Prepared 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

Assessment of Soil-Gas, Soil, and Water Contamination at the Former 19th Street Landfill, Fort Gordon, Georgia, 2009–2010

Open-File Report 2011–1145

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

Cover photograph. Downstream view of McCoys Creek adjacent to former 19th Street landfill at Fort Gordon, Georgia.

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U.S. Geological Survey
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Contents

Abstract.....	1
Introduction.....	2
Purpose and Scope	3
Description of the Study Area	3
Methods.....	4
Hyporheic-Zone, Flood-Plain, and Soil-Gas Samplers	5
Soil Samples	7
Surface-Water Samples	7
Results	8
Hyporheic-Zone and Flood-Plain Samplers	8
Soil-Gas Samplers: June 30–July 6, 2010	9
Soil-Gas Samplers: September 15–22, 2010	12
Soil Samples	13
Surface-Water Samples	14
Summary.....	14
References Cited.....	15

Figures

1. Map showing approximate locations of Fort Gordon and the former 19th Street landfill study area at Fort Gordon, Richmond County, Georgia, 2009–2010.....2
2. Map showing locations of sample-collection sites and samplers, and selected surface features inside and outside the former 19th Street landfill at Fort Gordon, Richmond County, Georgia, 2009–2010.....3
3. Photographs of central part of the landfill showing wooded slope and soil-collapse features over brick-and-mortar debris, former 19th Street landfill at Fort Gordon, Richmond County, Georgia, 2009–2010.....4
4. Photographs of manmade features including military training obstacles near the landfill and stormwater access shaft near the intersection of 19th Street and 19th Street extension at Fort Gordon, Richmond County, Georgia, 2009–20104
5. Photographs of the passive soil-gas sampler used in the hyporheic-zone and soil-gas study areas prior to deployment, and in an air-tight vial for shipment from and to the laboratory for analysis5
6. Photographs of an example of a hyporheic-zone sampler showing the vented stainless-steel drive point and cap used to house the passive soil-gas sampler and a deployed sampler inserted into the creek-bed sediments.....5
7. Photographs of the installation of a passive soil-gas sampler in the landfill soil consisted of drilling a borehole in the soil with a stainless-steel drill bit attached to a cordless drill, attaching one end of a string to a soil-gas sampler and the other end to a cork plug, inserting the soil-gas sampler into the borehole, and sealing the borehole with the cork plug to keep out surface material and water6
8. Photographs of soil sample collected in the interval from land surface to a depth of 6 inches with a stainless-steel hand auger and transferred from the auger to a plastic container for shipment to the laboratory.....7

9–13. Maps showing—	
9. Locations and identification numbers of hyporheic-zone and flood-plain samplers along McCoys Creek, and total petroleum hydrocarbon concentrations in micrograms per liter for each sampler, February 12, 2010, former 19 th Street landfill, Fort Gordon, Georgia	8
10. Locations and identification numbers of passive soil-gas samplers, and ranges of soil-gas mass for total petroleum hydrocarbons in micrograms, former 19 th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010	10
11. Locations and identification numbers of passive soil-gas samplers, and ranges of combined soil-gas mass for benzene, toluene, ethylbenzene, and xylene (BTEX gasoline compounds) in micrograms, former 19 th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010	11
12. Locations and identification numbers of passive soil-gas samplers, and ranges of combined soil-gas mass for undecane, tridecane, and pentadecane (C ₁₁ , C ₁₃ , and C ₁₅ diesel compounds) in micrograms, former 19 th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010	12
13. Locations and identification numbers of passive soil-gas samplers, and ranges of soil-gas mass for chloroform and naphthalene in micrograms, former 19 th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010	13

Tables (located at the back of the report)

1. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered in the water-saturated hyporheic zone and flood plain of McCoys Creek adjacent to the former 19 th Street landfill, Fort Gordon, Georgia, February 12, 2010	17
2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19 th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010	19
3. Mass of volatile and semivolatile organic compounds classified as chemical agents and explosives detected in passive soil-gas samplers deployed and recovered from the former 19 th Street landfill, Fort Gordon, Georgia, September 15–22, 2010	28
4. Inorganic constituents detected in soil samples 1–5 collected from land surface to a depth of 6 inches at the former 19 th Street landfill, Fort Gordon, Georgia, August 25, 2010	30
5. Parameters and analytical results for unfiltered surface-water samples collected from McCoys Creek adjacent to the former 19 th Street landfill, Fort Gordon, Georgia, September 8, 2010	31

Conversion Factors

Inch/Pound to SI

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 referred to the North American Datum of 1983 (NAD 83).

Water quality, soil-gas, and soil units

μg	microgram
μg/g	microgram per gram
μg/L	microgram per liter
μg/kg	microgram per kilogram
mL	milliliter

Selected acronyms and abbreviations used in this report:

bdl	Below detection level
BTEX	Benzene, toluene, ethylbenzene, and xylene (total)
C ₁₁ , C ₁₃ , C ₁₅	Undecane, tridecane, and pentadecane (total)
GC/MS	Gas chromatography/mass spectroscopy
ICP-MS	Inductively Coupled Plasma-Mass Spectrometry
MDL	Method detection level
MTBE	Methyl <i>tert</i> -butyl ether
PAH	Polycyclic aromatic hydrocarbon
PCE	Perchloroethene (also known as perchloroethylene and tetrachloroethene)
RCRA	Resource Conservation and Recovery Act
RSL	Regional Screening Level
SCDHEC	South Carolina Department of Health and Environmental Control
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

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Abstract

Soil gas, soil, and water were assessed for organic and inorganic constituents at the former 19th Street landfill at Fort Gordon, Georgia, from February to September 2010. Passive soil-gas samplers were analyzed to evaluate organic constituents in the hyporheic zone and flood plain of a creek and soil gas within the estimated boundaries of the former landfill. Soil and water samples were analyzed to evaluate inorganic constituents in soil samples, and organic and inorganic constituents in the surface water of a creek adjacent to the landfill, respectively. This assessment was conducted to provide environmental constituent data to Fort Gordon pursuant to requirements of the Resource Conservation and Recovery Act Part B Hazardous Waste Permit process.

The passive soil-gas samplers deployed in the water-saturated hyporheic zone and flood plain of the creek adjacent to the former landfill indicated the presence of total petroleum hydrocarbon (TPH) and octane above method detection levels in groundwater beneath the creek bed and flood plain at all 12 soil-gas sampler locations. The TPH concentrations ranged from 51.4 to 81.4 micrograms per liter. Octane concentrations ranged from 1.78 to 2.63 micrograms per liter. These detections do not clearly identify specific source areas in the former landfill; moreover, detections of TPH and octane in a soil-gas sampler installed at a seep on the western bank of the creek indicated the potential for these constituents to be derived from source areas outside the estimated boundaries of the former landfill.

A passive soil-gas sampler survey was conducted in the former landfill from June 30 to July 5, 2010, and involved 56 soil-gas samplers that were analyzed for petroleum and halogenated compounds not classified as chemical agents or explosives. The TPH soil-gas mass exceeded 2.0 micrograms

in 21 samplers. Most noticeable are the two sites with TPH detections which are located in and near the hyporheic zone and are likely to affect the creek. However, most TPH detections were located in and immediately adjacent to a debris field located within the former landfill and in areas where debris was not visible, including the northwestern and southeastern parts of the study area. Two of the four soil-gas samplers installed within a former military training area adjacent to the landfill also had TPH detections above the method detection level. Benzene, toluene, ethylbenzene, and xylene (as combined BTEX mass) were detected at 0.02 microgram or greater in three soil-gas samplers installed at the northwestern boundary and in five samplers installed in the southeastern part of the study area. There was no BTEX mass detected above the method detection level in samplers installed in the debris field. Toluene was the most frequently detected BTEX compound. Compounds indicative of diesel-range organics were detected above 0.04 microgram in 12 soil-gas samplers and had a distribution similar to that of TPH, including being detected in the debris field. Undecane was the most frequently detected diesel compound. Chloroform and naphthalene were detected in eight and two soil-gas samplers, respectively. Five soil-gas samplers deployed during September 2010 were analyzed for organic compounds classified as chemical agents and explosives, but none exceeded the method detection levels.

Five composite soil samples collected from within the estimated boundaries of the former landfill were analyzed for 35 inorganic constituents, but none of the constituents detected exceeded regional screening levels for industrial soils. The sample collected in the debris field exceeded background levels for aluminum, barium, calcium, chromium, lead, nickel, potassium, sodium, and zinc.

Three surface-water samples were collected in September 2010 from a stormwater outfall culvert that drains to the creek and from the open channel of the creek at upstream and downstream locations relative to the outfall. Toluene was detected at 0.661 microgram per liter in a sample collected from the outfall. Iron ranged from 532 to 549 micrograms per

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liter in all three samples and was the only inorganic constituent to exceed its National Secondary Drinking Water Standard of 300 micrograms per liter.

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. Part of the cantonment area consists of an abandoned

landfill, known as the former 19th Street landfill (the landfill). The landfill was located on the eastern bank of McCoys Creek and was used from the 1940s through the 1960s for waste disposal, but the exact boundaries and materials disposed of within the landfill are unknown.

Because the effects of past activities at the landfill on environmental resources were unknown, an assessment was conducted to provide screening-level environmental contamination data to Fort Gordon personnel to comply with the requirements of the Resource Conservation and Recovery Act (RCRA) Part B Hazardous Waste Permit process. An initial investigation to assess potential environmental effects

Figure 1. Approximate locations of Fort Gordon and the former 19th Street landfill study area at Fort Gordon, Richmond County, Georgia, 2009–2010.

is warranted because the landfill is located in the outcrop area of the Dublin and Midville aquifer systems which are used for drinking water by the towns of Augusta and Hephzibah (Williams, 2007).

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 soil gas, soil, and water for contaminants at the former 19th Street landfill and the adjacent segment of McCoys Creek from February to September 2010. The site assessment was conducted to provide environmental constituent data and consisted of (a) a preliminary survey along McCoys Creek to identify potential areas of volatile and semivolatile organic compounds (VOC and SVOC) in the hyporheic zone and flood plain adjacent to the landfill, (b) two soil-gas surveys for VOCs and SVOCs and soil samples for inorganic constituents in the landfill, and (c) collection of surface water for organic and inorganic

compounds from the adjacent segment of McCoys Creek. This report describes the results of the analyses of these samples and presents maps showing the location of the more frequent or noteworthy detections identified in the study area.

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 strata and is characterized by surficial soils and sediments of unconsolidated sands and semi-consolidated sandstones, and layers of clay that include kaolinite (Hetrick, 1992; Gregory and others, 2001).

