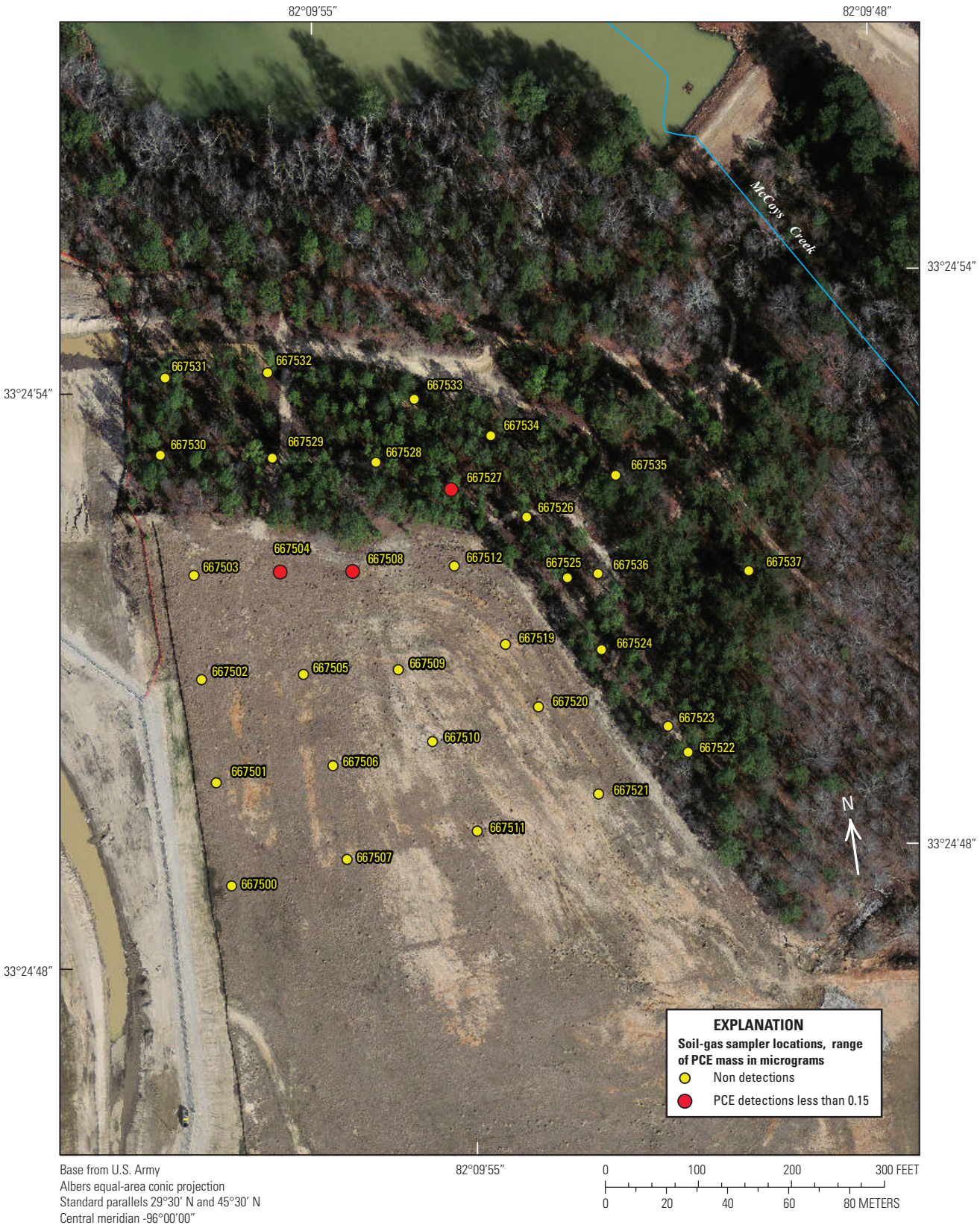

Figure 13. Locations and identification numbers for soil-gas samplers, and ranges of soil-gas mass less than 0.1 microgram for trichloroethene (TCE) and perchloroethene (PCE) in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011. Method detection levels for each chlorinated solvent is 0.02 microgram.

