RESPONSE ACTION COMPLETION REPORT VOLUNTARY CLEANUP PROGRAM SITE #31

Kop-Flex Facility, 7565 Harmans Road, Hanover, Maryland

5/12/2014

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1 Introduction

WSP USA Corp (WSP), on behalf of Emerson Electric Company (Emerson), prepared this Response Action Completion Report (RACR) for the Kop-Flex, Inc. (Kop-Flex) Facility located at 7565 Harmans Road in Hanover, Maryland (Figure 1). The Kop-Flex facility is identified as Site #31 under the Voluntary Cleanup Program (VCP) of the Maryland Department of the Environment (MDE). Response Action Plans (RAPs) for the facility, submitted on January 9, 2001 and March 1, 2001, identified chlorinated volatile organic compounds (VOCs) (e.g., 1,1,1-trichloroethane [1,1,1-TCA] and its degradation products) as contaminants of concern (COCs). In 2011, the MDE added 1,4-dioxane as a COC for the site.

Investigations conducted at the facility identified source areas of VOCs and 1,4-dioxane in two Areas of Concern (AOC). AOC 1 is located inside the southwest portion of main building and AOC 2 is located outside the east wall of the main building (Figure 2). A Decision Document submitted to the MDE on January 14, 2013 identified excavation, offsite disposal, and abiotic dechlorination with emulsified zero valent iron as an amended remedy to reduce the source areas of chlorinated VOCs and 1,4-dioxane in soils within AOC 2. An addendum to the Decision Document, submitted to the MDE on March 25, 2013, identified excavation and offsite disposal as an additional remedy to reduce the source areas of chlorinated VOCs and 1,4-dioxane in soils within AOC 1. These remedial technologies were proposed to effectively reduce source area soils with elevated VOC concentrations within AOC 1 and AOC 2, reduce the migration of VOCs from the soil to groundwater, and to facilitate future redevelopment of the site.

WSP prepared and submitted a Response Action Plan Addendum (RAPA) for the site on May 17, 2013, which was approved by the MDE on July 31, 2013. The RAPA described supplemental remedial actions to address source areas of chlorinated VOCs and 1,4-dioxane in AOC 1 and AOC 2. The primary objective of the RAPA was to reduce the mass of source-type COC concentrations in shallow soil in AOC 1 and in shallow saturated soil near the groundwater table in AOC 2 to minimize further migration of COCs.

WSP solicited bids from qualified contractors to implement the RAPA and selected Ontario Specialty Contracting of Buffalo, New York to perform the soil excavation and offsite disposal in AOC 1 and AOC 2. WSP selected A-Zone Environmental of Charles Town, West Virginia to perform the injection of emulsified zero valent iron in AOC 2. Site work was completed on March 12, 2014.

The remainder of this RACR consists of the following sections:

- Section 2 – Site Description
- Section 3 – RAPA Overview
- Section 4 – Response Action Activities for Groundwater
- Section 5 – Response Action Activities for Soil
- Section 6 – Summary and Conclusions

2 Site Description

The Kop-Flex facility is located at 7565 Harmans Road in Hanover, Maryland. The facility is situated on an approximately 25-acre parcel and consists of an approximately 220,000 square foot building with former manufacturing and offices which remain occupied and an approximately 20,000 square foot former forge shop. The remaining areas of the property surrounding the buildings consist of parking lots and landscaped areas.

2.1 Site Geology and Hydrogeology

Site soils consist of a complexly interbedded and inter-fingering sequence of predominately coarse-grained (sand with gravel and fines) and fine-grained (silt and clay) units. Based on investigations conducted at the Site, the unconsolidated materials have been generalized into three stratigraphic units, termed “upper,” “middle,” and “lower.” An overview of the site-specific hydrogeology is provided to facilitate an understanding of the technical rationale for addressing shallow source areas in AOC 1 and AOC 2 and future groundwater remediation

The upper stratigraphic unit is comprised primarily of sand, with variable fines content, to gravelly sand along with occasional discontinuous silt and clay lenses of variable extent and thickness. A continuous silt and clay layer of variable thickness appears to exist at a depth of approximately 10 to 20 feet below ground surface (bgs) in the eastern portion of the building area. This upper sandy unit appears to be thickest in the eastern portion of the Kop-Flex facility and thins to the west. The upper-most sandy sediments present to a depth of approximately 10 feet bgs represent fill material emplaced during property development.

The upper stratigraphic unit transitions to the middle stratigraphic unit, which is characterized by intervals of predominantly coarse (sand to clayey sand) and fine-grained (silty to sandy clay to clayey to sandy silt to finely inter-laminated sand and clay) sediments exhibiting variable thickness and significant lateral and vertical heterogeneity. Fine-grained sediments are generally more prevalent at shallow depths (i.e., less than 40 feet bgs) in the western part of the building and tend to be thinner and laterally discontinuous along the eastern part of the building. The thick sequence of predominately fine-grained sediments in the shallow subsurface in the western building area is expected to have slowed the vertical migration of VOCs, while the presence of coarser grained deposits in the eastern building area may have facilitated the vertical migration of VOCs. Occasional sand zones exist as isolated lenses or layers within the fine-grained deposits; these coarser deposits appear to be particularly abundant in the vicinity of borings WSP-83, WSP-86 and WSP-88 (Figure 3). The shallow fine-grained deposits are underlain by a distinct interval, or sub-unit, of primarily sand sediments with discontinuous, intercalated clayey layers of varying thickness. Based on the lithologic data, this sub-unit occurs between depths of approximately 40 feet to 60 feet bgs and extends across the entire footprint of the main manufacturing building. This inter-layered sand and clay sub-unit is underlain by a layer of hard, dense silty clay sediments, which was encountered at a depth of approximately 60 feet to 65 feet bgs. Evaluation of the boring logs indicates this fine-grained layer is ubiquitous within the subsurface deposits of the building area.

The middle stratigraphic unit grades downward to the lower stratigraphic unit consisting primarily of sand and gravelly sand deposits with rare, discontinuous layers of sandy to clayey silt sediments of variable thickness. Correlation of the borehole lithologic data indicates that the gravelly sand deposits are more spatially extensive than similar lithofacies in the upper sand unit.

Groundwater at the site also is generalized in three units, the shallow, the intermediate, and the deep groundwater zones. The lower stratigraphic unit is inferred to be upper-most portion of the Lower Patapsco Aquifer and the middle stratigraphic unit is believed to be the Patapsco Confining Unit which separates the Lower and Upper Patapsco aquifers.

Shallow groundwater occurs under unconfined conditions in the upper stratigraphic unit and the upper, fine-grained portion of the middle stratigraphic unit in the western portion of the building area. The groundwater surface is first encountered approximately 10 feet to15 feet bgs in the area east of the building (AOC 2) and approximately 15 feet to 20 feet below floor grade in AOC 1, and extends to approximately 35 feet to 40 feet bgs in both areas. Groundwater migration in the shallow groundwater zone occurs primarily in the predominately coarse grained high porosity and high permeability sands. Shallow groundwater flows in a generally westward direction toward Stony Run, the inferred discharge point for shallow groundwater.

The intermediate groundwater zone (approximately 40 to 80 feet bgs) occurs under semi-unconfined conditions in the middle stratigraphic unit. Groundwater flow in the intermediate groundwater zone is to the northwest toward Stony Run, which is believed to be the discharge point for intermediate groundwater. Groundwater elevation data indicates relatively good hydraulic communication between the shallow and the intermediate groundwater zones.

Groundwater in the deep groundwater zone (generally depths greater than 80 feet bgs) occurs under semi-confined conditions, with the depth to water in wells screened in this zone ranging from approximately 35 feet to 40 feet bgs; groundwater flow direction is to the south-southeast. The significant groundwater head differences measured between the intermediate and deep groundwater zones indicate that the lower portion of the middle stratigraphic unit appears to serve as a good confining unit, or aquitard, within the hydrostratigraphic sequence. The lateral and vertical heterogeneity of the middle stratigraphic unit and associated sedimentary structures within the fine-grained deposits may provide mechanisms for downward migration of VOCs in groundwater. The presence of VOC-affected groundwater in the deep groundwater zone confirms the presence of vertical flow pathways through the middle stratigraphic unit.

2.2 Source Areas

The source areas of chlorinated VOCs and 1,4-dioxane addressed during implementation of the RAPA include AOC 1 inside the southwest portion of the manufacturing building, and AOC 2 located outside of the eastern portion of the manufacturing building.

The source soils remediated at AOC 1 were determined based on an evaluation of historical sampling data, remedial actions implemented under the approved RAP, and the supplemental soil sampling activities summarized below:

- Soil sampling data collected from 1996 through 1998 and reported in the 1999 Summary of Phase II investigations identified 1,1,1-TCA and associated degradation products (e.g., 1,1-dichloroethene [1,1-DCE]) as COCs
- Excavation of a former concrete well ring, a source area identified during implementation of the AOC 1 RAP, addressed a major source of COCs in shallow soil and groundwater
- In addition, a soil vapor extraction (SVE) and dual-phase extraction (DPE) system was installed to address the concentrations of COCs in the shallow soils and groundwater in AOC 1. The SVE/DPE system was decommissioned after completion of the RAPA activities.
- In 2012 and 2013 supplemental investigations were conducted by WSP to evaluate current soil and shallow groundwater conditions in AOC 1 including 1,4-dioxane which was added to the list of COCs by the MDE in 2011
- Figure 3 provides a plan view of AOC 1 summarizing the Phase II investigation data and the data from the supplemental investigations conducted in 2012 and 2013. Three historical data points were not included in the limits of the source area because the analytical results are greater than 13 years old and the DPE/SVE system has been operating in this area since 2002. Based on the investigation in 2012 and 2013, the SVE system has been successful in reducing COCs at the horizon of these historical borings.