The former landfill is located off the southwest corner of the cantonment area near the intersection of 19th Street/ 19th Street extension. The site is a wooded, sandy slope between 19th Street and the unpaved 19th Street extension in the upslope area and McCoys Creek in the downslope area (fig. 2). Most of the landfill has reverted to a stand of pines and hardwoods since its closure in the 1960s and has thick

Figure 2. Sample-collection sites and samplers, and selected surface features inside and outside the former 19th Street landfill at Fort Gordon, Richmond County, Georgia, 2009–2010.

underbrush in places (fig. 3A). The only features identifying the site as a former landfill are areas with exposed debris of bricks, concrete, and pipes, and uneven ground due to enhanced soil compaction and collapse in some locations in the central part of the site (figs. 2, 3B). An unpaved road to the landfill is still accessible from the 19th Street extension and extends across the landfill roughly parallel to McCoys Creek (fig. 2). Other noteworthy structures at the site include an area of military training obstacles located adjacent to the northern estimated boundary of the landfill near 19th Street; a stormwater outfall to McCoys Creek in the central part of the landfill; and an access shaft to the stormwater system near the corner of 19th Street and 19th Street extension (figs. 2, 4). Other than the previously mentioned structures, there is no evidence of additional manmade structures at the present-day (2011) site. The currently (2011) active 17th Street landfill is located on the western bank of McCoys Creek directly across from the former landfill study area.

Figure 3. Central part of the landfill showing (A) wooded slope and (B) soil-collapse features over brick-and-mortar debris, former 19th Street landfill at Fort Gordon, Richmond County, Georgia, 2009–2010

Figure 4. Manmade features including (A) military training obstacles near the landfill and (B) stormwater access shaft near the intersection of 19th Street and 19th Street extension at Fort Gordon, Richmond County, Georgia, 2009–2010.

Methods

Samples collected for the purpose of this report were collected and analyzed using standard field and laboratory methods (U.S. Environmental Protection Agency 1998, 2006; U.S. Geological Survey National Field Manual, variously dated). The samples were collected for (a) assessments of potential areas of VOC/SVOC contamination in the water-saturated hyporheic zone of McCoys Creek adjacent to the landfill, (b) VOC/SVOC contamination in the soil gas of the landfill, (c) inorganic contamination in the landfill soil, and (d) VOC/SVOC/inorganic contamination of the surface water in McCoys Creek under base-flow conditions (fig. 2).

Hyporheic-Zone, Flood-Plain, and Soil-Gas Samplers

The assessments of organic compounds in the hyporheic zone and flood plain of McCoys Creek on February 12, 2010, and the two passive soil-gas surveys from June 30 to July 6, 2010, and September 15 to 22, 2010, in the 19th Street landfill study area were conducted by using the GORE™ passive soil-gas sampler, a commercially available sampler based on GORE-TEX™ membrane technology (U.S. Environmental Protection Agency, 1998; W.L.Gore & Associates, Inc., 2004; American Society for Testing and Materials, 2006). The sampler consists of a proprietary adsorbent medium placed inside a shoestring-shaped GORE-TEX™ sleeve (fig. 5A). The passive soil-gas approach was approved for use at abandoned sites at 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., 2008).

Figure 5. Passive soil-gas sampler used in the hyporheic-zone and soil-gas study areas (A) prior to deployment, and (B) in an airtight vial for shipment from and to the laboratory for analysis.

The adsorbent medium inside the soil-gas samplers can adsorb a wide variety of VOCs and SVOCs, including solvents, such as trichloroethene (TCE) and perchloroethene (PCE; also known as tetrachloroethene); gasoline-range compounds, such as benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX); the gasoline additive methyl *tert*-butyl ether (MTBE); diesel-range compounds (collectively referred to as C₁₁, C₁₃, and C₁₅), such as undecane, tridecane, and pentadecane; and polycyclic aromatic hydrocarbons (PAHs), such as naphthalene. The adsorbent medium also can adsorb organic compounds classified as

chemical warfare agents, such as mustard gas and tear gas, and explosives, including nitrobenzene and nitrotoluene compounds.

Passive soil-gas results can indicate the presence of particular organic compounds and are a rapid approach for environmental assessment of organic compounds. The results do not, however, reveal if the detection was derived from free product, residual-phase compounds adsorbed on soil particles, vapors in the unsaturated zone, or dissolved compounds in shallow and deep groundwater (unless the sampler is deployed in direct contact with water). In water deployments, such as the hyporheic zone and the flood plain, organic vapors from the dissolved compounds in the water can pass through the GORE-TEX™ sleeve to adhere to the adsorbent medium, but water, dissolved compounds, and sediment are excluded by the sleeve. In unsaturated soil deployments, higher soil-gas mass in a sample 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 for organic compounds 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 soil-gas samplers help to indicate the presence or absence of organic constituents.

The soil-gas samplers used for direct water contact in the hyporheic zone and flood plain of McCoys Creek were inserted in vented, stainless-steel drive points and pushed by hand into the water-saturated alluvial sediments of the creek bed and flood plain to a depth of 12 inches (in.; fig. 6).

Figure 6. Example of a hyporheic-zone sampler showing (A) the vented stainless-steel drive point and cap used to house the passive soil-gas sampler and (B) a deployed sampler inserted into the creek-bed sediments.

These soil-gas samplers, therefore, were used to assess the presence of organic compounds in groundwater near the point of discharge to the surface-water system. The first sampler for the hyporheic-zone assessment was deployed at a location assumed to be at or below the downstream boundary of the landfill (fig. 2). The remaining samplers were deployed at 50- to 80-foot intervals along the creek and flood plain in an effort to locate the upstream limit of possible contaminated groundwater discharge from the landfill to the creek or flood plain. The hyporheic-zone and flood-plain samplers were recovered after 2 to 3 hours of exposure to groundwater. Two trip blanks were shipped to the laboratory along with the environmental samplers for quality control.

Soil-gas sampler locations for the soil-gas surveys in the landfill study area were created with a stainless steel bit attached to a cordless drill (fig. 7). The bit was used to drill a 0.5 in.-diameter borehole in the soil to a depth of 15 in. The depth of 15 in. was similar to the depth recommended by the U.S. Environmental Protection Agency (USEPA) for soil-gas investigations (U.S. Environmental Protection Agency, 1998). A string was attached to a cork plug at one end and the sampler at the other end and was used to lower and suspend the sampler in the borehole. The cork plug sealed the borehole at land surface to prevent surface water and ambient land-surface

material from entering the borehole. The auger was cleaned with a paper towel between boreholes. All soil-gas samplers were recovered after 4 to 5 days.

Each soil-gas sampler recovered in the field was placed in its original 20-milliliter air-tight vial and sent to the commercial laboratory (W.L. Gore & Associates, Inc.) for analysis (fig. 5B). A few of the samplers were kept in the air-tight vials during the field deployment of environmental samplers and were shipped back to the laboratory as trip blanks.

All soil-gas samplers, including those deployed in the unsaturated soil zone and water-saturated environments, 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 gas sample of the VOCs and SVOCs adsorbed on the sampler. The gas sample was analyzed by a gas chromatograph equipped with mass-selective detectors. The laboratory analyzed instrument and method blanks for quality assurance, in addition to trip blanks, and was in compliance with Good Laboratory Practices and ISO Guide 25 (International Organization for Standardization, 1990). Results were expressed as concentration (microgram per liter) for samplers deployed in the water-saturated hyporheic zone and flood plain of McCoys

Figure 7. Installation of a passive soil-gas sampler in the landfill soil consisted of (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 the soil-gas sampler and the other end to a cork plug, (C) inserting the soil-gas sampler into the borehole, and (D) sealing the borehole with the cork plug to keep out surface material and water.

Creek and as mass (micrograms) for soil-gas samplers deployed in the unsaturated soil of the landfill. All results for the hyporheic-zone, flood-plain, and soil-gas samplers are presented in the text and tables 1–3 as unrounded values in the format reported by the commercial laboratory.

The laboratory results provided screening-level data for the assessment of 31 organic analytes. In addition, results of individual compounds were summed to calculate values for the combined masses (soil gas) or concentrations (water) of benzene, toluene, ethylbenzene, and xylenes (gasoline-range compounds) as BTEX; undecane, tridecane, and pentadecane (diesel-range alkanes) as C_{11} , C_{13} , and C_{15} ; 1,2,4- and 1,3,5-trimethylbenzene; *trans*- and *cis*-1,2-dichloroethene; and naphthalene and 2-methyl naphthalene. The laboratory provided method detection levels (MDL) for each of the 31 organic compounds, but did not provide MDLs for the five combined values. The reported combined value should be considered estimated (E) if the measured value of any of the individual compounds were reported as below detection level. A value of 0.00 (reporting format of W.L. Gore & Associates, Inc.) is reported for combined mass or concentration if the individual compounds included in the combined value were not detected above method detection levels and at least one of the individual compounds was reported as below detection level.

Total petroleum hydrocarbon (TPH) was one of the 31 organic analytes reported by the laboratory and was a laboratory-derived estimate based on the area under the chromatogram for all aliphatic hydrocarbons, including all gasoline-range (carbon atoms labeled C_4 to C_{10}) and diesel-range (carbon atoms labeled C_{10} to C_{20}) compounds. The laboratory provided an MDL for TPH.

Samplers for the June–July 2010 soil-gas survey were deployed in an effort to obtain samples from all areas of the landfill study area adjacent to McCoys Creek and were analyzed for petroleum and halogenated compounds that are not classified as explosives or chemical agents. Three unused samplers were shipped to the laboratory as trip blanks.

The results of the June–July 2010 soil-gas survey were used to select five sites at the former 19th Street landfill for a second soil-gas survey to evaluate the presence of organic compounds classified as chemical agents and explosives (shown as clear-centered circles in fig. 2). The environmental samplers and trip blanks for this soil-gas survey (September 15–22, 2010) were analyzed for 11 chemical agents and 9 explosives. The five sample sites chosen for this survey included three sites with TPH detections greater than 10.0 μg and two sites with TPH detections of less than 1.0 μg from the June–July 2010 soil-gas survey. These specific sample sites were chosen to evaluate the occurrence of chemical agents and explosives, if present, relative to the presence or absence of other organic constituents detected at the landfill.

Soil Samples

Composite soil samples were analyzed for inorganic constituents. The soil samples were collected at the same five locations as in the September 15–22, 2010 soil-gas survey for explosives and chemical agents (fig. 2). A stainless-steel hand auger was used to collect the soil samples between land surface and a depth of 6 in. (fig. 8). Organic plant material was removed from the sample in the field, if possible. The auger was washed with a soap solution, rinsed with deionized water, and wiped with a paper towel prior to the collection of each sample.