Summary

The U.S. Geological Survey, in cooperation with the U.S. Department of the Army Environmental and Natural Resources Management Office of the U.S. Army Signal Center and Fort Gordon, Georgia, assessed the presence of volatile and semivolatile organic compounds (VOCs and SVOCs) and polycyclic aromatic hydrocarbons (PAHs) in soil gas of the shallow subsurface in two separate study areas at the 17th Street landfill in July and August, 2011. The two study areas include the northern and eastern parts of the 17th Street landfill, and the adjacent wooded areas to the north and east of the landfill and were chosen because of their close proximity to surface water in Wilkerson Lake and McCoys Creek.

A total of 48 soil-gas samplers were deployed from July 28 to August 3, 2011, in the eastern study area. The assessment mostly identified the presence of total petroleum hydrocarbons (TPH), and gasoline- and diesel-range compounds, but also identified the presence of chlorinated solvents in six samplers, chloroform in three samplers, 2-methyl naphthalene in one sampler, and trimethylbenzene in one sampler. The TPH masses exceeded the method detection level of 0.02 microgram (μg) in all 48 samplers and exceeded 0.9 μg in 24 samplers. The TPH mass exceeded 9 μg in three samplers deployed near the bank of McCoys Creek and two samplers deployed high on the wooded slope near the eastern margin of the landfill. Toluene was identified in all six samplers with BTEX detections, but was not the only BTEX compound detected in three of those samplers. Other BTEX and gasoline-related compounds identified in the eastern study area included detections of ethylbenzene, *meta*- and *para*-xylene, and octane. Diesel-range compounds were detected in 17 samplers, including 2 samplers on the western side of the eastern landfill and 15 samplers in the wooded area between the eastern margin of the landfill and McCoys Creek. Undecane, one of the three diesel-range compounds used to calculate the combined mass for diesel-range compounds, was detected in all 17 samplers and is the second most commonly detected compound in the eastern study area, exceeded only by the number of TPH detections. All detections of chlorinated organic compounds had soil-gas masses equal to or less than 0.08 μg and were detected in only eight samplers in the eastern study area, including three detections of trichloroethene and three detections of perchloroethene. Other chlorinated compounds identified in the eastern study area include three chloroform detections, one detection of 1,4-dichlorobenzene, and one detection of 1,1,2-trichloroethane. Three methylated PAHs were detected in the eastern study area, but were detected at or below method detection levels.

A total of 32 soil-gas samplers were deployed from August 19–24, 2011, in the northern study area. All samplers in the assessment identified detections of TPH, but only eight of the samplers had detections of TPH greater than 0.9 μg. Four samplers deployed on the wooded slope to the east and northeast of the northern landfill margins had TPH detections greater than 9 μg. Toluene was the only fuel-related compound detected in three of the samplers deployed in the wooded area to the northeast of the northern landfill with TPH detections greater than 9 μg. Undecane was the only fuel-related compound detected in the fourth sampler that had a TPH detection greater than 9 μg. Three samplers deployed along the western margin of the northern landfill had detections of both diesel- and gasoline-related compounds; however, the diesel-related compounds were detected at or below method detection levels. Seven samplers in the northern study area had detections of chlorinated compounds, including three perchloroethene detections, three chloroform detections, and one 1,4-dichlorobenzene detection. One sampler on the western margin of the landfill had detections of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenene below method detection levels.

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Tables 1–4

Table 1. Identification numbers and location information for soil-gas samplers deployed and recovered in the eastern study area from July 28–August 3, and the northern study area from August 19–24, 2011, 17th Street landfill, Fort Gordon, Georgia.