The extent of source soils were determined by evaluating soil and shallow groundwater sampling data from investigations conducted at the site between 2007 and 2010. The findings and conclusions of the investigations conducted in AOC 2 to the east of the main building are summarized below:

- 1,1,1-TCA and associated degradation products (e.g., 1,1-DCE) are the primary COCs

- A dense non-aqueous phase liquid (DNAPL) was observed in core samples collected from boring SS-10 (Figure 4) DNAPL was not directly observed in other borings advanced in AOC 2.
- Concentrations of 1,1,1-TCA indicative of DNAPL (i.e., greater than 10 percent of solubility in water) were identified beginning at approximately 8 to 10 feet bgs and extend vertically to the top of an upper clay lens and laterally from the source area to the east along the upper contact of a clay lens in the upper sand unit, and to the west.
- Figure 4 provides a plan view of AOC 2 summarizing the historical sampling results that were used to define the extent of the source area remediation for this RAPA.

3 RAPA Overview

3.1 Objectives

The primary objective of the amended response action was to reduce the mass of source-type COC concentrations in shallow soil in AOC 1 and AOC 2 which will serve to reduce further migration of COCs to groundwater. The COCs in groundwater will be addressed in a separate RAP amendment. As discussed below, the Decision Document for the Kop-Flex facility identified the following Response Action Objectives (RAOs) for the remedial actions selected for sources areas in AOC 1 and AOC 2:

- **Reduce the concentrations of COCs in the source areas** – In AOC 1, the targeted source area was approximated by sample locations with total VOC concentrations above 10 milligrams per kilogram (mg/kg) (e.g., WSP-83, WSP-86, and WSP-87 on Figure 3). In AOC 2, the targeted source area was approximated by soils with total VOC concentrations above 10 mg/kg shown on Figure 4.
- **Achieve the schedule requirements for future redevelopment** – Consideration was given to selecting the remedial alternative that could be implemented within a reasonable schedule to minimize delays in future redevelopment.
- **Minimize future exposure to COCs** – The selected remedy reduces the potential for COCs in soil to volatilize to indoor air and minimizes future migration of COCs to groundwater.

3.2 Mass Reduction

The actions taken during implementation of this RAPA were designed to achieve the response action objectives through mass reduction. Mass reduction was optimized by targeting the hot spot areas to the most practical extent in order to reduce the highest concentrations of contaminants, and by using technologies that remove or destroy contaminants. The remedial approaches selected for the Kop-Flex facility included the following:

- Excavation and Off-Site Disposal (AOC 1 and AOC 2)
- Abiotic Dechlorination with Emulsified Zero Valent Iron (AOC 2)

In AOC 1, mass reduction was achieved by excavating unsaturated soil in the targeted area to a target depth of 15 feet below the surface of the concrete floor. Soil sampling in 2012 and 2013 indicated that the highest concentrations of COCs were present in unsaturated soil, while concentrations of COCs in soil samples collected below the water table were typically an order of magnitude lower than the hot spot target concentration. In AOC 2, much of the VOC mass was found in saturated soil extending vertically to the top of an upper clay lens and laterally to the east along the contact with the clay lens.

Mass reduction in AOC 2 was optimized by a deeper excavation to a target depth of approximately 20 feet bgs, which included a saturated soil thickness of approximately 5 feet. Injection of emulsified zero valent iron (EZVI) in deeper groundwater zones was performed where excavation was not practical. EZVI is a remediation amendment that destroys aqueous (i.e., dissolved) concentrations of VOCs through abiotic reductive dechlorination, while also supporting microbially-mediated reductive dechlorination.

3.3 Risk Reduction

The potential exposure routes to current and future onsite receptors were determined to be inhalation of COC-containing vapors, dermal contact with, and incidental ingestion of impacted onsite media, as well as potential migration of COCs to groundwater. The magnitude of potential exposures by each receptor to site-related COCs is largely dependent on the nature of the activity(s) being conducted at the site. The routes of exposure are discussed in the Conceptual Site Model (CSM) submitted to MDE on May 7, 2013.

4 Response Action Activities for Groundwater (AOC 2)

EZVI was injected into the shallow groundwater zone in AOC 2 to reduce hot spot VOC concentrations in saturated soil above the upper clay layer. Injection of EZVI served to create a treatment zone in the shallow groundwater that has the ability to reduce VOCs for an extended period of time via *in situ* abiotic dechlorination. This component of the response action was intended to provide long-term benefit to groundwater by treating elevated concentrations of dissolved COCs below the shallow groundwater table, an area that could not be effectively excavated. A summary of the mechanisms of abiotic dechlorination is provided below followed by a description of the injection activities and results.

Abiotic dechlorination, as opposed to microbially-mediated reductive dechlorination, works by the direct reduction of chlorinated ethanes and ethenes to non-chlorinated ethane and ethene. Typically, abiotic dechlorination occurs in the environment at a slower rate than microbially-mediated reductive dechlorination, but may be enhanced through the introduction of zero valent iron (ZVI). This reduction takes place at the metal surface of the ZVI, producing ferrous iron, hydrogen, and chloride ions. The ferrous iron and hydrogen produced by the initial reaction assists in further reductive dechlorination and producing ferric iron and chloride. The soluble ferrous iron is relatively mobile in groundwater, thus enlarging the effective treatment zone through advection and diffusion. Cycling of iron back and forth between ferric and ferrous is caused by native iron reducing microbes. This “shuttle” effect can potentially extend the effective life of the amendment by recycling iron for additional reductive reactions, thus enhancing the longevity of ZVI. Because the reaction takes place at the metal surface, micro-scale iron provides high efficiency of degradation due to the optimum surface area it provides.

EZVI consists of ZVI in an emulsion of water and biodegradable vegetable oil (e.g., soy bean oil) plus a small percentage of surfactant that acts as an effective carrier for the delivery to the subsurface of the solid particles of ZVI. The EZVI was supplied by Terra Systems, Inc. under the product name SRS®-Z.

The vegetable oil provides an electron donor to facilitate microbially-mediated reductive dechlorination and iron reduction for ferric to ferrous recycling as discussed above. Often, reductive dechlorination by anaerobic microbes is limited by the availability of an electron donor as a microbial food source. The delivery of ZVI in an emulsion of water and vegetable oil will further enhance treatment and provide a more sustained treatment life as compared with chemical oxidation.

The scope of the response action for AOC 2 groundwater included EZVI treatment of shallow groundwater down gradient of the excavation area along the upper clay seam where total VOC concentrations in saturated soil samples were above 10 mg/kg. The target area is located east of the manufacturing building and is covered with grass and asphalt paving. The target depth for the treatment was approximately 15 to 25 feet below ground surface. Due to the proximity of the planned injection to the planned excavation in AOC 2, the injection activities were conducted before the soil excavation to minimize the potential for the amendment to short circuit or break through more permeable, non-native fill materials.

4.1 EZVI Dose Calculation

As described in the RAPA, precise calculation of dosage requirements are hindered by gaps in the understanding of degradation pathways under the complex condition, potential inhibitors, and the undefined demand of DNAPL evident at the Kop-Flex site. To meet the mass reduction objective, the ZVI dosage was originally calculated based on past industry practice of attempting to inject a volume equal to a significant percentage of the available pore volume, e.g. 15 percent. After consulting with Terra Systems, WSP determined that the dose calculation for SRS®-Z application should more suitably be based on the mass of the soil. Terra Systems recommended a 1 percent dose of SRS®-Z by mass to be injected, based on the soil conditions and constituent concentrations.

Based on the injection spacing on a 5-foot grid covering 600 square feet and a target injection zone of 15 to 25 feet bgs, a total volume of 500 gallons of EZVI was calculated to meet the treatment objectives. Five 2-foot delivery intervals were planned at each of the 23 injection points, which results in approximately 22 gallons per injection point and 4.4 gallons per 2-foot injection interval. Calculations and assumptions for the EZVI dosage for the target treatment area are provided in Appendix A.

4.2 Injection Planning and Site Preparation

Site preparation activities include those actions identified in Section 4.1 plus activities specific to the injection of EZVI. An underground injection permit was not required by the state of Maryland for the EZVI application; however, the MDE was notified of the pending response action at the site (Appendix B). WSP contracted with A-Zone Environmental of Charles Town, West Virginia to complete the injection of the EZVI. All site work was performed in accordance with a site-specific Health and Safety Plan that included Safety Data Sheets for the EZVI materials. Injection work began on October 14, 2013 and was completed on October 23, 2013.

The injection-ready EZVI was delivered to the site in 275 gallon Intermediate Bulk Container (IBC) totes filled to a maximum of 250 gallons of EZVI and stored within a dry, secure location at the site. Although EZVI is not a hazardous substance, temporary storm water inlet covers were installed to prevent storm sewer entry in the event of a spill or breakthrough of EZVI to the surface during injection. Spill response materials (i.e., sorbent) were available at the facility in the event of a release. The 23 target injection points were surveyed and marked in the field (Figure 5) and the asphalt pavement was cored at each injection point.

4.3 EZVI Application

The amendment was mixed onsite with a high shear mixer before injection to ensure suspension of ZVI particles. EZVI was transferred from the shipping containers to the injection pump using a positive displacement double diaphragm pump.

Injections were spaced on a 5-foot grid over a 600 square foot area consisting of 23 injection locations as shown on Figure 5. No injections were performed within 20 feet of marked subsurface utilities or structural foundations. The nearest monitoring well was MW-16 approximately 12 feet away from the closest injection point.

Amendment applications were made through temporary points using 1.5-inch hollow drive rods equipped with an expendable tip advanced by a Geoprobe 7720DT. Drive rods were advanced to the base of the target application zone (25 feet bgs) and retracted at two-foot intervals to a depth of 15 feet bgs. Amendment was applied to each of these intervals at pressures between 50-150 pounds per square inch (psi) and flow rates between 0.5 and 2 gallons per minute (gpm). The delivery point locations and the volume in gallons of amendment delivered to each interval and point are provided on Figure 5. If the planned amendment volume could not be injected at a certain interval (e.g., DI-06 and DI-23), the undelivered volume was added to the next higher delivery interval within the same boring. Following amendment delivery at each interval, approximately the same volume of water was injected to aid the dispersion of the amendment within the shallow groundwater zone.