Soil samples were analyzed by using Inductively Coupled Plasma–Mass Spectrometry (ICP-MS; LaDonna Choate, Research Chemist, U.S. Geological Survey, written commun., 2009). The samples were ground into powder in the laboratory and processed by a multi-acid digestion technique prior to analysis (Crock and others, 1983). The multi-acid digestion technique combined with ICP-MS is suited for the analysis of inorganics in rocks, soils, and sediments (Briggs and Meier, 2002). Each sample was analyzed for 35 inorganic constituents, including 6 of the 8 RCRA metals (selenium and mercury were not included in the laboratory analysis). All results are rounded.

Figure 8. Soil sample (A) collected in the interval from land surface to a depth of 6 inches with a stainless-steel hand auger and (B) transferred from the auger to a plastic container for shipment to the laboratory.

Surface-Water Samples

Surface-water samples were collected from McCoys Creek and the outflow from 19th Street stormwater outfall to McCoys Creek during baseflow conditions on September 8, 2010 (fig. 2). A calibrated field meter was used to monitor, measure, and record field temperature, specific conductance, dissolved oxygen, and pH at each site prior to sampling (U.S. Geological Survey, variously dated). After stabilization of field parameters, bottles were submerged in the creek and filled with unfiltered water for analyses of inorganic constituents, VOCs, and SVOCs. Samples for inorganic constituents and VOCs were preserved with nitric

and hydrochloric acids, respectively. SVOC samples did not require chemical preservation. All samples were immediately placed on ice and shipped overnight to the U.S. Geological Survey National Water Quality Laboratory (NWQL) in Denver, Colorado, for analysis.

The water samples were processed for 22 inorganic constituents, 85 VOCs, and 56 SVOCs (Fishman, 1993; Connor and others, 1998; Garbarino and Struzeski, 1998). Surrogates for VOCs and SVOCs were used to test analytical method recovery for laboratory blanks and set spikes. A VOC trip blank was taken to the field during sample collection and shipped to the laboratory with the environmental samples for analysis. All results are reported to a minimum reporting level provided by the USGS laboratory and are rounded.

Results

All samples collected from the former 19th Street landfill study area and adjacent segment of McCoys Creek were

collected from February to September 2010. The results are discussed for the hyporheic-zone survey in McCoys Creek, the passive soil-gas surveys and soil samples collected in the landfill, and surface water collected in McCoys Creek and the stormwater outfall. The results of trip and method blanks for all passive soil-gas samplers and a VOC trip blank for the surface-water samples also are discussed to qualify environmental results for the study area.

Hyporheic-Zone and Flood-Plain Samplers

Twelve hyporheic-zone samplers were deployed and recovered on February 12, 2010, in the segment of McCoys Creek and its flood plain adjacent to the landfill study area (fig. 9). Sampler 618330 was deployed at a downstream location in McCoys Creek presumed to be at or possibly outside the downstream boundary of the landfill. The downstream site was selected on the basis of discussions with Fort Gordon personnel during an earlier site visit in 2009 and observations of debris in the landfill study area. Nine of the samplers were

Figure 9. Locations and identification numbers of hyporheic-zone and flood-plain samplers along McCoys Creek, and total petroleum hydrocarbon concentrations in micrograms per liter for each sampler (number in parentheses rounded to two significant figures), February 12, 2010, former 19th Street landfill, Fort Gordon, Georgia, 2009–2010. Method detection level is 2.03 micrograms per liter.

deployed in the creek bed close to the 19th Street landfill (eastern) side of the creek channel. Samplers 618335 and 618341 were deployed in boggy areas of the flood plain on the eastern bank of the creek channel and also. Sampler 618343 is unique in that it was deployed at a groundwater seep on the western (17th Street landfill side) bank of McCoys Creek. All twelve soil-gas samplers were in contact with water inside the drive point; therefore, the results for the hyporheic-zone samplers are reported in micrograms per liter.

The hyporheic-zone and flood-plain results indicated that TPH and octane are in groundwater beneath the creek bed and flood plain at all sample sites. The TPH concentrations exceeded the MDL of 2.03 µg/L and ranged from 51.4 to 81.8 µg/L (fig. 9; table 1). Octane concentrations, a gasoline-range compound, exceeded the MDL of 1.01 µg/L and ranged from 1.78 to 2.63 µg/L. The TPH and octane concentrations in all samplers identified the potential for VOCs and SVOCs in groundwater to discharge along the entire sampled segment of McCoys Creek adjacent to the landfill (fig. 9). The only other specific detections were toluene at sampler 618337 and undecane at sampler 618335 in the central part of the sampled segment of McCoys Creek (table 1). None of the organic compounds requested for laboratory analysis exceeded MDLs in the trip and method blanks; therefore, the hyporheic-zone and flood-plain detections were accepted as environmental results.

Sampler 618333, which was deployed downstream from the undecane and toluene detections, was the only hyporheic-zone sampler where evidence of VOCs/SVOCs was observed. An “oily” sheen was observed when the sampler was recovered from the creek-bed sediments, but was not observed prior to deployment of the sampler. The sheen rose from the sediments and floated away on the water surface as the sampler (drive point) was pulled from the creek bed. More sheen was released from the creek-bed sediments by repeatedly inserting and removing a piece of rebar. Sampler 618333 had detections of TPH and octane.

Because TPH and octane were detected in all 12 hyporheic-zone samplers, the results do not clearly identify specific source areas in the 19th Street landfill and upstream and downstream limits for the presence of these two petroleum compounds. The placement of 11 of the 12 samplers closer to the eastern bank of McCoys Creek or on the eastern bank flood plain should favor detections of these compounds in groundwater coming from the 19th Street side of the creek. The detections of TPH and octane in sampler 618343 at a seep on the western bank of McCoys Creek, however, indicate a potential for these contaminants to be derived from source areas outside the 19th Street landfill.

Soil-Gas Samplers: June 30–July 6, 2010

A total of 57 samplers were deployed for the June 30–July 6, 2010 soil-gas survey at the 19th Street landfill study area (fig. 2). The samplers were deployed on

June 30, 2010, but only 56 samplers were recovered on July 6, 2010. The sample site for the lost sampler (634927) was located on July 6, but the sampler, string, and cork were missing; therefore, results are discussed for the 56 samplers that were analyzed.

The target compounds for this soil-gas survey were petroleum and halogenated compounds not classified as chemical agents and explosives. The sampling strategy was to develop a network of samplers to define the downgradient or radial extent around the landfill site. Therefore, most of the samplers were deployed in the vicinity of the debris field between 19th Street and the unpaved 19th Street extension in upland areas and McCoys Creek downslope. In addition, samplers were deployed between McCoys Creek and 19th Street extension farther to the southeast of the debris field to better define the downstream limit for VOC and SVOC as the detections from the February 2010 hyporheic-zone study were not sufficient. Four samplers also were deployed near the military training obstacles located to the north of the debris field to test the area as a potential source of VOCs and SVOCs outside, but adjacent to, the landfill.

The June–July soil-gas survey mostly identified detections of TPH, gasoline- and diesel-range compounds, and chloroform (table 2). Results for the two trip blanks and three method blanks were reported as nondetections, with the exception of TPH. All of the blanks had TPH detections that exceeded the MDL of 0.02 µg and ranged from 0.03 to 0.05 µg, except for trip blank 634986 which had a detection of 0.62 µg. A specific reason for the contamination could not be identified; however, TPH concentrations were and were not detected in trip and method (laboratory) blanks for other USGS hyporheic-zone and soil-gas studies conducted at Fort Gordon in 2010. Therefore, all soil-gas results for the former 19th Street landfill investigation are accepted as environmental results, except for TPH. Results for TPH soil-gas mass were censored at 2.0 µg in figure 10 for discussion as environmental results, but all laboratory results are presented in table 2.

Total petroleum hydrocarbon was detected at soil-gas masses of 2.0 µg or greater in 21 of the 56 recovered samplers (fig. 10; table 2). As expected, TPH was detected in and immediately adjacent to the observed debris field of the landfill. The highest detection of TPH was in sampler 634921 near the debris field. Detections of TPH also were in areas where debris was not visible at the land surface, including samplers at the northwestern boundary of the landfill study area and several samplers in the southeastern part of the study area. The TPH detections of greater than 20 µg in samplers 634968 and 634969 were noteworthy because these two samplers were deployed at down-gradient sites near McCoys Creek. Two of the four samplers in the area of the military training obstacles outside the landfill study area also have reported detections of TPH.

Detections of BTEX were reported as a combined mass for benzene, toluene, ethylbenzene and ortho-xylene with MDLs of 0.02 µg and *meta*- and *para*-xylene with an MDL of 0.03 mg, but xylene was not detected in any of the samplers

Figure 10. Locations and identification numbers of passive soil-gas samplers, and ranges of soil-gas mass for total petroleum hydrocarbons in micrograms, former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010. Method detection level is 0.02 microgram.

(table 2). Therefore, all BTEX results are censored at 0.02 μg in figure 11 and are presented as environmental results. Eight samplers had BTEX soil-gas mass detections of 0.02 μg or greater, but none were located in or adjacent to the debris field. Three samplers had BTEX detections at the northwestern boundary of the study area and five samplers had BTEX detections in the southeastern part of the study area. The highest detection was near the 19th Street extension. Toluene was the most frequently detected BTEX compound with nine total detections, two of which were reported as below detection limit. Benzene (detected at the MDL of 0.02 μg) and ethylbenzene were detected in samplers 634969 and 634920, respectively (table 2).

Octane is a gasoline compound, but is not included in the calculation of BTEX. Octane was detected in samplers 634930 and 634968 at the MDL of 0.02 μg and was reported as below detection level for 43 samplers (table 2).

Diesel was reported by the laboratory as a combined mass for undecane with an MDL of 0.04 μg , and tridecane and pentadecane with MDLs of 0.02 μg (table 2). Each of the three diesel compounds was detected in at least one of the samplers. Therefore, results for the combined diesel mass were censored at the higher MDL of 0.04 μg for discussion as environmental results in this report (fig. 12). Twelve soil-gas mass samplers had detections of diesel that exceeded 0.04 μg . The mass of 0.03 μg reported for sampler 634968 and 0.00 μg reported for 18 other samplers were not considered as detections in this discussion. The distribution of diesel detections was similar to that of TPH, occurring in and around the debris field, in samplers 634918 and 634919 at the northwestern extent of the study area and in several samplers in the southeastern part of the study area (fig. 12). One site (sampler site 634966) with a detection of diesel was located in or near the hyporheic zone, or about 60 ft from McCoy's Creek. Two samplers deployed

Figure 11. Locations and identification numbers of passive soil-gas samplers, and ranges of combined soil-gas mass for benzene, toluene, ethylbenzene, and xylene (BTEX gasoline compounds) in micrograms, former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010. Method detection levels for the three BTEX compounds detected (xylene not detected) equal 0.02 microgram. All combined masses, therefore, are censored at less than 0.02 microgram.

near the military training obstacles also have reported detections of diesel. Each of the three diesel compounds was detected in three or more samplers, but undecane was the most frequently detected diesel compound (table 2). The highest soil-gas masses for diesel and undecane were 40.47 and 37.02 μg , respectively, and occurred at sampler 634921, which also had the highest TPH mass in the study area.