Sampler identification number	Latitude, decimal degrees	Longitude, decimal degrees	Date analyzed	Sampler identification number	Latitude, decimal degrees	Longitude, decimal degrees	Date analyzed
Eastern study area				Eastern study area—Continued			
667448	33.411500	82.161389	09/10/2011	667495	33.411306	82.161306	09/13/2011
667449	33.411417	82.161083	09/13/2011	667496	Trip blank	Trip blank	09/09/2011
667450	33.411083	82.160917	09/13/2011	667497	Trip blank	Trip blank	09/10/2011
667451	33.410694	82.160917	09/13/2011	667498	Trip blank	Trip blank	09/10/2011
667452	33.410333	82.161056	09/09/2011	667499	Trip blank	Trip blank	09/13/2011
667453	33.409889	82.161111	09/13/2011	Northern study area			
667454	33.409500	82.161250	09/13/2011	667500	33.408889	82.166000	09/10/2011
667455	33.409278	82.161500	09/10/2011	667501	33.408556	82.166000	09/10/2011
667456	33.408889	82.161889	09/13/2011	667502	33.408083	82.166000	09/09/2011
667457	33.408556	82.162333	09/13/2011	667503	33.408722	82.165972	09/12/2011
667458	33.408083	82.162667	09/12/2011	667504	33.408556	82.165667	09/12/2011
667459	33.408722	82.162500	09/10/2011	667505	33.408639	82.165639	09/10/2011
667460	33.408556	82.163028	09/10/2011	667506	33.409000	82.165583	09/12/2011
667461	33.408639	82.163417	09/10/2011	667507	33.409500	82.165583	09/10/2011
667462	33.409000	82.163861	09/10/2011	667508	33.409944	82.165417	09/10/2011
667463	33.409500	82.163861	09/13/2011	667509	33.410556	82.165306	09/10/2011
667464	33.409944	82.164056	09/12/2011	667510	33.411056	82.165222	09/13/2011
667465	33.410556	82.164167	09/09/2011	667511	33.411750	82.165111	09/09/2011
667466	33.411056	82.164028	09/09/2011	667512	33.412139	82.165056	09/10/2011
667467	33.411750	82.163778	09/13/2011	667519	33.413167	82.164917	09/12/2011
667468	33.412139	82.163222	09/10/2011	667520	33.413222	82.164833	09/10/2011
667469	33.413167	82.163139	09/13/2011	667521	33.412583	82.164667	09/13/2011
667470	33.413222	82.162778	09/10/2011	667522	33.412278	82.164333	09/10/2011
667471	33.412583	82.162361	09/13/2011	667523	33.411972	82.164389	09/10/2011
667472	33.412278	82.162139	09/13/2011	667524	33.411750	82.164583	09/10/2011
667473	33.411972	82.162083	09/10/2011	667525	33.411472	82.164667	09/13/2011
667474	33.411750	82.161861	09/13/2011	667526	33.411611	82.164778	09/13/2011
667475	33.411472	82.161778	09/10/2011	667527	33.411861	82.165028	09/13/2011
667476	33.411611	82.162139	09/10/2011	667528	33.412167	82.165278	09/13/2011
667477	33.411861	82.162333	09/10/2011	667529	33.412528	82.165639	09/10/2011
667478	33.412167	82.162361	09/10/2011	667530	33.411806	82.166028	09/09/2011
667479	33.412528	82.162639	09/09/2011	667531	33.411528	82.165972	09/10/2011
667480	33.411806	82.161222	09/10/2011	667532	33.411028	82.165611	09/10/2011
667481	33.411528	82.160944	09/13/2011	667533	33.410972	82.165111	09/13/2011
667482	33.411028	82.160444	09/12/2011	667534	33.410583	82.164861	09/10/2011
667483	33.410972	82.160083	09/12/2011	667535	33.410639	82.164444	09/09/2011
667484	33.410583	82.160278	09/13/2011	667536	33.410111	82.164556	09/10/2011
667485	33.410639	82.160583	09/10/2011	667537	33.409278	82.164028	09/13/2011
667486	33.410111	82.160500	09/10/2011	667538	Trip blank	Trip blank	09/10/2011
667487	33.409278	82.161111	09/12/2011	667539	Trip blank	Trip blank	09/10/2011
667488	33.408722	82.161333	09/10/2011	667540	Trip blank	Trip blank	09/09/2011
667489	33.408611	82.161639	09/13/2011	667541	Trip blank	Trip blank	09/10/2011
667490	33.408167	82.162111	09/13/2011	Laboratory			
667491	33.409361	82.161611	09/13/2011	Method blank	—	—	09/09/2011
667492	33.409722	82.161361	09/10/2011	Method blank	—	—	09/10/2011
667493	33.410139	82.161250	09/13/2011	Method blank	—	—	09/12/2011
667494	33.410917	82.161056	09/13/2011	Method blank	—	—	09/12/2011