Injections were sequenced to maximize the distance between sequential points. This sequence minimized the potential for excess subsurface pressure to cause daylighting of the amendment at adjacent points. After completing amendment delivery at a point location, the boring was filled from the borehole terminus depth to grade with cement grout and patched with asphalt at the surface.

Following the completion of injection activities, amendment delivery performance was evaluated by advancing a soil boring near the center of a grid (Figure 5). The boring was installed to a depth of 27 feet bgs. Soil samples were retrieved from the soil core on one-foot intervals and examined for the presence of ZVI particles using a magnet. ZVI particles were confirmed to be present at every foot interval between 15-27 feet bgs, confirming uniform EZVI amendment delivery to the target zone.

5 Response Action Activities for Soil

Soil excavation and offsite disposal was determined to be the most appropriate remediation approach for soils based a remedial analysis provided in the Decision Document dated January 14, 2013 and its Addendum dated March 25, 2014. The Decision Document selected soil excavation and offsite disposal based on its effectiveness, implementability, and overall cost. These three broad remedial criteria ensured that the RAOs, summarized in Section 3.1, were achieved.

WSP contracted with Ontario Specialty Contracting (OSC) of Buffalo, New York to perform the response action activities for soil WSP performed full-time oversight and management of OSC's work to assure compliance with the RAPA and applicable regulations. The source area soil response action began on November 13, 2013 and was substantially completed on March 12, 2014. The major components of the soil remediation scope of work involved the site preparation activities, the source area soil excavation, transportation and disposal, backfilling, and site restoration.

5.1 Site Preparation Activities

Site preparation activities include securing permits and approvals, preparing a site-specific health and safety plan (HASP), surveying of initial conditions, temporarily relocating and capping affected utilities, installing erosion and sedimentation controls, constructing soil staging areas, installing temporary water management systems, and concrete removal. The site preparation activities are described below.

5.1.1 Permits

OSC procured two building permits from Anne Arundel County for the work. A plumbing permit was obtained to temporarily cut and cap the fire water line that ran through the AOC 2 excavation area. A grading permit was obtained for the land disturbance in the AOC 2 area. Copies of the permits are provided in Appendix B.

5.1.2 Health and Safety Plan

All work conducted under the RAPA was completed in accordance with a site-specific HASP as part of the design of the response action. OSC was required to prepare and follow their own HASP that was commensurate with the work and activities that were performed. The contents of the HASP included physical, chemical, and biological hazard assessments; descriptions of personal protective equipment, training requirements, and site control measures; and procedures for personnel and equipment decontamination, air monitoring, and emergencies. The HASP established, in detail, the protocols necessary for the anticipation, recognition, evaluation, and control of hazards associated with each task performed. The HASP addressed site-specific health and safety requirements and procedures based upon site-specific conditions, the type of work, complexity of operations, and hazards anticipated.

The HASP included provisions for monitoring the breathing zone for workers to ensure that exposure criteria were not exceeded without respiratory protection. The work zone, work zone perimeter and site perimeter were monitored during all intrusive work. The areas where monitored using direct reading instruments with data logging capabilities for VOCs and aerosol particulate (i.e., total suspended particulate). Carbon monoxide was monitored during work in AOC 1. The measurements were compared to US EPA National Ambient Air Quality Standards for Particulate Matter (PM_{10}) of 150 micrograms per cubic meter ($\mu g/m^3$) as a 24-hour average. VOC concentrations were compared to one half the applicable Occupational Safety and Health Administration (OSHA) permissible exposure limits (PELs). Carbon monoxide concentrations were compared to a ceiling value of 50 parts per million (ppm).

A light water spray was used to control dusts on a few occasions when the PM_{10} concentrations exceeded the action level at the boundaries of the work area. PELs for VOCs and the ceiling value for carbon monoxide were not exceeded during execution of the work.

5.1.3 Surveying

Initial and final conditions in each AOC were surveyed by a Maryland licensed surveyor. The initial survey included relocation of existing soil borings that defined the limits of excavation, existing well points to be protected, utility locations, and the vertical position of the columns adjacent to the excavation areas. The final survey included the actual limits of excavation and the column elevations. The initial and final column elevations confirmed that the structural integrity of the building was not compromised during the excavation activities.

5.1.4 Temporary Utility Relocation and Protection

Before any intrusive activities were performed, the Miss Utility Maryland was notified to locate and mark utility services and lines to the facility. A private utility locating company located and marked underground utilities within the proposed excavation areas. All utilities identified, including overhead lines, were protected during work.

Three utilities in AOC 2 were affected by the response action work (Figure 4). A building grounding wire was temporarily relocated and replaced. A section of 12-inch diameter storm sewer pipe was temporarily removed, the open ends plugged, and the storm water flow bypassed by pumping. After completion of the backfilling work, the storm water pipe was replaced in kind.

An 8-inch ductile iron fire line running through the middle of the AOC 2 excavation footprint was temporarily capped. Following fire insurance company protocols, the line was depressurized, cut, drained, capped, and secured with thrust blocks. The line was then repressurized to restore facility fire protection during the response action activities. The fire line was restored in kind following completion of the work.

5.1.5 Erosion and Sedimentation Controls

Erosion and sedimentation controls were installed to maintain compliance with the existing National Pollutant Discharge Elimination System (NPDES) permit and Storm Water Pollution Prevention Plan (SWPPP). The specified erosion controls in AOC 2 included silt fence around the perimeter of the work area and protection of storm water inlets. The silt fence was installed before any major earthmoving activities began. Additional silt fence was installed and maintained as necessary during the execution of the excavation work.

Erosion and sedimentation controls were inspected weekly, and after precipitation events that produce more than 0.5-inches of rainfall. The controls were maintained until the final grading has been completed, the ground surface was stabilized, and permanent vegetation was established.

During dry and windy conditions, airborne particulate was controlled using a light water spray from a potable source. Polyethylene sheeting was used to prevent wind and precipitation dispersion of site soils from soil stockpiles. The perimeter of outdoor soil stockpiles were protected by hay bales or earthen berms.

5.1.6 Staging Area Construction and Stockpile Management

Several soil staging areas were constructed on pavements near the excavation areas. The staging pads consisted of 2 layers of 10-mil polyethylene sheeting. The outdoor staging areas were bermed using hay-bales and clean imported soil to prevent precipitation runoff. All stockpiles were covered with polyethylene sheeting during precipitation events and at the end of each work day. The maximum size of each stockpile was 200 cubic yards. Stockpiles of potentially clean soil were located separately from soils that were suspected or known to contain COCs. The soil staging area locations are shown on Figure 2.

5.1.7 Water Management

As expected, groundwater was not encountered during excavation of AOC 1. Excavation below the water table in AOC 2 produced approximately 10,000 gallons of water that was pumped from the excavation to a fractionation tank. Additional water was generated by precipitation within the stockpile areas and by equipment decontamination. The RAPA described alternative plans to treat the water onsite before discharging under permit or approval; however, due to the relatively low volume of water generated, Emerson elected to profile the water for offsite disposal. Approximately 12,700 gallons of water were characterized as a D029 (1,1-Dichloroethylene) characteristic hazardous waste. The water was transported offsite for disposal by Clean Harbors in Baltimore, Maryland. Water transportation and disposal documentation is provided in Appendix C. The water characterization results are provided in Table 1 and the analytical data report is provided in Appendix D.

5.1.8 Concrete Removal

The concrete slabs in the proposed AOC 1 excavation areas were saw cut, broken by hydraulic hammer, removed, crushed to less than 1-foot in any dimension, and temporarily stockpiled onsite. A total of 281.81 tons of concrete rubble was loaded to trailers and transported offsite for disposal at the Cumberland County Landfill in Shippensburg, Pennsylvania. Transportation and disposal documentation for the concrete is provided in Appendix E.

5.2 Source Area Soil Excavation

The source area soil excavation activities included shoring system design, excavation, field screening and soil segregation, and soil characterization. The source area soil excavation activities are described below.

5.2.1 Excavation Shoring Design

As excavations were planned adjacent to building walls and column foundations, OSC subcontracted a Maryland-licensed structural engineer to design a shoring system that allowed for the maximum amount of affected soil to be removed while protecting the structural integrity of the building. The structural evaluation and shoring design was based on the building loads, soil types, depths of foundations, and the potential presence of perched groundwater. The final shoring design drawings and calculations are provided in Appendix F. The shoring plan utilized a slide-rail shoring system that sub-divided each excavation into smaller cells. WSP assigned a numbering system to the cells to track the soil excavation, screening, and characterization progress. The shoring system layout and cell numbering schemes for each excavation area are provided on Figures 3 and 4.

5.2.2 AOC 1 Excavation

The AOC 1 remedy involved excavating source soils in two areas (Figure 3). The south excavation within AOC 1 was approximately 79 feet by 23 feet and consisted of 5 shoring cells labeled 1 through 5. This excavation was bound to the north by the footers for the columns and to the west by the edge of the former well ring excavation. The south excavation included removal of a portion of Trench “D”. Non-soil debris from the trench was removed and stockpiled separately from the soil materials. The concrete comprising the trench was managed with the concrete from the floor as described in Section 5.1.8.

The north excavation within AOC 1 was approximately 73 feet by 23 feet and consisted of shoring cells labeled 6 through 10. This excavation was bound to the north by Trench “C” and positioned east-west such that the maximum volume of potentially impacted soil represented by soil borings shown in blue on Figure 3 was removed. All shoring cells in AOC 1 were excavated to a depth of 15 feet below the top of the concrete slab.