Chloroform and naphthalene were the only other compounds specifically reported as equal to or exceeding an MDL (table 2). Soil-gas mass as chloroform was not detected in the debris field, but exceeded an MDL of 0.02 μg in eight samples, including six in the landfill study area and two in the military training obstacle area (fig. 13). The highest chloroform soil-gas masses were in sampler 634971 in the military training obstacle area and sampler 634964 in the southeastern part of the landfill study area. Soil-gas mass as

naphthalene exceeded an MDL of 0.02 μg in two samplers in the southeastern part of the landfill study area (fig. 13).

The remaining compounds reported as mass and combined mass in table 2 were reported as non-detections, except for trimethylbenzene and 1,2,4-trimethylbenzene. The combined soil-gas mass for trimethylbenzene was reported as 0.00 μg in three samplers because they had soil-gas mass of 1,2,4-trimethylbenzene reported as below detection level (table 2).

Figure 12. Locations and identification numbers of passive soil-gas samplers, and ranges of combined soil-gas mass for undecane, tridecane, and pentadecane (C₁₁, C₁₃, and C₁₅ diesel compounds) in micrograms, former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010. Method detection levels for the three diesel compounds range from 0.02 to 0.04 microgram. All combined masses are censored at less than 0.04 microgram.

Soil-Gas Samplers: September 15–22, 2010

Five soil-gas samplers were deployed on September 15 and recovered on September 22, 2010. These samplers were analyzed for VOCs and SVOCs classified as chemical agents or explosives and were deployed at the same locations as five of the June–July soil-gas samplers (fig. 2; table 3). None of the chemical agents or explosives exceeded an MDL in deployed soil-gas samplers, but soil-gas mass was reported as below detection level for two chemical warfare agents—*para*-chlorophenyl methyl sulfone in all five samplers and benzothiazole in sampler 644219 in the southeastern part of the study area (table 3). Soil-gas mass for *para*-chlorophenyl methyl sulfone was reported as below detection level in the method blanks and all five trip blanks, indicating a systemic contamination problem for this compound; therefore, the

results are not accepted as environmental results. Soil-gas mass as benzothiazole was reported as nondetections in all trip and method blanks, so the soil-gas mass reported as below detection level in sampler 644219 can be accepted as an environmental result with an uncertain mass. All laboratory results for the nine explosive compounds were reported as nondetections in environmental samplers.

Figure 13. Locations and identification numbers of passive soil-gas samplers, and ranges of soil-gas mass for chloroform and naphthalene in micrograms, former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010. Method detection levels for chloroform and naphthalene are 0.02 microgram.

Soil Samples

Composite soil samples were collected at five locations. Four sampling locations were characterized by VOC/SVOC detections of the June 30–July 6, 2010, soil-gas samples. Soil sample 2 was collected at the same location as June–July soil-gas sampler 634925 which had a low soil-gas TPH mass of 0.28 μg ; therefore, the location of soil sample 2 was considered relatively clean of VOC and SVOCs compared to the other four locations. Quality-control samples were not collected for soil samples.

The samples were analyzed for 35 inorganic constituents, including six of the eight RCRA metals (selenium and mercury were excluded; table 4). Concentrations were compared to the USEPA Regional Screening Levels (RSLs) for Industrial Soils

(U.S. Environmental Protection Agency, 2009a). Concentrations for 19 of the 35 constituents also were compared to ambient, uncontaminated (background) levels for soils across the adjacent State of South Carolina (South Carolina Department of Health and Environmental Control, 2002) because no similar background values were available for Georgia. The comparison remains valid because Georgia and South Carolina had similar geologic and land-use histories.

At all five locations, constituent concentrations in soil samples did not exceed the RSLs (table 4). Some inorganic concentrations were, however, higher than background conditions reported in South Carolina. The concentrations in soil sample 2 (relatively organic-free sample site) and sample 4 were below South Carolina background levels for 34 constituents and were only slightly higher than the South

Carolina background level for barium. Samples 1 and 5 had concentrations of aluminum, barium and chromium that were slightly higher than the South Carolina background levels. In addition to exceeding background levels for aluminum, barium, and chromium, sample 3 in the debris field exceeded background levels for lead (a RCRA metal), calcium, nickel, potassium, sodium, and zinc (table 4).

Surface-Water Samples

Three surface-water samples were collected on September 8, 2010, and were shipped with a VOC trip blank to the NWQL. Samples were collected from the stormwater outfall culvert and the open channel of McCoys Creek at upstream and downstream locations relative to the outfall (fig. 2). The outfall was open to the main channel of McCoys Creek and contained a standing pool of water with no observed flow into or out of the culvert during sample collection. Field parameters indicated that the water in the outfall had appreciably higher specific conductance and lower dissolved oxygen, relative to the open channel samples (table 5).

A concentration for an inorganic constituent or an organic compound was reported as a quantitative detection if it was greater than the laboratory reporting level (Childress and others, 1999). A concentration was reported as a semiquantitative estimate (E) in table 5 if the value was between the laboratory reporting level and the NWQL long-term method detection level for the constituent. The percentage recovery for all surrogates was satisfactory, with the exception of the SVOC surrogate for phenol, which could be an underestimation of concentrations for phenol and SVOCs with similar properties.

Results for inorganic constituents all fell below Federal Primary and Secondary Drinking Water Standards, except for iron (table 5). The iron concentrations in the three samplers ranged from 532 to 549 µg/L and exceeded the Federal Secondary Drinking Water Standard of 300 µg/L.

All results for the VOC trip blank were reported as less than the LRL, except for toluene (table 5). The toluene concentration of 0.661 µg/L in the outfall water sample (332446082094201) is an order of magnitude greater than the concentration in the trip blank and is considered to be an environmental result. The estimated concentrations for the downstream and upstream samples were less than the trip blank toluene concentration and the LRL for toluene (less than 0.018 µg/L), and therefore, cannot be verified as representative of the environment on the basis of the trip blank results. All other VOC and SVOC concentrations were reported as estimated or below the LRL. For the VOC/SVOC detected above the LRL, the concentration of toluene in the outfall sample still is below the Federal Primary Drinking Water Standards (2009b; table 5).

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 soil gas, soil, and water for potential contaminants at the former 19th Street landfill and the adjacent segment of McCoys Creek from February to September 2010. The former landfill is located off the southwest corner of the cantonment area near the intersection of 19th Street/19th Street extension. The site is on a wooded, sandy slope between 19th Street and the unpaved 19th Street extension in the upslope area and McCoys Creek in the downslope area. The site assessment consisted of (a) a preliminary survey along the McCoys Creek to identify potential areas of volatile and semivolatile organic compounds (VOCs and SVOCs) in the hyporheic zone and flood plain adjacent to the landfill, (b) two soil-gas surveys for organic compounds and soil samples for inorganic constituents in the landfill, and (c) collection of surface water for organic compounds and inorganic constituents from the adjacent segment of the McCoys Creek under base-flow conditions.

Twelve hyporheic-zone and flood-plain samplers were deployed and recovered on February 12, 2010, in the segment of McCoys Creek adjacent to the landfill study area. Total petroleum hydrocarbons (TPH) and octane were detected at all of the sampling sites. The TPH concentrations ranged from 51.4 to 81.4 micrograms per liter (µg/L). Octane concentrations ranged from 1.78 to 2.63 µg/L. The only other detections in the hyporheic zone were toluene at sampler 618337 and undecane at sampler 618335 in the central part of the sampled segment of McCoys Creek. The results did not clearly identify specific source areas in the 19th Street landfill, and the detections of TPH and octane in sampler 618343 at a seep on the western bank of McCoys Creek identified a potential for these contaminants to be derived from source areas outside the 19th Street landfill.

A total of 57 samplers were deployed for a soil-gas survey in the 19th Street landfill study area on June 30, 2010, but only 56 samplers were recovered on July 6, 2010. The target compounds for this soil-gas survey were petroleum and halogenated compounds not classified as chemical agents and explosives. Four of the samplers were deployed near the military training obstacles located to the north of the debris field to test the area as a potential source area. The TPH detections were at a soil-gas mass of 2.0 micrograms (µg) or greater in 21 of the 56 recovered samplers. Detections in and immediately adjacent to the debris field inside the landfill included the highest TPH detection (sampler 634921). Detections of TPH also were in areas where debris was not visible, including the northwestern boundary of the study area and the southeastern part of the study area. Sampler sites 634968 and 634969 are located in close proximity to the hyporheic zone of McCoys Creek in the northwestern part of the study area. Two

of the four samplers in the military training obstacles area also have reported TPH detections.

The combined masses of benzene, toluene, ethylbenzene, and xylene (BTEX) were detected as soil-gas mass of 0.02 µg or greater in eight samplers, but none of the detections were in or adjacent to the observed debris field. The BTEX detections were in three samplers at the northwestern boundary and in five samplers in the southeastern part of the study area. In addition to the substantial detections of TPH, sampler sites 634968 and 634969 near McCoys Creek had detections of BTEX. Toluene was the most frequently detected BTEX compound. Octane was detected in samplers 634930 and 634968 at 0.02 µg.

Twelve detections of soil-gas mass as diesel exceeded 0.04 µg and had a distribution similar to that of TPH. Diesel was detected in and around the debris field. Sampler site 634966 with a diesel detection was located near the hyporheic zone of McCoys Creek. Undecane, tridecane, and pentadecane were detected in three or more samplers, but undecane was the most frequently detected diesel compound.

Chloroform and naphthalene were the only other compounds specifically reported as equal to or exceeding a method detection level (MDL). Chloroform was not detected in the debris field, but exceeded an MDL of 0.02 µg in eight samples, including six in the landfill study area and two in the military training obstacle area.

Five soil-gas samplers were deployed on September 15 and recovered on September 22, 2010, and were analyzed for VOCs and SVOCs classified as chemical agents and explosives. None of the chemical agents or explosives was detected in excess of an MDL.

Five composite soil samples were collected and analyzed for 35 inorganic constituents. Concentrations did not exceed U.S. Environmental Protection Agency Regional Screening Levels. Two samples outside the debris field had concentrations of aluminum, barium, and chromium that were higher than background levels. The sample collected in the debris field (sample 3) exceeded background levels for lead (a RCRA metal), calcium, nickel, potassium, sodium, and zinc, in addition to aluminum, barium, and chromium.