Table 2. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in trip blanks and method blanks for the eastern and northern study areas, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, and August 19–24, 2011.

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667496, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Trip blanks for eastern study area			
		667496	667497	667498	667499
Date analyzed	N/A	9/09/2011	9/10/2011	9/10/2011	9/13/2011
Total petroleum hydrocarbon (TPH)	0.02	0.02	bdl	nd	nd
BTEX (gasoline)[1]	N/A	nd	0.02	nd	nd
Benzene	0.01	nd	nd	nd	nd
Toluene	0.01	nd	0.02	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	nd
Undecane	0.01	nd	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in trip blanks and method blanks for the eastern and northern study areas, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, and August 19–24, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667496, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Trip blanks for northern study area			
		667538	667539	667540	667541
Date analyzed	N/A	9/10/2011	9/10/2011	9/09/2011	9/10/2011
Total petroleum hydrocarbon (TPH)	0.02	bdl	bdl	0.05	bdl
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	nd
Undecane	0.01	nd	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in trip blanks and method blanks for the eastern and northern study areas, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, and August 19–24, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667496, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Method blank	Method blank	Method blank	Method blank
Date analyzed	N/A	9/09/2011	9/11/2011	9/11/2011	9/12/2011
Total petroleum hydrocarbon (TPH)	0.02	0.09	bdl	nd	nd
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	nd
Undecane	0.01	nd	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd
1,1,2-Trichloroethane	0.01	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd

[1] Combined mass of two or more compounds with no method detection level provided by laboratory.

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667448	667449	667450	667451	667452
Total petroleum hydrocarbon (TPH)	0.02	1.38	0.87	0.85	0.53	3.52
BTEX (gasoline)[1]	N/A	0.02	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	0.02	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	0.03	0.22	0.02	0.04	0.54
Undecane	0.01	0.03	0.21	0.02	0.04	0.53
Tridecane	0.01	nd	0.01	nd	nd	0.01
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	0.05
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667453	667454	667455	667456	667457
Total petroleum hydrocarbon (TPH)	0.02	0.93	1.72	2.07	0.99	0.39
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	0.12	0.07	nd	nd
Undecane	0.01	nd	0.12	0.07	nd	nd
Tridecane	0.01	nd	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667458	667459	667460	667461	667462
Total petroleum hydrocarbon (TPH)	0.02	2.94	3.79	0.61	0.32	1.47
BTEX (gasoline)[1]	N/A	nd	0.12	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	0.12	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	nd	0.02
Undecane	0.01	nd	nd	nd	nd	0.02
Tridecane	0.01	nd	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	bdl	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	0.04	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	0.04	nd	nd
Perchloroethene (PCE)	0.02	nd	0.07	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667463	667464	667465	667466	667467
Total petroleum hydrocarbon (TPH)	0.02	5.83	0.88	0.14	0.41	1.84
BTEX (gasoline)[1]	N/A	0.27	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	0.09	nd	nd	nd	nd
Ethylbenzene	0.02	0.18	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	0.00	nd	nd	nd	nd
Undecane	0.01	bdl	nd	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	bdl	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	E0.01	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	0.01	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	bdl	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667468	667469	667470	667471	667472
Total petroleum hydrocarbon (TPH)	0.02	1.81	0.34	3.78	4.78	0.03
BTEX (gasoline)[1]	N/A	nd	nd	nd	E0.14	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	0.08	nd
Ethylbenzene	0.02	nd	nd	nd	0.06	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	bdl	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	0.07	nd
Undecane	0.01	nd	nd	nd	0.01	nd
Tridecane	0.01	nd	nd	nd	0.06	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	0.06	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667473	667474	667475	667476	667477
Total petroleum hydrocarbon (TPH)	0.02	0.12	0.05	0.25	75.09	17.50
BTEX (gasoline)[1]	N/A	0.02	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	0.02	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	52.13	nd
Undecane	0.01	nd	nd	nd	47.98	nd
Tridecane	0.01	nd	nd	nd	0.70	nd
Pentadecane	0.01	nd	nd	nd	3.45	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	0.08
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667478	667479	667480	667481	667482
Total petroleum hydrocarbon (TPH)	0.02	5.31	0.57	0.19	0.19	0.63
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	3.91	nd	nd	nd	nd
Undecane	0.01	3.83	nd	nd	nd	nd
Tridecane	0.01	0.09	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	0.01	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	0.01	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667483	667484	667485	667486	667487
Total petroleum hydrocarbon (TPH)	0.02	4.48	72.11	9.31	11.70	0.71
BTEX (gasoline)[1]	N/A	nd	0.55	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	0.50	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	0.05	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	E0.75	nd	0.05	E0.21	0.02
Undecane	0.01	0.71	nd	0.05	0.21	0.02
Tridecane	0.01	0.04	nd	nd	bdl	nd
Pentadecane	0.01	bdl	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	bdl	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	bdl	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler			
		667488	667489	667490	667491
Total petroleum hydrocarbon (TPH)	0.02	1.11	0.89	0.49	1.95
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	0.05	nd	nd	nd
Undecane	0.01	0.05	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd
Octane	0.02	bdl	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd
Chloroform	0.01	0.05	nd	0.02	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the eastern study area, 17th Street landfill, Fort Gordon, Georgia, July 28–August 3, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667448, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler			
		667492	667493	667494	667495
Total petroleum hydrocarbon (TPH)	0.02	0.69	0.24	2.02	0.39
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	nd
Undecane	0.01	nd	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	0.05	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd

[1]Combined mass of two or more compounds with no method detection level provided by laboratory.

Table 4. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667500, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667500	667501	667502	667503	667504
Total petroleum hydrocarbon (TPH)	0.02	1.15	0.44	1.04	0.53	0.42
BTEX (gasoline)[1]	N/A	0.02	E0.34	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	0.02	0.28	nd	nd	nd
Ethylbenzene	0.02	nd	bdl	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	0.03	nd	nd	nd
ortho-Xylene,	0.01	nd	0.03	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	E0.01	0.00	0.00	nd	nd
Undecane	0.01	bdl	bdl	nd	nd	nd
Tridecane	0.01	0.01	nd	bdl	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	0.00	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	bdl	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	bdl	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	bdl	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	0.08
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 4. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667500, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667505	667506	667507	667508	667509
Total petroleum hydrocarbon (TPH)	0.02	0.06	0.39	0.40	0.44	0.27
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	nd	nd
Undecane	0.01	nd	nd	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	bdl	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 4. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667500, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667510	667511	667512	667519	667520
Total petroleum hydrocarbon (TPH)	0.02	0.25	0.05	0.18	0.30	0.36
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	nd	nd
Undecane	0.01	nd	nd	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 4. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.—Continued

[Raw data rounded to the second decimal place as provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; Sampler 667500, example of unique identification number assigned by W.L. Gore & Associates to each soil-gas sampler; N/A, not applicable; nd, not detected; bdl, below detection level; E, the reported value for a combined mass should be considered estimated if the masses of any of the individual compounds used to calculate the combined mass were reported as bdl; a value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for a combined mass if the individual compounds included in the combined mass were not detected above method detection levels and at least one of the individual compounds was reported as bdl]

Organic compound	MDL (µg)	Sampler				
		667521	667522	667523	667524	667525
Total petroleum hydrocarbon (TPH)	0.02	0.32	2.92	6.34	0.56	0.15
BTEX (gasoline)[1]	N/A	nd	nd	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	0.04	0.03	0.02	nd
Undecane	0.01	nd	0.04	0.03	0.02	nd
Tridecane	0.01	nd	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	0.01	0.04	0.04
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 4. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.—Continued