After the corner posts and the first panel of the slide rail shoring system was installed, excavation proceeded in a systematic manner by stripping 1 to 2-foot intervals at a time from each cell. Additional slide-rail panels were added to each side until the shoring extended to the target depth of 15 feet. The excavated soils were screened with by photoionization detectors (PID) using the zero head space method. Two PID lamps were used, a 10.6 electron volt (eV) lamp and an 11.7 eV lamp to further segregate soils containing elevated concentrations of 1,1,1-Trichorloethane (1,1,1-TCA) from soils with elevated concentrations of other VOCs (1,1,1-TCA, with an ionization potential of 11.0 eV, would be detected by the 11.7 eV lamp, but not the 10.6 eV lamp). The soil was segregated into stockpiles based on PID screening results and physical observations of the soil. Soils with similar PID readings were staged onsite in stockpiles not exceeding 200 cubic yards for pending characterization.

Excavated soil from both AOC 1 excavations was substantially similar. The soil generally consisted of gravelly sand from the surface to 5 feet bgs, sand from 5 to 8 feet bgs, silty clay from 8 to 10 feet bgs, sand from 10 to 12 feet bgs, and silty clay from 12 to 15 feet bgs. A thin layer of reddish soil was encountered at approximately 12 feet bgs.

Each shoring cell was backfilled to within 2 feet of the surface before beginning the adjacent cell.

5.2.3 AOC 2 Excavation

The AOC 2 excavation remedy consisted of four individual shoring cells (Figure 4) labeled 1 through 4. Each shoring cell measured 17 feet by 17 feet and each were advanced to different depths based on the inflow of groundwater into the excavation cavities, the ability to dewater efficiently, and ensure the structural stability of the building particularly in Cells 1 and 2 adjacent to the building foundation. Cell 1 was excavated to 20 feet bgs and Cell 2 to 18 feet bgs. Cells 3 and 4 were shifted to the north by 3 feet to minimize vibrations near the capped fire water line on the south side. Cell 3 was excavated to 21 feet bgs and Cell 4 to 23 feet bgs. Except for Cell 2, the excavations encountered the upper clay layer. Groundwater was pumped from the excavations and managed as described in Section 5.1.7

The shoring systems were installed and PID field screening was performed as described in Section 5.5.2. During excavation within each cell, soil from the surface to approximately 7 feet bgs screened low with the PIDs (less than 1 ppm). This soil was segregated and stockpiled separately. The remaining soils were removed in layers and stockpiled separately in piles not exceeding 200 cubic yards.

AOC 2 soil generally consisted of sand from the surface to 8 feet bgs, gravelly sand from 8 to 10 feet bgs, silty clay from 10 to 11 feet bgs, sand from 11 to 20 feet bgs, and clay below 20 feet. The upper clay unit was confirmed to dip downward toward the east as the unit was encountered at approximately 20 feet in Cells 1 and 2 and at 22 feet in Cells 3 and 4. Soil near the sand/clay interface had a purplish color.

5.3 Soil Characterization

Excavated soils were place in soil stockpiles based on PID screening results and observed physical characteristics of the soil. Each soil stockpile was initially sampled for total VOCs using EPA Method 8260B. Soil containing total VOCs less than 1 mg/kg met the criteria prescribed in the RAPA to be acceptable for reuse as backfill in the excavations. Soils with total VOC concentrations greater than 1 mg/kg were characterized for offsite disposal. Stockpiles with similar total VOC concentrations were combined and samples for waste characterization were collected for analysis of VOCs by EPA Method 8260B, Toxicity Characteristic Leaching Procedure (TCLP) VOCs by EPA Methods 8260B, semi-volatile organic compounds (SVOCs) and TCLP SVOCs using EPA Method 8270C, total petroleum hydrocarbons (TPH) gasoline, diesel, and oil range organics (GRO/DRO/ORO) by EPA Method 8015, polychlorinated biphenyls (PCBs) by EPA Method 8082, TCLP metals by EPA Methods 6010 and 7470A, soil pH by EPA Method 9045D, flashpoint by EPA Method 1010AM, reactive cyanide and sulfide by EPA Method 7.3. Based on the laboratory analytical results all soil that contained greater than 1 mg/kg total VOCs was characterized as non-hazardous. The results of the soil characterization sampling are provided in Table 2 and the analytical data reports are compiled in Appendix D.

Non-soil debris removed from Trench "D" was also characterized as a non-hazardous waste.

5.4 Disposal

A total of 3,115.89 tons of non-hazardous soils from AOC 1 were loaded to trailers and transported under non-hazardous waste manifest to Cumberland County Landfill in Shippensburg, Pennsylvania for use as daily cover. A total of 766.42 tons of non-hazardous soils from AOC 2 were loaded to trailers and transported under bill of lading to Waste Management's DRPI Landfill in New Castle, Delaware for use as daily cover. A total of 33.53 tons of non-soil debris removed from Trench D and wood block flooring materials were loaded and transported under non-hazardous waste manifest to the Cumberland County Landfill. As previously described, a total of 281.81 tons of concrete from Trench D and the concrete floors in AOC 1 were transported to the Cumberland County Landfill for disposal. Stockpile liners, covers, staging area berms and hay bales, and sweeping debris were disposed of with the soil. Copies of non-hazardous waste transportation and disposal documentation are provided in Appendix G.

5.5 Backfilling and Restoration

Following excavation of each shoring cell, the excavations were backfilled with soil containing less than 1 mg/kg total VOCs and virgin limestone screenings from Savage Stone, a local rock quarry in Jessup, Maryland. In accordance with the MDE's VCP – Clean Imported Fill Material Fact Sheet, imported backfill was sampled at a rate of one sample per 250 cubic yards and analyzed for VOCs by EPA Method 8260B, SVOCs by EPA Method 8270B, TPH by modified Method 8015, PCBs by EPA Method 8082, heavy metals including lead by EPA Methods 6010B and 7471A, asbestos by OSHA Method ID-191, and pH by EPA Method 9045D. A total of 2,009 cubic yards of fill was imported for use as backfill in AOC 1 and AOC 2. The imported fill data is provided in Table 3 and the laboratory analytical data reports are compiled in Appendix D.

Excavated soil that contained total VOCs less than 1 mg/kg during the soil characterization sampling described in Section 5.3 was approved for reuse as backfill. All onsite soil reused as backfill was placed in the bottoms of the excavation cavities from which the soils were removed. Approximately 89 cubic yards of soil from AOC 1 and 247 cubic yards from AOC 2 were reused as backfill. The soil data is provided in Table 2 and the analytical data reports compiled in Appendix D.

5.5.1 AOC 1

Standard proctor tests were run on the quarry screenings and onsite soil reused as backfill. Fill materials were placed in each shoring cell in 12-inch loose lifts and compacted to a minimum of 90 percent of the maximum dry density and within 3 percent of the optimum moisture. Compaction testing was performed by Hillis Carnes Engineering Associates of Annapolis Junction, Maryland at a rate of 1 test per lift in each shoring cell. Lifts represented by deficient compaction test results were reworked and retested. Backfill was placed to an elevation of 6 inches below the top of the existing concrete floor. The standard proctor and compaction test reports are provided in Appendix H.

The AOC 1 concrete slab was replaced after backfilling. No. 5 rebar dowels were drilled into the center of the existing slab every 12 inches. Expansion joint material was installed around the perimeter of the patch area. A 4,000 pounds per square inch (psi) concrete mix was placed with a grid of No. 5 rebar spaced on 12-inch centers positioned at the center of the new 6-inch slab. Control joints were saw cut 1.5 inches in to the slab and all concrete joints were sealed with a flexible polyurethane sealant. The concrete mix design and compression test results are provided in Appendix I.

5.5.2 AOC 2

In AOC 2, flowable fill was used to backfill the cells from the terminated depth of the excavations to approximately 15 feet below ground surface to span the interval below the groundwater table. The flowable fill was allowed to cure for a minimum of 12 hours before additional backfill was placed above it. Approximately 140 cubic yards of flowable fill was used in the four shoring cells of AOC 2. The mix design of the flowable fill is provided in Appendix I.

A combination of onsite soil with total VOC concentrations less than 1 mg/kg and imported quarry screenings were placed above the flowable fill. Backfill was placed in 12-inch loose lifts and compacted to a minimum of 90 percent of the maximum dry density and within 3 percent of the optimum moisture as determined by standard proctor tests.[1] Compaction testing was performed at a rate of 1 test per lift within each excavation cell. Lifts represented by deficient compaction test results were reworked and retested. The standard proctor and compaction test reports are provided in Appendix H.

When backfilling was completed, AOC 2 was graded to match the original conditions. The disturbed soil area in the vicinity of AOC 2 was covered with approximately 4 inches of No. 57 gravel for permanent erosion and sedimentation control. Minor areas of soil disturbance were seeded, fertilized, and mulched.

5.6 Treatment Systems Decommissioning

Following completion of the AOC1 and AOC 2 source remediation activities, the SVE/DPE systems were permanently shut down and decommissioned. System piping and treatment system components were drained of residual fluids, decontaminated, and removed for disposal or recycling as appropriate. The residual liquids were placed in drums and are pending disposal as a listed hazardous waste. Vapor phase carbon from the system was removed and disposed of offsite as a listed hazardous waste.

The four UVB treatment systems on the west side of the facility were decommissioned. All equipment was removed and disposed or recycled offsite, as appropriate. The carbon was characterized as non-hazardous and was disposed of at the Cumberland County Landfill in Shippensburg, Maryland. Transportation and disposal documentation for the carbon from the UVB systems is provided in Appendix G.

5.7 Decontamination and Demobilization

Following completion or response action activities, the shoring equipment and excavation equipment were decontaminated by removing bulk residuals and washing with water. The water was collected, transferred to the fractionation tank, and disposed offsite as described in Section 5.1.7.

Work areas including the soil staging areas were broom swept and the residuals disposed with the last load of non-hazardous soil.

[1] The moisture content of the first five lifts in AOC 2 Cell 1 were slightly below the +/- 3 percent criteria. The compaction effort was observed and approved by the onsite engineer.

6 Summary and Conclusions

Source area soil and groundwater response actions were completed in general accordance with the RAPA. The work began in October 2013 with the EZVI injection in AOC 2 and was completed in March 2014 with the restoration of the excavated areas within AOC 1. All site work was overseen by WSP engineers to ensure conformance with the approved plans.