Three surface-water samples were collected from the stormwater outfall culvert and the open channel of McCoys Creek at upstream and downstream locations relative to the outfall on September 8, 2010, and were analyzed with a VOC trip blank. The toluene concentration of 0.661 µg/L in the outfall water sample (332446082094201) was the only detection above laboratory reporting level and was an order of magnitude greater than the concentration in the trip blank. All other VOC and SVOC concentrations were below laboratory reporting levels in the trip blank and were reported as estimated or below the laboratory reporting levels in the environmental samples. The iron concentrations in the three samples ranged from 532 to 549 µg/L and iron was the only inorganic constituent to exceed its Federal Secondary Drinking Water Standard (300 µg/L).

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Table 1. Concentration of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered in the water-saturated hyporheic zone and flood plain of McCoys Creek adjacent to the former 19th Street landfill, Fort Gordon, Georgia, February 12, 2010.

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; N/A, not applicable; µg/L, micrograms per liter; nd, not detected; samplers 618350 and 618351 are trip blanks; the method blank associated with this dataset had no detections above the method detection level and is not included in this table]

ORGANIC COMPOUND	MDL (µg/L)	Sampler 618330	Sampler 618331	Sampler 618332	Sampler 618333	Sampler 618335	Sampler 618337	Sampler 618338
Total petroleum hydrocarbons (TPH)	2.03	63.79	65.91	57.16	51.4	81.84	61.06	67.89
BTEX (gasoline) ¹	N/A	nd	nd	nd	nd	nd	46.86	nd
Benzene	1.01	nd	nd	nd	nd	nd	nd	nd
Toluene	1.01	nd	nd	nd	nd	nd	46.86	nd
Ethylbenzene	1.01	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	1.01	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	1.01	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	nd	nd	nd	nd	9.81	nd	nd
Undecane	1.01	nd	nd	nd	nd	9.81	nd	nd
Tridecane	1.01	nd	nd	nd	nd	nd	nd	nd
Pentadecane	1.01	nd	nd	nd	nd	nd	nd	nd
Octane	1.01	2.35	2.34	1.98	1.78	2.16	2.49	2.29
Methyl <i>tert</i> -butyl ether	1.01	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.01	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.01	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	1.01	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	1.01	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	1.01	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	1.01	nd	nd	nd	nd	nd	nd	nd
Chloroform	1.01	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	3.49	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	1.04	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	1.01	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1.01	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	1.01	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Naphthalene	1.01	nd	nd	nd	nd	nd	nd	nd
2-Methyl naphthalene	1.01	nd	nd	nd	nd	nd	nd	nd

Table 1. Concentration of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered in the water-saturated hyporheic zone and flood plain of McCoys Creek adjacent to the former 19th Street landfill, Fort Gordon, Georgia, February 12, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; N/A, not applicable; µg/L, micrograms per liter; nd, not detected; samplers 618350 and 618351 are trip blanks; the method blank associated with this dataset had no detections above the method detection level and is not included in this table]

ORGANIC COMPOUND	MDL (µg/L)	Sampler 618339	Sampler 618340	Sampler 618341	Sampler 618342	Sampler 618343	Sampler 618350	Sampler 618351
Total petroleum hydrocarbons (TPH)	2.03	57.00	66.76	59.74	70.54	78.59	nd	nd
BTEX (gasoline) ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Benzene	1.01	nd	nd	nd	nd	nd	nd	nd
Toluene	1.01	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	1.01	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	1.01	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	1.01	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Undecane	1.01	nd	nd	nd	nd	nd	nd	nd
Tridecane	1.01	nd	nd	nd	nd	nd	nd	nd
Pentadecane	1.01	nd	nd	nd	nd	nd	nd	nd
Octane	1.01	1.89	2.36	2.29	2.45	2.63	nd	nd
Methyl <i>tert</i> -butyl ether	1.01	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.01	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.01	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	1.01	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	1.01	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	1.01	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	1.01	nd	nd	nd	nd	nd	nd	nd
Chloroform	1.01	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	3.49	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	1.04	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	1.01	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1.01	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.01	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	1.01	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Naphthalene	1.01	nd	nd	nd	nd	nd	nd	nd
2-Methyl naphthalene	1.01	nd	nd	nd	nd	nd	nd	nd

¹ Combined concentration for two or more compounds with no method detection level provided by laboratory.

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634918	Sampler 634919	Sampler 634920	Sampler 634921	Sampler 634922	Sampler 634923	Sampler 634924
Total petroleum hydrocarbons (TPH)	0.02	11.20	2.27	0.73	52.13	11.11	0.85	0.28
BTEX (gasoline) ¹	N/A	nd	nd	0.14	nd	nd	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd	nd	nd
Toluene	0.02	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	0.14	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	E0.05	E0.16	nd	40.47	nd	0.00	nd
Undecane	0.04	0.05	0.16	nd	37.02	nd	nd	nd
Tridecane	0.02	bdl	bdl	nd	0.26	nd	nd	nd
Pentadecane	0.02	nd	nd	nd	3.19	nd	nd	nd
Octane	0.02	bdl	bdl	bdl	nd	bdl	bdl	bdl
Methyl <i>tert</i> -butyl ether	0.03	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	0.02	nd	nd	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634925	Sampler 634926	Sampler 634928	Sampler 634929	Sampler 634930	Sampler 634931	Sampler 634932
Total petroleum hydrocarbons (TPH)	0.02	0.28	0.47	1.59	15.47	22.27	0.74	1.25
BTEX (gasoline) ¹	N/A	nd	nd	nd	0.03	0.28	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd	nd	nd
Toluene	0.02	nd	nd	nd	0.03	0.28	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	nd	nd	0.00	0.00	0.04	nd	0.00
Undecane	0.04	nd	nd	bdl	nd	nd	nd	nd
Tridecane	0.02	nd	nd	bdl	nd	0.04	nd	nd
Pentadecane	0.02	nd	nd	nd	bdl	nd	nd	nd
Octane	0.02	nd	bdl	bdl	nd	0.02	bdl	bdl
Methyl <i>tert</i> -butyl ether	0.03	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	nd	0.03	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	nd	nd	nd	0.00	0.00	nd	nd
Naphthalene	0.02	nd	nd	nd	bdl	bdl	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634933	Sampler 634934	Sampler 634935	Sampler 634936	Sampler 634937	Sampler 634938	Sampler 634939
Total petroleum hydrocarbons (TPH)	0.02	15.75	0.85	1.59	2.45	11.33	1.56	0.71
BTEX (gasoline) ¹	N/A	0.03	nd	0.00	nd	0.00	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd	nd	nd
Toluene	0.02	0.03	nd	bdl	nd	bdl	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	nd	0.06	0.00	nd	E7.43	nd	nd
Undecane	0.04	nd	0.06	nd	nd	7.41	nd	nd
Tridecane	0.02	nd	nd	bdl	nd	0.02	nd	nd
Pentadecane	0.02	nd	nd	bdl	nd	bdl	nd	nd
Octane	0.02	bdl	bdl	nd	bdl	nd	bdl	nd
Methyl <i>tert</i> -butyl ether	0.03	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	0.00	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	bdl	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	nd	nd	0.05	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	0.03	nd	nd	nd	nd	nd	nd
Naphthalene	0.02	0.03	nd	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634940	Sampler 634941	Sampler 634942	Sampler 634943	Sampler 634944	Sampler 634945	Sampler 634946
Total petroleum hydrocarbons (TPH)	0.02	17.46	0.46	1.92	0.71	0.53	3.04	3.73
BTEX (gasoline) ¹	N/A	0.05	nd	nd	nd	nd	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd	nd	nd
Toluene	0.02	0.05	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	0.00	nd	0.00	0.00	nd	E0.04	0.00
Undecane	0.04	nd	nd	nd	bdl	nd	0.04	nd
Tridecane	0.02	nd	nd	nd	nd	nd	bdl	bdl
Pentadecane	0.02	bdl	nd	bdl	nd	nd	nd	nd
Octane	0.02	bdl	bdl	bdl	bdl	bdl	nd	nd
Methyl <i>tert</i> -butyl ether	0.03	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	0.00	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	bdl	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	0.05	nd	nd	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634947	Sampler 634948	Sampler 634949	Sampler 634950	Sampler 634951	Sampler 634952	Sampler 634953
Total petroleum hydrocarbons (TPH)	0.02	6.65	6.39	0.58	1.52	5.26	0.63	0.66
BTEX (gasoline) ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd	nd	nd
Toluene	0.02	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	E0.40	3.35	nd	nd	nd	nd	nd
Undecane	0.04	0.40	3.08	nd	nd	nd	nd	nd
Tridecane	0.02	bdl	0.05	nd	nd	nd	nd	nd
Pentadecane	0.02	bdl	0.22	nd	nd	nd	nd	nd
Octane	0.02	bdl	nd	bdl	bdl	bdl	bdl	bdl
Methyl <i>tert</i> -butyl ether	0.03	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	nd	nd	nd	0.02
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634954	Sampler 634955	Sampler 634956	Sampler 634957	Sampler 634958	Sampler 634959	Sampler 634960
Total petroleum hydrocarbons (TPH)	0.02	1.49	0.84	0.80	0.51	1.19	2.11	0.84
BTEX (gasoline) ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd	nd	nd
Toluene	0.02	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	nd	0.00	0.00	nd	nd	0.00	nd
Undecane	0.04	nd	nd	bdl	nd	nd	nd	nd
Tridecane	0.02	nd	nd	bdl	nd	nd	bdl	nd
Pentadecane	0.02	nd	bdl	nd	nd	nd	bdl	nd
Octane	0.02	bdl	bdl	nd	bdl	bdl	bdl	bdl
Methyl <i>tert</i> -butyl ether	0.03	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634961	Sampler 634962	Sampler 634963	Sampler 634964	Sampler 634965	Sampler 634966	Sampler 634967
Total petroleum hydrocarbons (TPH)	0.02	25.44	0.45	0.70	0.79	0.92	1.77	1.86
BTEX (gasoline) ¹	N/A	0.04	nd	nd	nd	nd	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd	nd	nd
Toluene	0.02	0.04	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	0.39	nd	0.00	0.00	0.00	E0.21	0.00
Undecane	0.04	0.29	nd	nd	bdl	bdl	0.21	bdl
Tridecane	0.02	0.05	nd	nd	nd	nd	bdl	nd
Pentadecane	0.02	0.05	nd	bdl	bdl	bdl	nd	bdl
Octane	0.02	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Methyl <i>tert</i> -butyl ether	0.03	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	0.00	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	bdl	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	0.14	nd	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	0.17	nd	nd	nd	nd	nd	nd
Naphthalene	0.02	0.17	nd	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634968	Sampler 634969	Sampler 634970	Sampler 634971	Sampler 634972	Sampler 634973	Sampler 634974
Total petroleum hydrocarbons (TPH)	0.02	8.64	20.13	1.96	2.00	6.97	0.24	0.85
BTEX (gasoline) ¹	N/A	0.05	0.17	nd	nd	nd	nd	nd
Benzene	0.02	nd	0.02	nd	nd	nd	nd	nd
Toluene	0.02	0.05	0.15	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	0.03	E0.03	0.00	E0.08	0.00	E0.82	nd	0.00
Undecane	0.04	nd	nd	0.08	nd	0.77	nd	bdl
Tridecane	0.02	bdl	bdl	nd	nd	0.05	nd	nd
Pentadecane	0.02	0.03	nd	nd	bdl	bdl	nd	bdl
Octane	0.02	0.02	bdl	bdl	bdl	bdl	nd	bdl
Methyl tert-butyl ether	0.03	nd	nd	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	0.10	0.03	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd	nd
Naphthalene and 2-Methyl naphthalene ¹	N/A	nd	0.00	0.00	0.00	nd	nd	nd
Naphthalene	0.02	nd	bdl	bdl	bdl	nd	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd	nd	nd