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Organic compound	MDL (µg)	Sampler				
		667526	667527	667528	667529	667530
Total petroleum hydrocarbon (TPH)	0.02	11.52	23.44	0.31	0.73	0.46
BTEX (gasoline)[1]	N/A	0.06	0.68	nd	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	0.06	0.68	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	0.06	nd
Undecane	0.01	nd	nd	nd	0.06	nd
Tridecane	0.01	nd	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	0.14	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 4. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.—Continued

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Organic compound	MDL (µg)	Sampler				
		667531	667532	667533	667534	667535
Total petroleum hydrocarbon (TPH)	0.02	0.26	0.24	25.27	0.66	0.35
BTEX (gasoline)[1]	N/A	nd	nd	0.34	nd	nd
Benzene	0.01	nd	nd	nd	nd	nd
Toluene	0.01	nd	nd	0.34	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
meta- and *para*-Xylene	0.02	nd	nd	nd	nd	nd
ortho-Xylene,	0.01	nd	nd	nd	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	nd	nd	nd	nd
Undecane	0.01	nd	nd	nd	nd	nd
Tridecane	0.01	nd	nd	nd	nd	nd
Pentadecane	0.01	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl *tert*-butyl ether (MTBE)	0.03	nd	nd	nd	nd	nd
Trimethylbenzene[1]	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd	nd	nd	nd
Chlorobenzene	0.03	nd	nd	nd	nd	nd
Chloroform	0.01	nd	nd	nd	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	nd	nd	nd	nd
Perchloroethene (PCE)	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.01	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd	nd	nd	nd
Naphthalene	0.01	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.01	nd	nd	nd	nd	nd

Table 4. Mass of volatile and semivolatile organic compounds and polycyclic aromatic hydrocarbons detected in soil-gas samplers deployed and recovered in the northern study area, 17th Street landfill, Fort Gordon, Georgia, August 19–24, 2011.—Continued

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Organic compound	MDL (µg)	Sampler	
		667536	667537
Total petroleum hydrocarbon (TPH)	0.02	0.82	15.97
BTEX (gasoline)[1]	N/A	nd	nd
Benzene	0.01	nd	nd
Toluene	0.01	nd	nd
Ethylbenzene	0.02	nd	nd
meta- and *para*-Xylene	0.02	nd	nd
ortho-Xylene,	0.01	nd	nd
C_{11}, C_{13}, and C_{15} (diesel)[1]	N/A	nd	0.53
Undecane	0.01	nd	0.53
Tridecane	0.01	nd	nd
Pentadecane	0.01	nd	nd
Octane	0.02	nd	nd
Methyl tert-butyl ether (MTBE)	0.03	nd	nd
Trimethylbenzene[1]	N/A	nd	nd
1,2,4-Trimethylbenzene	0.01	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd
1,2-Dichlorobenzene	0.01	nd	nd
1,3-Dichlorobenzene	0.01	nd	nd
1,4-Dichlorobenzene	0.01	nd	nd
Chlorobenzene	0.03	nd	nd
Chloroform	0.01	nd	nd
cis- and *trans*-1,2-Dichloroethene[1]	N/A	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd
cis-1,2-Dichloroethene	0.02	nd	nd
Trichloroethene (TCE)	0.02	nd	nd
Perchloroethene (PCE)	0.02	nd	nd
1,1-Dichloroethane	0.02	nd	nd
1,2-Dichloroethane	0.01	nd	nd
1,1,1-Trichloroethane	0.01	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd
1,1,1,2-Tetrachloroethane	0.02	nd	nd
1,1,2,2-Tetrachloroethane	0.01	nd	nd
Carbon tetrachloride	0.03	nd	nd
Naphthalene and 2-Methyl naphthalene[1]	N/A	nd	nd
Naphthalene	0.01	nd	nd
2-Methyl naphthalene	0.01	nd	nd

[1]Combined mass of two or more compounds with no method detection level provided by laboratory.

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