The target volume of EZVI was injected within the target intervals of the shallow saturated zone. Except for a 2-foot interval of saturated soil in Cell 2 of AOC 2 soil excavation work, all target soils were excavated and managed offsite. The saturated soil interval from 18 to 20 feet bgs could not be safely excavated due to structural stability concerns adjacent to the building foundation in AOC 2.

The objectives of the RAPA have been met. Source area concentrations of COCs were significantly reduced by the excavation and offsite disposal of soil and the in-situ treatment of shallow groundwater by abiotic dechlorination, future exposure to COCs is minimized by soil removal and replacement of the concrete slab and joint sealing in AOC 1, and the work was completed in a timely manner to facilitate redevelopment of the property.

7 Acronym List

$\mu g/m^3$	micrograms per cubic meter
bgs	below ground surface
AOC	Areas of Concern
COCs	contaminants of concern
CSM	Conceptual Site Model
DNAPL	dense non-aqueous phase liquid
DPE	dual-phase extraction
DRO	diesel range organic
eV	electron volt
EZVI	emulsified zero valent iron
gpm	gallons per minute
GRO	gasoline range organic
IBC	Intermediate Bulk Container
MDE	Maryland Department of the Environment
mg/kg	milligrams per kilogram
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
ORO	oil range organic
OSC	Ontario Specialty Contracting
PEL	permissible exposure limit
PCB	polychlorinated biphenyl
PID	photoionization detector
PM_{10}	Particular Matter
ppm	part per million
psi	pounds per square inch
RACR	Response Action Completion Report
RAPA	Response Action Plan Addendum
RAP	Response Action Plan
RAO	Response Action Objective
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
SWPPP	Storm Water Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure

TPH	total petroleum hydrocarbons
VOCs	volatile organic compounds
VCP	Voluntary Cleanup Program
ZVI	zero valent iron

8 References

Environmental Strategies Corporation (ESC), 1999, Summary of the Phase II Investigations for the Kop-Flex Facility, Hanover, Maryland

Environmental Strategies Corporation (ESC), 2001a, Response Action Plan, Areas 1 & 2, Emerson Electric Co., Kop-Flex Facility, Hanover, Maryland

Environmental Strategies Corporation (ESC), 2001b, Response Action Plan, Areas 2 & 4, Emerson Electric, Co., Kop-Flex Facility, Hanover, Maryland

Emulsified Zero Valent Nano-Scale Iron Treatment of Chlorinated Solvent DNAPL Source Areas, ESTCP Cost and Performance Report, September 2010

Maryland Department of Environment (MDE), 2006, Voluntary Cleanup Program Guidance Document

WSP, 2013, Response Action Plan Addendum Voluntary Cleanup Program Site #31, Kop-Flex Facility, Hanover, Maryland

Figures

DWG Name:
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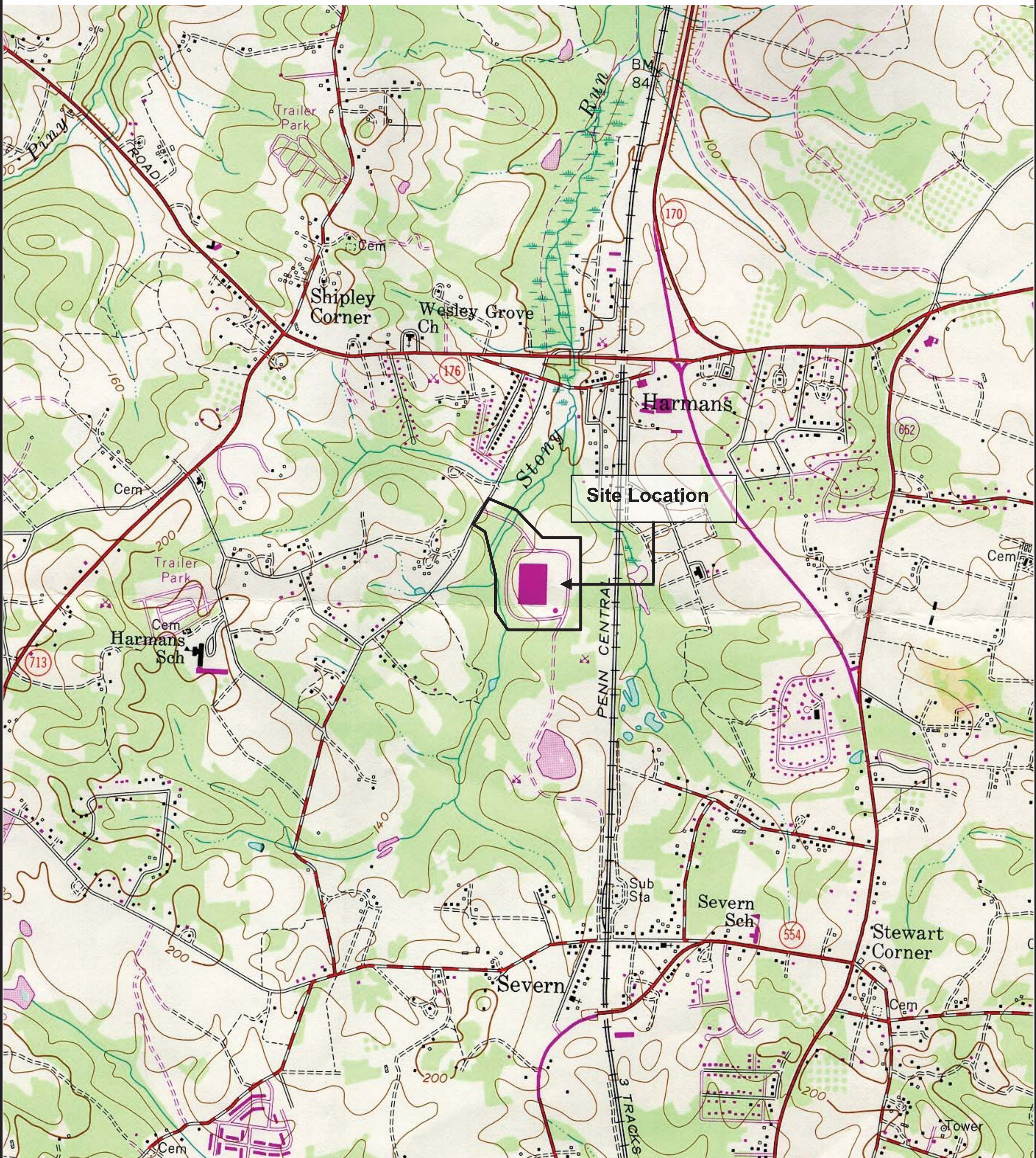

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11190 Sunrise Valley Drive, Suite 300
Reston, Virginia 20191
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FIGURE 1

SITE LOCATION MAP

KOP-FLEX
HANOVER, MARYLAND

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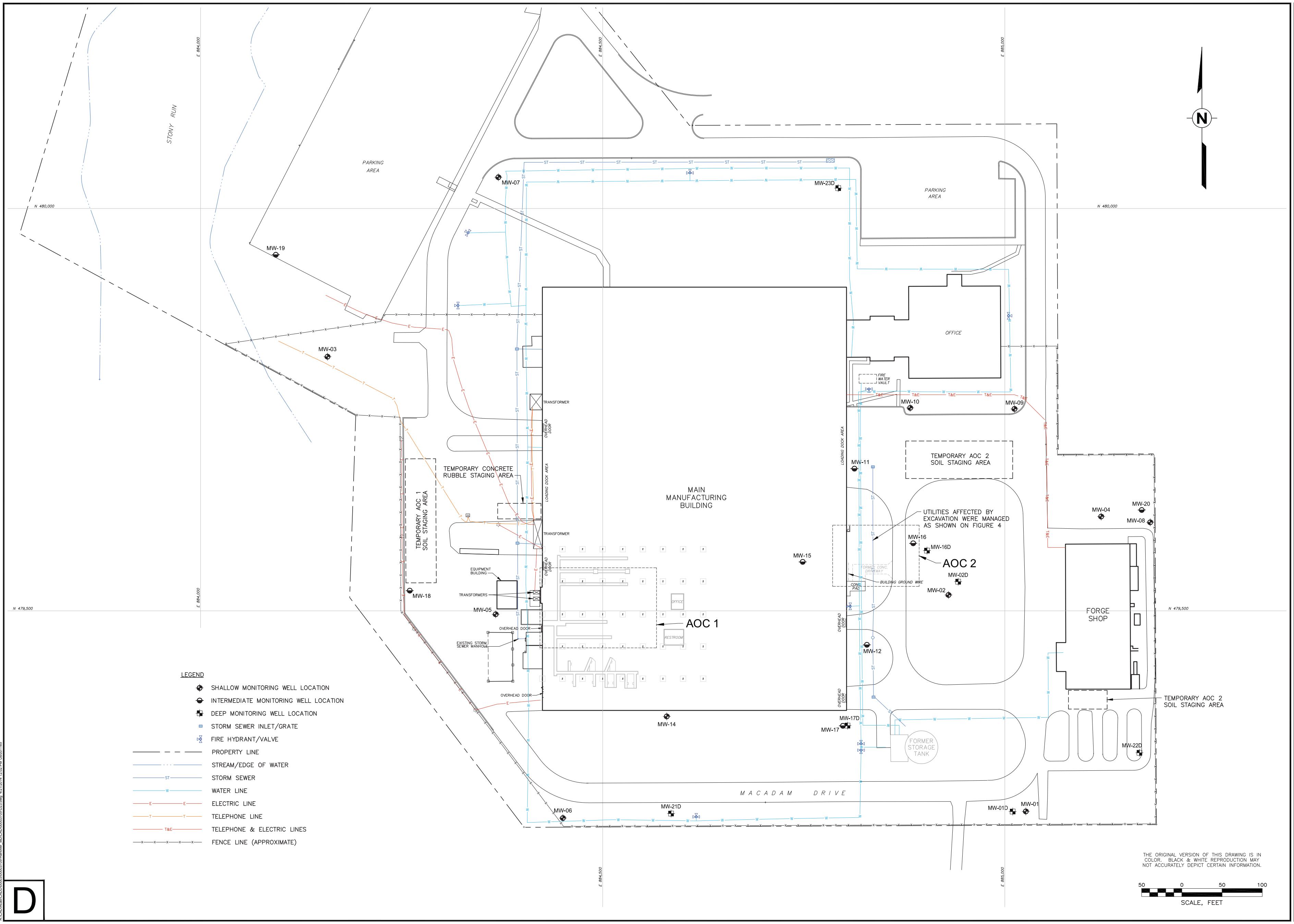