Table 2. Mass of volatile and semivolatile organic compounds detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, June 30–July 6, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; 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 mass of any of the individual compounds 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; samplers 634985 and 634986 are trip blanks]

ORGANIC COMPOUND	MDL (µg)	Sampler 634985	Sampler 634986	Method blank	Method blank	Method blank
Total petroleum hydrocarbons (TPH)	0.02	0.05	0.62	0.04	0.03	0.03
BTEX (gasoline) ¹	N/A	nd	nd	nd	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd
Toluene	0.02	nd	nd	nd	nd	nd
Ethylbenzene	0.02	nd	nd	nd	nd	nd
<i>meta</i> -, <i>para</i> -, Xylene	0.03	nd	nd	nd	nd	nd
<i>ortho</i> -Xylene	0.02	nd	nd	nd	nd	nd
C ₁₁ , C ₁₃ , and C ₁₅ (diesel) ¹	N/A	nd	nd	nd	nd	nd
Undecane	0.04	nd	nd	nd	nd	nd
Tridecane	0.02	nd	nd	nd	nd	nd
Pentadecane	0.02	nd	nd	nd	nd	nd
Octane	0.02	nd	nd	nd	nd	nd
Methyl <i>tert</i> -butyl ether	0.03	nd	nd	nd	nd	nd
Trimethylbenzene ¹	N/A	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.03	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.02	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.02	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.02	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	nd	nd
<i>cis</i> - and <i>trans</i> -1,2-Dichloroethene ¹	N/A	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.04	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.03	nd	nd	nd	nd	nd
Trichloroethene	0.02	nd	nd	nd	nd	nd
Tetrachloroethene	0.02	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.03	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.02	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.02	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	0.02	nd	nd	nd	nd	nd
2-Methyl naphthalene	0.02	nd	nd	nd	nd	nd

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

Table 3. Mass of volatile and semivolatile organic compounds classified as chemical agents and explosives detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, September 15–22, 2010.

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; nd, not detected; bdl, below detection level; closest June–July sampler number in brackets (fig. 2); samplers 644252 through 644256 are trip blanks]

	MDL (µg)	Sampler 644215 [634921]	Sampler 644216 [634925]	Sampler 644217 [634946]	Sampler 644218 [634930]	Sampler 644219 [634937]	Method blank
Chemical Agents							
Dimethyl disulfide	0.10	nd	nd	nd	nd	nd	nd
Dimethyl methylphosphonate	0.10	nd	nd	nd	nd	nd	nd
1,4-Thioxane	0.10	nd	nd	nd	nd	nd	nd
Diisopropyl methylphosphonate	0.10	nd	nd	nd	nd	nd	nd
1,4-Dithiane	0.10	nd	nd	nd	nd	nd	nd
Thiodiglycol	0.20	nd	nd	nd	nd	nd	nd
Benzothiazole	0.10	nd	nd	nd	nd	bdl	nd
Chloroacetophenones	0.10	nd	nd	nd	nd	nd	nd
<i>para</i> -Chlorophenyl methyl sulfide	0.10	nd	nd	nd	nd	nd	bdl
<i>para</i> -Chlorophenyl methyl sulfoxide	0.10	nd	nd	nd	nd	nd	bdl
<i>para</i> -Chlorophenyl methyl sulfone	0.10	bdl	bdl	bdl	bdl	bdl	bdl
Explosives							
Nitrobenzene	0.10	nd	nd	nd	nd	nd	nd
1,3-Dinitrobenzene	0.10	nd	nd	nd	nd	nd	bdl
1,3,5-Trinitrobenzene	0.10	nd	nd	nd	nd	nd	nd
2-Nitrotoluene	0.10	nd	nd	nd	nd	nd	nd
3-Nitrotoluene	0.10	nd	nd	nd	nd	nd	nd
4-Nitrotoluene	0.10	nd	nd	nd	nd	nd	nd
2,4-Dinitrotoluene	0.10	nd	nd	nd	nd	nd	bdl
2,6-Dinitrotoluene	0.10	nd	nd	nd	nd	nd	bdl
2,4,6-Trinitrotoluene	0.10	nd	nd	nd	nd	nd	nd

Table 3. Mass of volatile and semivolatile organic compounds classified as chemical agents and explosives detected in passive soil-gas samplers deployed and recovered from the former 19th Street landfill, Fort Gordon, Georgia, September 15–22, 2010.—Continued

[Unrounded data provided by W.L. Gore & Associates, Inc.; MDL, method detection level; µg, micrograms; nd, not detected; bdl, below detection level; closest June–July sampler number in brackets (fig. 2); samplers 644252 through 644256 are trip blanks]

	MDL (µg)	Method blank	Method blank	Sampler 644252	Sampler 644253	Sampler 644254	Sampler 644255	Sampler 644256
Chemical Agents								
Dimethyl disulfide	0.10	nd	nd	nd	nd	nd	nd	nd
Dimethyl methylphosphonate	0.10	nd	nd	nd	nd	nd	nd	nd
1,4-Thioxane	0.10	nd	nd	nd	nd	nd	nd	nd
Diisopropyl methylphosphonate	0.10	nd	nd	nd	nd	nd	nd	nd
1,4-Dithiane	0.10	nd	nd	nd	nd	nd	nd	nd
Thiodiglycol	0.20	nd	nd	nd	nd	nd	nd	nd
Benzothiazole	0.10	nd	nd	nd	nd	bdl	nd	nd
Chloroacetophenones	0.10	nd	nd	nd	nd	nd	nd	nd
<i>para</i> -Chlorophenyl methyl sulfide	0.10	nd	nd	nd	nd	nd	bdl	nd
<i>para</i> -Chlorophenyl methyl sulfoxide	0.10	nd	nd	nd	nd	nd	bdl	nd
<i>para</i> -Chlorophenyl methyl sulfone	0.10	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Explosives								
Nitrobenzene	0.10	nd	nd	nd	nd	nd	nd	nd
1,3-Dinitrobenzene	0.10	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trinitrobenzene	0.10	nd	bdl	nd	nd	nd	nd	nd
2-Nitrotoluene	0.10	nd	nd	nd	nd	nd	nd	nd
3-Nitrotoluene	0.10	nd	bdl	nd	nd	nd	nd	nd
4-Nitrotoluene	0.10	nd	nd	nd	nd	nd	nd	nd
2,4-Dinitrotoluene	0.10	bdl	nd	nd	nd	nd	nd	bdl
2,6-Dinitrotoluene	0.10	nd	nd	nd	nd	nd	nd	nd
2,4,6-Trinitrotoluene	0.10	nd	nd	nd	nd	nd	nd	nd

Table 4. Inorganic constituents detected in soil samples 1– 5 collected from land surface to a depth of 6 inches at the former 19th Street landfill, Fort Gordon, Georgia, August 25, 2010.

[USEPA RSL, U.S. Environmental Protection Agency Regional Screening Level, Industrial Soil; mg/kg, milligrams per kilogram; µg/g, micrograms per gram; SCDHEC, South Carolina Department of Health and Environmental Control; <, less than; for soil, 1 µg/g is equivalent to 1 µg/kg, and 1 µg/kg is equivalent to 1 part per million (ppm); N/A, not applicable; yellow highlight, higher than South Carolina background; Note: selenium and mercury were not analyzed; *, Resource Conservation and Recovery Act (RCRA) metal]

[Closest June/July Soil-Gas Sampler, fig. 2]	Sample 1 (3324490 82094000) (µg/g) [634921]	Sample 2 (3324470 82093800) (µg/g) [634925]	Sample 3 (3324470 82093900) (µg/g) [634946]	Sample 4 (3324440 82093400) (µg/g) [634930]	Sample 5 (3324440 82093500) (µg/g) [634937]	USEPA RSL (mg/kg)	SCDHEC Background (mg/kg)
Inorganic Constituents							
Aluminum	17,900	9,430	19,500	7,430	20,300	990,000	13,528
Antimony	0.1	0.2	1.2	0.2	0.25	410	N/A
Arsenic*	1.6	1.1	2.5	1.1	<1	260	6.1
Barium*	260	48.5	146	57.7	81.3	190,000	38
Beryllium	0.2	0.11	0.38	0.12	0.22	2,000	0.6
Cadmium*	0.01	0.009	0.35	0.008	0.01	800	1
Calcium	191	106	3,270	105	160	N/A	699
Cerium	98.8	32.6	31.7	37.5	30.1	N/A	N/A
Cesium	0.4	0.61	0.94	0.39	0.52	N/A	N/A
Chromium*	22.3	11.9	20.8	9.3	21.4	1,500,000	16
Cobalt	0.41	0.51	1.7	0.39	0.65	300	4
Copper	4.2	3.9	8.5	3.3	5.4	41,000	9
Gallium	5.2	2.7	5.1	2.5	4.3	N/A	N/A
Iron	3,740	3,360	7,800	2,370	3,040	720,000	15,608
Lanthanum	32.1	14.5	13.9	16.7	11.9	N/A	N/A
Lead*	10.6	5.05	190	8.32	6.42	800	16
Lithium	4.6	3.6	8.5	4	5.7	2,000	N/A
Magnesium	182	222	956	170	235	N/A	988
Manganese	10.2	37.1	94.4	32.4	45.4	23,000	120
Molybdenum	0.59	0.22	0.49	0.38	0.26	5,100	N/A
Nickel	2.8	2.3	7.7	1.4	3.1	47,000	6
Niobium	1.5	2.8	4.8	2.7	3.2	N/A	N/A
Phosphorus	354	131	217	108	132	N/A	N/A
Potassium	300	423	1,180	294	634	N/A	856
Rubidium	2.8	4.6	8.9	2.7	5.2	N/A	N/A
Scandium	2.2	1.2	2.5	0.9	1.9	N/A	N/A
Silver*	<0.01	0.014	0.171	0.016	0.04	5,100	4
Sodium	46.8	49.7	494	45.5	74.7	N/A	194
Strontium	37.6	9.7	29.5	9	13.7	610,000	N/A
Thallium	<0.08	<0.08	0.09	<0.08	<0.08	N/A	4.5
Thorium	2.29	4.22	3.62	5.08	3	N/A	N/A
Uranium	1.05	0.79	1.08	0.98	0.77	N/A	N/A
Vanadium	17.5	12.8	26	10.2	16.3	5,200	N/A
Yttrium	18.5	4.7	4.6	3.7	4.8	N/A	N/A
Zinc	7.5	10.5	233	7.3	10	310,000	23

Table 5. Parameters and analytical results for unfiltered surface-water samples collected from McCoys Creek adjacent to the former 19th Street landfill, Fort Gordon, Georgia, September 8, 2010.