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SITE LAYOUT AND AREAS OF CONCERN

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HANOVER, MARYLAND
PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

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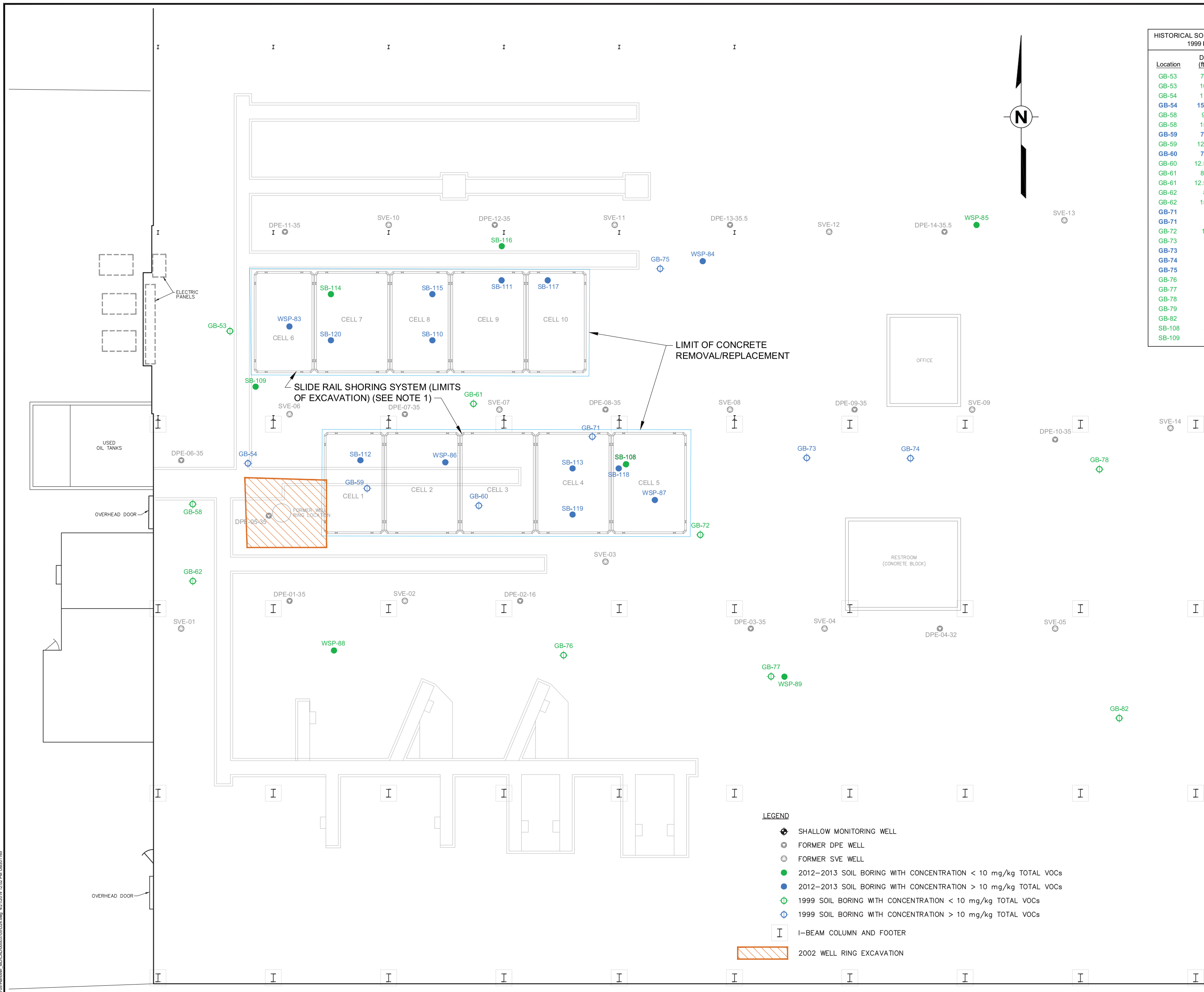
FIGURE 2

Drawing Number
00003705–D23



HISTORICAL SOIL SAMPLING DATA 1999 PHASE II		
Location	Depth (ft-bfs)	Total VOCs (mg/kg)
GB-53	7-7.8	0.02
GB-53	10-11	0.00
GB-54	11-12	0.30
GB-54	**15.5-17**	**11,340**
GB-58	9-11	0.64
GB-58	15-17	0.78
GB-59	**7.5-8**	**17.40**
GB-59	12-13.6	3.17
GB-60	**7.5-8**	**95.4**
GB-60	12.5-13.9	4.7
GB-61	8.5-9	2.3
GB-61	12.5-13.6	2.5
GB-62	8-9	0.07
GB-62	15-17	0.07
GB-71	**9**	**439**
GB-71	**11**	**12.3**
GB-72	12.5	1.95
GB-73	7	3.53
GB-73	**10**	**14.80**
GB-74	**12**	**245.6**
GB-75	**11**	**73.9**
GB-76	8	0.01
GB-77	10	0.42
GB-78	8	0.00
GB-79	8	0.05
GB-82	10	ND
SB-108	3-5	ND
SB-109	3-5	ND

SUPPLEMENTAL SOIL SAMPLING DATA 2012 - 2013			
Location	Depth (ft-bfs)	Total VOCs (mg/kg)	1,4-Dioxane (mg/kg)
WSP-83	**6-8**	**19.4**	**19.3**
WSP-83	**10-12**	**114**	8.92
WSP-83	19.9	3.77	3.74
WSP-84	6-8	2.94	2.82
WSP-84	**10-12**	**11.6**	**<16.6**
WSP-84	20.5	2.12	1.97
WSP-85	8-9	2.48	1.49
WSP-85	11-13	1.1	<0.151
WSP-85	18	2.23	1.99
WSP-86	**6-8**	**823**	**823**
WSP-86	**10-12**	**4,460**	**43.4**
WSP-86	17	8.42	7.04
WSP-87	6-8	5.1	5.1
WSP-87	**10-12**	**13.4**	**13.4**
WSP-87	16	2.03	2.02
WSP-88	6-8	0.397	0.397
WSP-88	10-12	0.319	0.319
WSP-88	17	1.86	0.187
WSP-89	6-8	1.87	1.87
WSP-89	10-12	2.05	2.05
WSP-89	17	2.88	2.35
SB-110	**14**	**112**	**59.7**
SB-111	**14**	**10.22**	5.96
SB-112	**12**	**161**	**149**
SB-113	**11**	**1,289**	**31**
SB-114	12	0.39	6.94
SB-115	**14**	**12.34**	8.1
SB-116	12	6.88	0.643
SB-117	**14**	**69.91**	**49.1**
SB-118	**12**	**81.51**	**24.4**
SB-119	**14**	**132**	**90.4**
SB-120	**14**	**47**	**42.5**

GREEN = CONCENTRATION < 10 mg/kg TOTAL VOCs
BLUE = CONCENTRATION > 10 mg/kg TOTAL VOCs
ND = NON-DETECT

LEGEND

- SHALLOW MONITORING WELL
- FORMER DPE WELL
- FORMER SVE WELL
- 2012–2013 SOIL BORING WITH CONCENTRATION < 10 mg/kg TOTAL VOCs
- 2012–2013 SOIL BORING WITH CONCENTRATION > 10 mg/kg TOTAL VOCs
- 1999 SOIL BORING WITH CONCENTRATION < 10 mg/kg TOTAL VOCs
- 1999 SOIL BORING WITH CONCENTRATION > 10 mg/kg TOTAL VOCs
- I–BEAM COLUMN AND FOOTER
- 2002 WELL RING EXCAVATION

NOTE:

1. EXCAVATION ADVANCED TO 15 FEET BELOW TOP OF FLOOR IN ALL SHORING CELLS.

10 0 10 20
SCALE, FEET

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AOC 1 HISTORICAL BORING LOCATIONS, RESULTS, AND EXCAVATION LIMITS

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FIGURE 3

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AOC 2 HISTORICAL BORING LOCATIONS, RESULTS, AND EXCAVATION LIMITS

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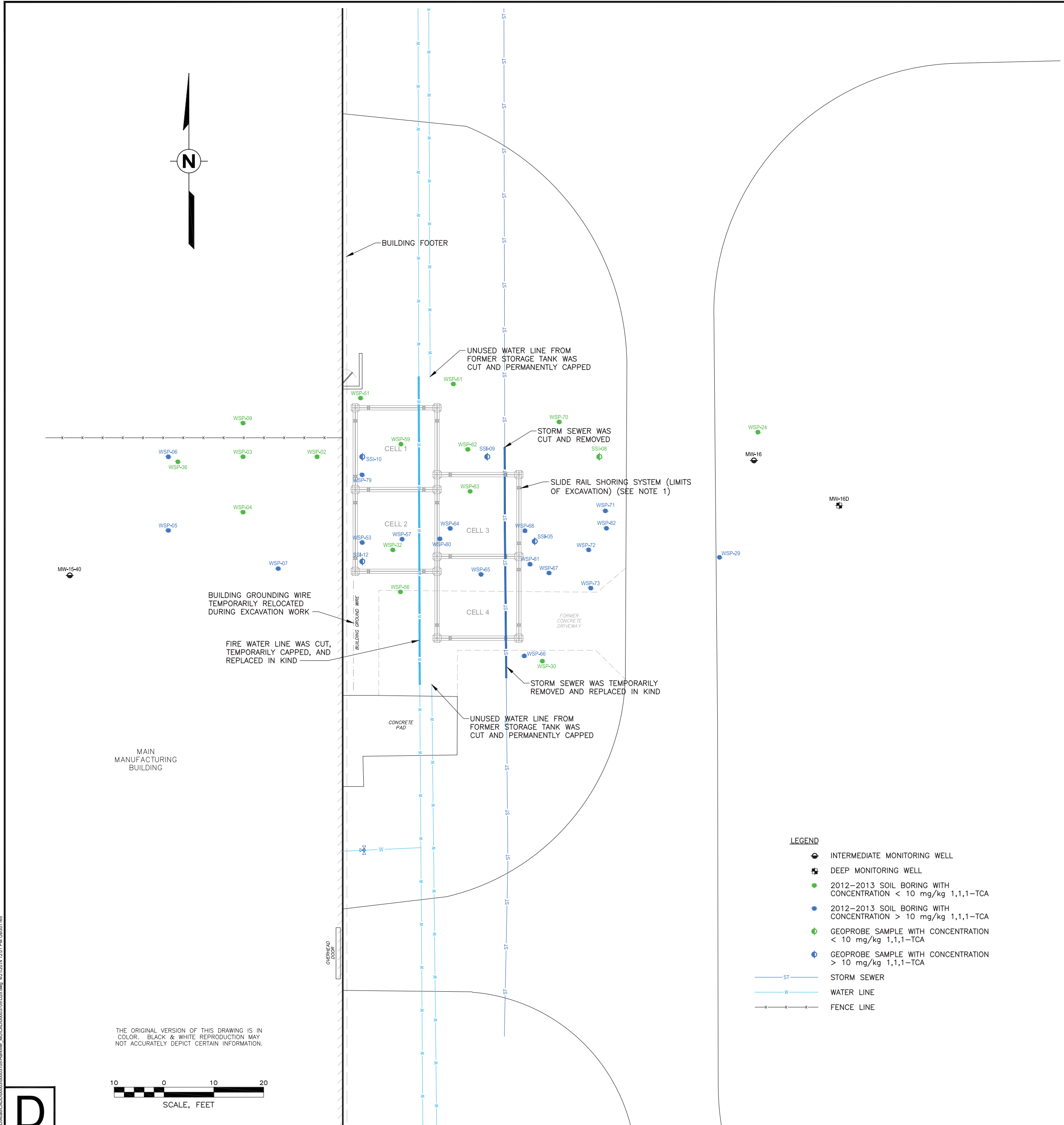

SUPPLEMENTAL SOIL SAMPLING DATA 2012 - 2013

Location	Depth (ft-bgs)	1,1,1-TCA (mg/kg)	1,4-Dioxane (mg/kg)
WSP-79	8.5-9	89.2	ND
WSP-79	11-12.5	0.7	ND
WSP-80	12.5-14	38.2	ND
WSP-80	16.5-18	21.5	ND
WSP-81	20-21.5	1,120	ND
WSP-81	23-24.5	3.3	ND
WSP-82	15.5-17	13.1	ND
WSP-82	18.5-20	2.1	ND

GREEN = CONCENTRATION < 10 mg/kg 1,1,1-TCA
BLUE = CONCENTRATION > 10 mg/kg 1,1,1-TCA
ND = NON-DETECT

HISTORICAL SOIL SAMPLING DATA 2007 - 2008

Location	Depth (ft-bfs)	1,1,1-TCA (mg/kg)
SSI-05	9	44
SSI-08	7-8	ND
SSI-09	8-9	250
SSI-10	9	3,500
SSI-12	13	29
WSP-02	10-11	ND
WSP-03	12-13	ND
WSP-04	13-14	ND
WSP-05	13.5-14.5	50
WSP-06	11-12	85
WSP-07	9-10	30
WSP-09	7-7.5	0.03
WSP-24	31-31.5	0.43
WSP-29	21-22	570
WSP-30	19-19.5	9
WSP-32	22	7
WSP-36	15	4
WSP-51	23-24	0.08
WSP-53	10-11	12
WSP-56	21.25-23	5
WSP-57	7-8	290
WSP-59	23-24	0.04
WSP-61	21-23.5	0.02
WSP-62	15-18	0.14
WSP-63	16.5-18	0.27
WSP-64	7-9.25	5,100
WSP-65	18.5-19	73
WSP-66	18-19	55
WSP-67	19-21.5	21
WSP-68	9.24-10	25
WSP-70	13.5-15	2
WSP-71	15-17	2,400
WSP-72	19.5-20	30
WSP-73	18-19	32

NOTE:

1. EXCAVATION DEPTHS:
   CELL 1 – 20 FEET BGS
   CELL 2 – 18 FEET BGS
   CELL 3 – 21 FEET BGS
   CELL 4 – 23 FEET BGS

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FIGURE 4

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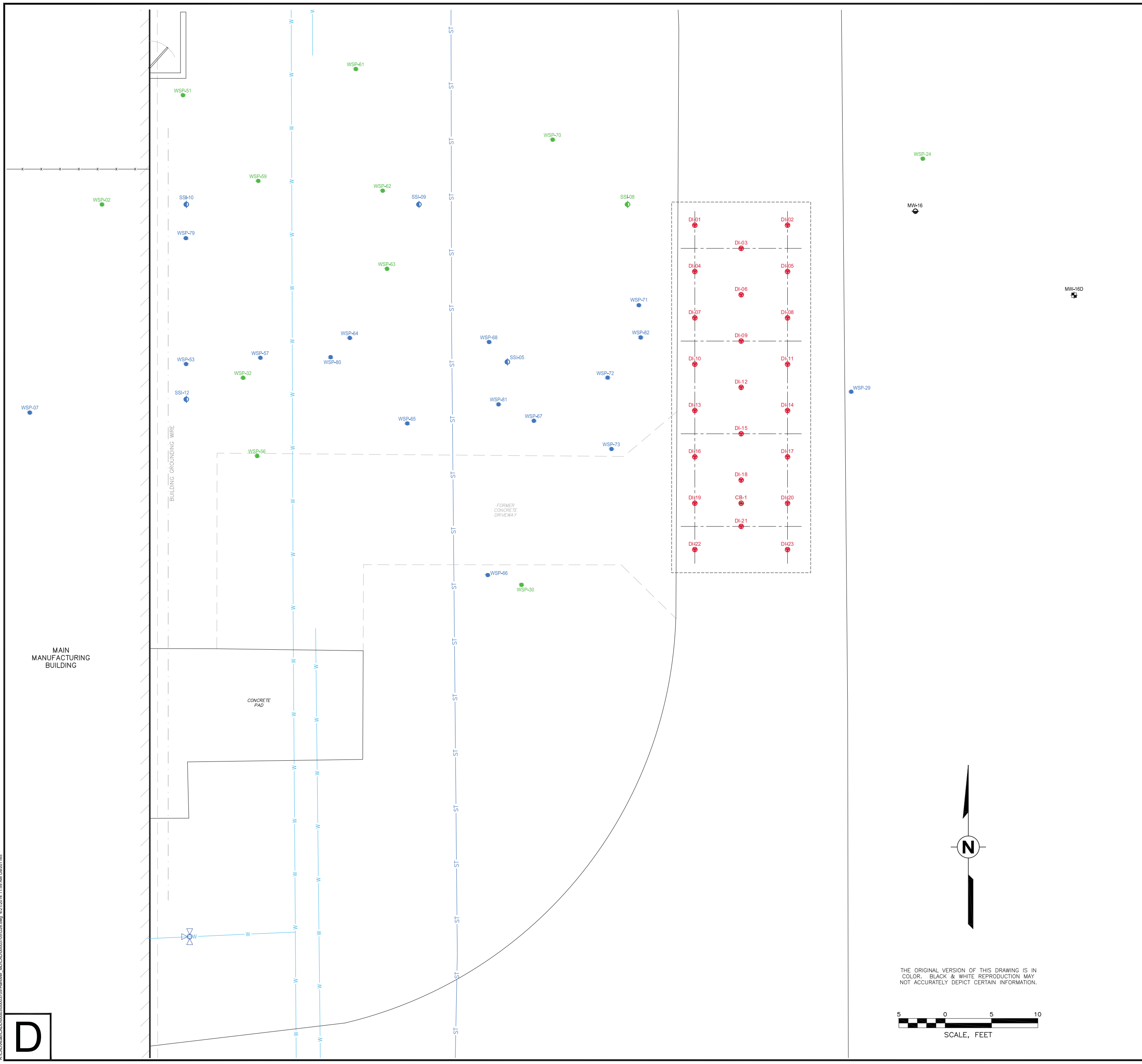

DELIVERY POINT IDENTIFICATION	INJECTION VOLUME (GALLONS)					
	15' BGS	17' BGS	19' BGS	21' BGS	23' BGS	25' BGS
DI-01	0	4.4	4.4	4.4	4.4	4.4
DI-02	0	4.4	4.4	4.4	4.4	4.4
DI-03	0	4.4	4.4	4.4	4.4	4.4
DI-04	0	4.4	4.4	4.4	4.4	4.4
DI-05	0	4.4	4.4	4.4	4.4	4.4
DI-06	0	4.4	4.4	4.4	8.8	0
DI-07	0	4.4	4.4	4.4	4.4	4.4
DI-08	0	4.4	4.4	4.4	4.4	4.4
DI-09	0	4.4	4.4	4.4	4.4	4.4
DI-10	0	4.4	4.4	4.4	4.4	4.4
DI-11	0	4.4	4.4	4.4	4.4	4.4
DI-12	3.6	3.6	3.6	3.6	3.6	3.6
DI-13	0	4.4	4.4	4.4	4.4	4.4
DI-14	0	4.4	4.4	4.4	4.4	4.4
DI-15	0	0	3.3	4.4	4.4	4.4
DI-16	0	4.4	4.4	4.4	4.4	4.4
DI-17	3.6	3.6	3.6	3.6	3.6	3.6
DI-18	0	4.4	4.4	4.4	4.4	4.4
DI-19	0	4.4	4.4	4.4	4.4	4.4
DI-20	0	4.4	4.4	4.4	4.4	4.4
DI-21	0	4.4	4.4	4.4	4.4	4.4
DI-22	5.7	7	2.4	2.4	2.4	2.4
DI-23	0	4.4	4.4	4.4	8.8	0