[id., identification; USEPA NPDWS (*NSDWS*), U.S. Environmental Protection Agency National Primary Drinking Water Standard (*National Secondary Drinking Water Standard*); ---, not analyzed; $\mu\text{S}/\text{cm}$, microsiemens per centimeters at 25 degrees Celsius; s.u., standard pH units; mg/L , milligrams per liter; $^{\circ}\text{C}$, degrees Celsius; <, less than; E, estimated; $\mu\text{g}/\text{L}$, micrograms per liter; icp, inductively coupled plasma; cicp, cell inductively coupled plasma; ms, mass spectrometry; lle liquid-liquid extraction; p&t, purge and trap; gcms, gas chromatography mass spectrometry; pct, percent; values for trip blank equal lower reporting level for volatile organics, except for toluene which has a lower reporting level of <0.018]

	Downstream site id. 3324460 82094200	Culvert site id. 3324460 82094201	Upstream site id. 3324460 82094300	Trip blank id. 3324460 82094200	Units	Method	USEPA NPDWS (<i>NSDWS</i>)
Field Parameters							
Specific conductance (field)	25	61	26	---	$\mu\text{S}/\text{cm}$	meter	N/A
Specific conductance (lab)	27	60	25	---	$\mu\text{S}/\text{cm}$	meter	N/A
pH	5.4	5.1	5.6	---	s.u.	meter	N/A
Dissolved oxygen	7.4	5.5	7.3	---	$\mu\text{g}/\text{L}$	meter	N/A
Temperature	24.3	21.4	24.6	---	$^{\circ}\text{C}$	meter	N/A
Inorganic Constituents							
Aluminum	38	21	40	---	$\mu\text{g}/\text{L}$	icp-ms	<u>50 to 200</u>
Arsenic	0.24	E0.15	0.24	---	$\mu\text{g}/\text{L}$	cicp-ms	10
Barium	20.9	25.6	21.1	---	$\mu\text{g}/\text{L}$	icp	2,000
Beryllium	<0.38	<0.38	<0.38	---	$\mu\text{g}/\text{L}$	icp	4
Cadmium	E0.03	0.08	E0.03	---	$\mu\text{g}/\text{L}$	icp-ms	5
Calcium	1.23	5.39	1.14	---	$\mu\text{g}/\text{L}$	icp	N/A
Chromium	<0.42	<0.42	<0.42	---	$\mu\text{g}/\text{L}$	cicp-ms	100
Cobalt	0.22	0.23	0.2	---	$\mu\text{g}/\text{L}$	cicp-ms	N/A
Copper	<4	7	<4	---	$\mu\text{g}/\text{L}$	icp	<u>1,000</u>
Iron	549	532	543	---	$\mu\text{g}/\text{L}$	icp	<u>300</u>
Lead	0.19	0.41	0.19	---	$\mu\text{g}/\text{L}$	icp-ms	N/A
Lithium	0.69	0.59	0.69	---	$\mu\text{g}/\text{L}$	icp	N/A
Magnesium	0.72	0.86	0.72	---	$\mu\text{g}/\text{L}$	icp	N/A
Manganese	10.2	22.5	9.9	---	$\mu\text{g}/\text{L}$	icp	<u>50</u>
Molybdenum	<0.1	<0.1	<0.1	---	$\mu\text{g}/\text{L}$	icp-ms	N/A
Nickel	0.43	0.4	0.41	---	$\mu\text{g}/\text{L}$	cicp-ms	N/A
Potassium	0.44	0.63	0.44	---	$\mu\text{g}/\text{L}$	icp	N/A
Selenium	0.15	E0.05	0.15	---	$\mu\text{g}/\text{L}$	cicp-ms	50
Silver	<0.02	<0.02	<0.02	---	$\mu\text{g}/\text{L}$	icp-ms	<u>100</u>
Sodium	1.8	2.8	1.7	---	$\mu\text{g}/\text{L}$	icp	N/A
Strontium	9.6	29.3	9	---	$\mu\text{g}/\text{L}$	icp	N/A
Zinc	5	20	4	---	$\mu\text{g}/\text{L}$	icp	<u>5,000</u>

Table 5. Parameters and analytical results for unfiltered surface-water samples collected from McCoys Creek adjacent to the former 19th Street landfill, Fort Gordon, Georgia, September 8, 2010.—Continued

[id., identification; USEPA NPDWS (*NSDWS*), U.S. Environmental Protection Agency National Primary Drinking Water Standard (*National Secondary Drinking Water Standard*); ---, not analyzed; $\mu\text{S}/\text{cm}$, microsiemens per centimeters at 25 degrees Celsius; s.u., standard pH units; mg/L, milligrams per liter; °C, degrees Celsius; <, less than; E, estimated; $\mu\text{g}/\text{L}$, micrograms per liter; icp, inductively coupled plasma; cicc, cell inductively coupled plasma; ms, mass spectrometry; lle, liquid-liquid extraction; p&t, purge and trap; gcms, gas chromatography mass spectrometry; pct, percent; values for trip blank equal lower reporting level for volatile organics, except for toluene which has a lower reporting level of <0.018]

	Downstream site id. 33244608 2094200	Culvert site id. 33244608 2094201	Upstream site id. 33244608 2094300	Trip blank id. 33244608 2094200	Units	Methods	USEPA NPDWS (<i>NSDWS</i>)
Volatile Organics							
1,1,1,2-Tetrachloroethane	<0.04	<0.04	<0.04	<0.04	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,1,1-Trichloroethane	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	200
1,1,2,2-Tetrachloroethane	<0.14	<0.14	<0.14	<0.14	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,1,2-Trichloro-1,2,2-Trifluoroethane	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,1,2-Trichloroethane	<0.05	<0.05	<0.05	<0.05	$\mu\text{g}/\text{L}$	p&t gcms	5
1,1-Dichloroethane	<0.04	<0.04	<0.04	<0.04	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,1-Dichloroethylene	<0.02	<0.02	<0.02	<0.02	$\mu\text{g}/\text{L}$	p&t gcms	7
1,1-Dichloropropene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2,3,4-Tetramethylbenzene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2,3,5-Tetramethylbenzene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2,3-Trichlorobenzene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2,3-Trichloropropane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2,3-Trimethylbenzene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2,4-Trichlorobenzene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	70
1,2,4-Trimethylbenzene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2-Dibromo-3-Chloropropane	<0.3	<0.3	<0.3	<0.3	$\mu\text{g}/\text{L}$	p&t gcms	0.2
1,2-Dibromoethane	<0.05	<0.05	<0.05	<0.05	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2-Dichlorobenzene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,2-Dichloroethane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	5
1,2-Dichloropropane	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	5
1,3,5-Trimethylbenzene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,3-Dichlorobenzene	<0.02	<0.02	<0.02	<0.02	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,3-Dichloropropane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
1,4-Dichlorobenzene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
2,2-Dichloropropane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
2-Butanone	<1.6	<1.6	<1.6	<1.6	$\mu\text{g}/\text{L}$	p&t gcms	N/A
2-Chlorotoluene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
2-Hexanone	<0.5	<0.5	<0.5	<0.5	$\mu\text{g}/\text{L}$	p&t gcms	N/A
3-Chloropropene	<0.08	<0.08	<0.08	<0.08	$\mu\text{g}/\text{L}$	p&t gcms	N/A
4-Chlorotoluene	<0.04	<0.04	<0.04	<0.04	$\mu\text{g}/\text{L}$	p&t gcms	N/A
4-Isopropyl-1-Methylbenzene	<0.06	E0.02	<0.06	<0.06	$\mu\text{g}/\text{L}$	p&t gcms	N/A
4-Methyl-2-Pentanone	<0.3	<0.3	<0.3	<0.3	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Acetone	E0.9	<3	<3	<3	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Acrylonitrile	<0.8	<0.8	<0.08	<0.08	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Benzene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	5
Bromobenzene	<0.02	<0.02	<0.02	<0.02	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Bromochloromethane	<0.06	<0.06	<0.06	<0.06	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Bromodichloromethane	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A

Table 5. Parameters and analytical results for unfiltered surface-water samples collected from McCoys Creek adjacent to the former 19th Street landfill, Fort Gordon, Georgia, September 8, 2010.—Continued

[id., identification; USEPA NPDWS (*NSDWS*), U.S. Environmental Protection Agency National Primary Drinking Water Standard (*National Secondary Drinking Water Standard*); ---, not analyzed; $\mu\text{S}/\text{cm}$, microsiemens per centimeters at 25 degrees Celsius; s.u., standard pH units; mg/L, milligrams per liter; °C, degrees Celsius; <, less than; E, estimated; $\mu\text{g}/\text{L}$, micrograms per liter; icp, inductively coupled plasma; cipc, cell inductively coupled plasma; ms, mass spectrometry; lle liquid-liquid extraction; p&t, purge and trap; gcms, gas chromatography mass spectrometry; pct, percent; values for trip blank equal lower reporting level for volatile organics, except for toluene which has a lower reporting level of <0.018]

	Downstream site id. 33244608 2094200	Culvert site id. 33244608 2094201	Upstream site id. 33244608 2094300	Trip blank id. 33244608 2094200	Units	Methods	USEPA NPDWS (<i>NSDWS</i>)
Volatile Organics							
Bromoethene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Bromoform	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Bromoethane	<0.2	<0.2	<0.2	<0.2	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Butylbenzene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Carbon disulfide	<0.04	<0.04	<0.04	<0.04	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Chlorobenzene	<0.02	<0.02	<0.02	<0.02	$\mu\text{g}/\text{L}$	p&t gcms	100
Chloroethane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Chloroform	0.07	0.7	0.07	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Chloromethane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
<i>cis</i> -1,2-Dichloroethylene	<0.02	<0.02	<0.02	<0.02	$\mu\text{g}/\text{L}$	p&t gcms	70
<i>cis</i> -1,3-Dichloropropene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Dibromochloromethane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Dibromomethane	<0.05	<0.05	<0.05	<0.05	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Dichlorodifluoromethane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Dichloromethane	<0.04	<0.04	<0.04	<0.04	$\mu\text{g}/\text{L}$	p&t gcms	5
Diethyl ether	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Diisopropyl ether	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Ethyl methacrylate	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Ethyl <i>tert</i> -butyl ether	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Ethylbenzene	<0.04	<0.04	<0.04	<0.04	$\mu\text{g}/\text{L}$	p&t gcms	700
Hexachlorobutadiene	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Hexachloroethane	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Isopropylbenzene	<0.04	<0.04	<0.04	<0.04	$\mu\text{g}/\text{L}$	p&t gcms	N/A
<i>meta</i> - and <i>para</i> -Xylene	<0.08	<0.08	<0.08	<0.08	$\mu\text{g}/\text{L}$	p&t gcms	10,000
Methyl acrylate	<0.6	<0.6	<0.6	<0.6	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Methyl acrylonitrile	<0.3	<0.3	<0.3	<0.3	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Methyl iodide	<0.3	<0.3	<0.3	<0.3	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Methyl methacrylate	<0.2	<0.2	<0.2	<0.2	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Naphthalene	<0.2	<0.2	<0.2	<0.2	$\mu\text{g}/\text{L}$	p&t gcms	N/A
<i>normal</i> -Propylbenzene	<0.04	<0.04	<0.04	<0.04	$\mu\text{g}/\text{L}$	p&t gcms	N/A
<i>ortho</i> -Ethyl toluene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
<i>ortho</i> -Xylene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	10,000
<i>sec</i> -Butylbenzene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Styrene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	100
<i>tert</i> -Butyl methyl ether	E0.03	<0.1	E0.03	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
<i>tert</i> -Butylbenzene	<0.06	<0.06	<0.06	<0.06	$\mu\text{g}/\text{L}$	p&t gcms	N/A
<i>tert</i> -Pentyl methyl ether	<0.06	<0.06	<0.06	<0.06	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Tetrachloroethylene	<0.03	<0.03	<0.03	<0.03	$\mu\text{g}/\text{L}$	p&t gcms	5
Tetrachloromethane	<0.05	<0.05	<0.05	<0.05	$\mu\text{g}/\text{L}$	p&t gcms	N/A

Table 5. Parameters and analytical results for unfiltered surface-water samples collected from McCoys Creek adjacent to the former 19th Street landfill, Fort Gordon, Georgia, September 8, 2010.—Continued

[id., identification; USEPA NPDWS (*NSDWS*), U.S. Environmental Protection Agency National Primary Drinking Water Standard (*National Secondary Drinking Water Standard*); ---, not analyzed; $\mu\text{S}/\text{cm}$, microsiemens per centimeters at 25 degrees Celsius; s.u., standard pH units; mg/L, milligrams per liter; °C, degrees Celsius; <, less than; E, estimated; $\mu\text{g}/\text{L}$, micrograms per liter; icp, inductively coupled plasma; cipc, cell inductively coupled plasma; ms, mass spectrometry; lle liquid-liquid extraction; p&t, purge and trap; gcms, gas chromatography mass spectrometry; pct, percent; values for trip blank equal lower reporting level for volatile organics, except for toluene which has a lower reporting level of <0.018]

	Downstream site id. 33244608 2094200	Culvert site id. 33244608 2094201	Upstream site id. 33244608 2094300	Trip blank id. 33244608 2094200	Units	Methods	USEPA NPDWS (<i>NSDWS</i>)
Volatile Organics							
Tetrahydrofuran	<1	<1	<1	<1	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Toluene	E0.02	0.66	E0.01	0.04	$\mu\text{g}/\text{L}$	p&t gcms	1,000
<i>trans</i> -1,2-Dichloroethylene	<0.02	<0.02	<0.02	<0.02	$\mu\text{g}/\text{L}$	p&t gcms	100
<i>trans</i> -1,3-Dichloropropene	<0.14	<0.14	<0.14	<0.14	$\mu\text{g}/\text{L}$	p&t gcms	N/A
<i>trans</i> -1,4-Dichloro-2-butene	<0.4	<0.4	<0.4	<0.4	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Trichloroethylene	E0.02	<0.02	E0.02	<0.02	$\mu\text{g}/\text{L}$	p&t gcms	5
Trichlorofluoromethane	<0.08	<0.08	<0.08	<0.08	$\mu\text{g}/\text{L}$	p&t gcms	N/A
Vinyl chloride	<0.1	<0.1	<0.1	<0.1	$\mu\text{g}/\text{L}$	p&t gcms	2
1,2-Dichloroethane-d4	133	133	132	132	pct	surrogate	N/A
1,4-Bromofluorobenzene	76.5	76.4	79.4	89	pct	surrogate	N/A
Toluene-d8	94.9	94.1	95.9	99	pct	surrogate	N/A
Semivolatile Organics							
1,2-Dichlorobenzene	<0.2	<0.2	<0.2	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
1,3-Dichlorobenzene	<0.2	<0.2	<0.2	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
1,4-Dichlorobenzene	<0.2	<0.2	<0.2	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
1,2,4-Trichlorobenzene	<0.3	<0.3	<0.3	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
1,2-Diphenylhydrazine	<0.3	<0.3	<0.3	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2,4,6-Trichlorophenol	<0.34	<0.34	<0.34	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2,4-Dichlorophenol	<0.36	<0.36	<0.36	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2,4-Dimethylphenol	<0.8	<0.8	<0.8	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2-Nitrophenol	<0.4	<0.4	<0.4	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2,4-Dinitrophenol	<1	<1	<1	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2,4-Dinitrotoluene	<0.56	<0.56	<0.56	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2,6-Dinitrotoluene	<0.4	<0.4	<0.4	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2-Chloronaphthalene	<0.16	<0.16	<0.16	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2-Chlorophenol	<0.26	<0.26	<0.26	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
3,3-Dichlorobenzidine	<0.42	<0.42	<0.42	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
4,6-Dinitro-2-methylphenol	<0.76	<0.76	<0.76	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
4-Bromophenylphenyl ether	<0.24	<0.24	<0.24	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
4-Chloro-3-methylphenol	<0.55	<0.55	<0.55	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
4-Chlorophenyl phenyl ether	<0.34	<0.34	<0.34	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
4-Nitrophenol	<0.51	<0.51	<0.51	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Acenaphthene	<0.28	<0.28	E0.01	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Acenaphthylene	<.03	<.03	<.03	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Anthracene	<0.39	<0.39	<0.39	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Benz[a]anthracene	<0.26	<0.26	<0.26	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Benzo[a]pyrene	<0.33	<0.33	<0.33	---	$\mu\text{g}/\text{L}$	lle gcms	0.2
Benzo[b]fluoranthene	<0.3	<0.3	<0.3	---	$\mu\text{g}/\text{L}$	lle gcms	N/A

Table 5. Parameters and analytical results for unfiltered surface-water samples collected from McCoys Creek adjacent to the former 19th Street landfill, Fort Gordon, Georgia, September 8, 2010.—Continued

[id., identification; USEPA NPDWS (*NSDWS*), U.S. Environmental Protection Agency National Primary Drinking Water Standard (*National Secondary Drinking Water Standard*); ---, not analyzed; $\mu\text{S}/\text{cm}$, microsiemens per centimeters at 25 degrees Celsius; s.u., standard pH units; mg/L , milligrams per liter; $^{\circ}\text{C}$, degrees Celsius; <, less than; E, estimated; $\mu\text{g}/\text{L}$, micrograms per liter; icp, inductively coupled plasma; cipc, cell inductively coupled plasma; ms, mass spectrometry; lle liquid-liquid extraction; p&t, purge and trap; gcms, gas chromatography mass spectrometry; pct, percent; values for trip blank equal lower reporting level for volatile organics, except for toluene which has a lower reporting level of <0.018]

	Downstream site id. 33244608 2094200	Culvert site id. 33244608 2094201	Upstream site id. 33244608 2094300	Trip blank id. 33244608 2094200	Units	Methods	USEPA NPDWS (<i>NSDWS</i>)
Semivolatile Organics							
Benzo[ghi]perylene	<0.38	<0.38	<0.38	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Benzo[k]fluoranthene	<0.3	<0.3	<0.3	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Bis(2-chloroethoxy)methane	<0.24	<0.24	<0.24	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Bis(2-chloroethyl)ether	<0.3	<0.3	<0.3	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Bis(2-chloroisopropyl)ether	<0.14	<0.14	<0.14	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Bis(2-ethylhexyl)phthalate	<2	<2	<2	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Butylbenzyl phthalate	<1.8	<1.8	<1.8	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Chrysene	<0.33	<0.33	<0.33	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Dibenz[a,h]anthracene	<0.42	<0.42	<0.42	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Diethyl phthalate	<0.61	<0.61	<0.61	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Dimethyl phthalate	<0.36	<0.36	<0.36	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Di-normal-butyl phthalate	<2	<2	<2	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Di-normal-octyl phthalate	<0.6	<0.6	<0.6	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Fluoranthene	<0.3	<0.3	<0.3	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Fluorene	E0.01	<0.3	E0.01	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Hexachlorobenzene	<0.3	<0.3	<0.3	---	$\mu\text{g}/\text{L}$	lle gcms	1
Hexachlorobutadiene	<0.24	<0.24	<0.24	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Hexachlorocyclopentadiene	<0.5	<0.5	<0.5	---	$\mu\text{g}/\text{L}$	lle gcms	50
Hexachloroethane	<0.24	<0.24	<0.24	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Indeno[1,2,3-cd]pyrene	<0.38	<0.38	<0.38	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Isophorone	<0.26	<0.26	<0.26	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Naphthalene	<0.22	<0.22	<0.22	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Nitrobenzene	<0.26	<0.26	<0.26	---	$\mu\text{g}/\text{L}$	lle gcms	100
normal-Nitrosodimethylamine	<0.24	<0.24	<0.24	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
normal-Nitrosodi-normal-propyl-amine	<0.4	<0.4	<0.4	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
normal-Nitrosodiphenylamine	<0.28	<0.28	<0.28	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Pentachlorophenol	<0.6	<0.6	<0.6	---	$\mu\text{g}/\text{L}$	lle gcms	1
Phenanthrene	<0.32	<0.32	<0.32	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Phenol	<0.3	<0.3	<0.3	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
Pyrene	<0.35	<0.35	<0.35	---	$\mu\text{g}/\text{L}$	lle gcms	N/A
2,4,6-Tribromophenol	87	94	90	---	pct	surrogate	N/A
2-Fluorobiphenyl	79	82	79	---	pct	surrogate	N/A
2-Fluorophenol	68	73	71	---	pct	surrogate	N/A
Nitrobenzene-d5	87	87	88	---	pct	surrogate	N/A
Phenol-d5	57	57	57	---	pct	surrogate	N/A
Terphenyl-d14	75	81	75	---	pct	surrogate	N/A

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