LEGEND

- DI-23 — DIRECT INJECTION EZVI POINT
- CB-1 — CONFIRMATION BORING
- MW-16 — INTERMEDIATE MONITORING WELL
- MW-16D — DEEP MONITORING WELL
- WSP-70 — 2012–2013 SOIL BORING WITH CONCENTRATION < 10 mg/kg 1,1,1–TCA
- WSP-53 — 2012–2013 SOIL BORING WITH CONCENTRATION > 10 mg/kg 1,1,1–TCA
- SSI-12 — GEOPROBE SAMPLE WITH CONCENTRATION > 10 mg/kg 1,1,1–TCA
- FIRE HYDRANT/VALVE
- ST — STORM SEWER
- W — WATER LINE
- FENCE LINE

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FIGURE 5

Drawing Number
00003705–D26

Tables

Table 1

Water Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Type I	Type II	Waste Characteristics (c)	Sample ID: AOC2-H2O Sample Date: 12/19/13
	Maryland Generic Cleanup Standards (b)			
Volatile Organic Compounds (µg/l)				
1,1,1-Trichloroethane	200	200	-	42,000
1,1,2,2-Tetrachloroethane	0.053	0.053	-	1 U (e)
1,1,2-Trichloro-1,2,2-Trifluoroethane	-	-	-	1 U
1,1,2-Trichloroethane	5	5	-	1 U
1,1-Dichloroethane	90	90	-	1,400
1,1-Dichloroethene	7	7	700	***3,000***
1,2,3-Trichlorobenzene	-	-	-	1 U
1,2,4-Trichlorobenzene	70	70	-	1 U
1,2-Dibromo-3-Chloropropane	0.2	0.2	-	10 U
1,2-Dibromoethane (EDB)	0.05	0.05	-	1 U
1,2-Dichlorobenzene	600	600	-	1 U
1,2-Dichloroethane	5	5	500	***3.1***
1,2-Dichloropropane	5	5	-	1 U
1,3-Dichlorobenzene	1.8	1.8	-	1 U
1,4-Dichlorobenzene	75	75	7,500	1 U
2-Butanone (MEK)	700	700	200,000	***20***
2-Hexanone	-	-	-	10 U
4-Methyl-2-Pentanone	630	630	-	5 U
Acetone	550	550	-	10 U
Benzene	5	5	500	1 U
Bromochloromethane	-	-	-	1 U
Bromodichloromethane	80	80	-	1 U
Bromoform	80	80	-	5 U
Bromomethane	0.85	0.85	-	1 U
Carbon Disulfide	100	100	-	10 U
Carbon Tetrachloride	5	5	500	1 U
Chlorobenzene	100	0	100,000	1 U
Chloroethane	3.6	0	-	77
Chloroform	80	80	6,000	1 U
Chloromethane	19	19	-	1 U
cis-1,2-Dichloroethene	70	70	-	18
cis-1,3-Dichloropropene	0.44	0.44	-	1 U
Cyclohexane	-	-	-	10 U
Dibromochloromethane	80	80	-	1 U
Dichlorodifluoromethane	-	-	-	1 U
Ethylbenzene	700	700	-	3
Isopropylbenzene	66	66	-	1.2
m,p-Xylenes	-	-	-	8.9
Methyl Acetate	-	-	-	10 U
Methylcyclohexane	-	-	-	10 U
Methylene Chloride	5	5	-	1 U
Methyl-t-butyl ether	20	20	-	1 U
Naphthalene	0.65	0.65	-	1.6
o-Xylene	-	-	-	4.8
Styrene	100	100	-	1 U
Tetrachloroethene	5	5	700	***22***
Toluene	1,000	1,000	-	5.3
trans-1,2-Dichloroethene	100	100	-	1 U
trans-1,3-Dichloropropene	0.44	0.44	-	1 U
Trichloroethene	5	5	500	***61***
Trichlorofluoromethane	-	-	-	5 U
Vinyl Chloride	2	2	200	1 U
Semivolatile Organic Compounds (µg/l)				
2,4,5-Trichlorophenol	370	370	400,000	5 U
2,4,6-Trichlorophenol	6.1	6.1	2,000	5 U
2,4-Dichlorophenol	11	11	-	5 U
2,4-Dimethylphenol	73	73	-	5 U
2,4-Dinitrophenol	7.3	7.3	-	10 U
2,4-Dinitrotoluene	7.3	7.3	130	5 U
2,6-Dinitrotoluene	3.7	3.7	-	5 U
2-Chloronaphthalene	49	49	-	5 U
2-Chlorophenol	3	3	-	5 U
2-Methyl phenol	180	180	200,000	5 U
2-Methylnaphthalene	2.4	2.4	-	5 U
2-Nitroaniline	-	-	-	5 U
2-Nitrophenol	-	-	-	5 U

Shaded values > Type I Standards
Boxed values > Type II Standards
Bold italics values > Waste Characteristics

Table 1

Water Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)			Sample ID: AOC2-H2O
	Type I	Type II	Waste Characteristics (c)	Sample Date: 12/19/13
3&4-Methylphenol	-	-	-	5 U
3,3-Dichlorobenzidine	0.15	0.15	-	5 U
3-Nitroaniline	-	-	-	5 U
4,6-Dinitro-2-methyl phenol	-	-	-	5 U
4-Bromophenylphenyl ether	-	-	-	5 U
4-Chloro-3-methyl phenol	-	-	-	5 U
4-Chloroaniline	15	15	-	10 U
4-Chlorophenyl Phenyl ether	-	-	-	5 U
4-Nitroaniline	-	-	-	10 U
4-Nitrophenol	-	-	-	5 U
Acenaphthene	37	37	-	5 U
Acenaphthylene	37	37	-	5 U
Acetophenone	-	-	-	5 U
Anthracene	180	180	-	5 U
Atrazine	3	3	-	5 U
Benzo(a)anthracene	0.2	0.2	-	5 U
Benzo(a)pyrene	0.2	0.2	-	5 U
Benzo(b)fluoranthene	0.2	0.2	-	5 U
Benzo(g,h,i)perylene	18	18	-	5 U
Benzo(k)fluoranthene	0.3	0.3	-	5 U
Biphenyl (Diphenyl)	-	-	-	5 U
bis(2-chloroethoxy) methane	-	-	-	5 U
bis(2-chloroethyl) ether	0.0096	0.0096	-	5 U
bis(2-chloroisopropyl) ether	-	-	-	5 U
bis(2-ethylhexyl) phthalate	6	6	-	5 U
Butyl benzyl phthalate	-	-	-	5 U
Caprolactam	-	-	-	5 U
Carbazole	3.3	3.3	-	5 U
Chrysene	3	3	-	5 U
Dibenz(a,h)Anthracene	0.2	0.2	-	5 U
Dibenzofuran	3.7	3.7	-	5 U
Diethyl phthalate	2,900	2,900	-	5 U
Dimethyl phthalate	-	-	-	5 U
Di-n-butyl phthalate	370	370	-	5 U
Di-n-octyl phthalate	-	-	-	10 U
Fluoranthene	150	150	-	5 U
Fluorene	24	24	-	5 U
Hexachlorobenzene	1	1	130	5 U
Hexachlorobutadiene	0.86	0.86	500	5 U
Hexachlorocyclopentadiene	50	50	-	5 U
Hexachloroethane	4.8	4.8	3,000	5 U
Indeno(1,2,3-c,d)Pyrene	0.2	0.2	-	5 U
Isophorone	70	70	-	5 U
Naphthalene	0.65	0.65	-	5 U
Nitrobenzene	0.35	0.35	2,000	5 U
N-Nitrosodi-n-propyl amine	0.0096	0.0096	-	5 U
N-Nitrosodiphenylamine	14	14	-	5 U
Pentachlorophenol	1	1	100,000	10 U
Phenanthrene	180	180	-	5 U
Phenol	1,100	1,100	-	5 U
Pyrene	18	18	-	5 U
Pyridine	-	-	5,000	5 U
Metals (mg/l)				
Arsenic	0.01	0.01	500	0.05 U
Barium	2	2	1,000	1 U
Cadmium	0.005	0.005	100	0.05 U
Chromium	0.1	0.1	500	***0.17***
Lead	0.015	0.015	500	0.05 U
Mercury	0.002	0.002	20	0.002 U
Selenium	0.05	0.05	100	0.05 U
Silver	0.1	0.1	500	0.05 U

Shaded values > Type I Standards
Boxed values > Type II Standards
Bold italics values > Waste Characteristics

Table 1

Water Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

		Maryland Generic Cleanup Standards (b)			
				Sample ID:	**AOC2-H2O**
				Sample Date:	**12/19/13**
		Type I	**Type II**	**Waste Characteristics (c)**	
Hazard Characterization					
Ignitability	ºF	-	-	< 140	>200
pH	S.U.	-	-	≤ 2 or ≥12.5	10.3
Total Organic Carbon	%	-	-	-	15.9

a/ ID = identification; µg/l = micrograms per liter; mg/l = milligrams per liter; °F = degrees Farenheit; ">" = greater than; "≥" = greater than or equal to; "<" = less than; "≤" = less than or equal to; % = percent; "-" = not analyzed or not available.
b/ State of Maryland Department of the Enviroment Cleanup Standards for Soils and Groundwater. June 2008.
c/ Characteristic Wastes 40 CFR Part 261 Subpart C.
e/ Data Qualifiers:
U = Result not detected above reporting limit.
J = Result is less than the reporting limit; approximate value.
B = Compounds was found in the blank and sample.

Shaded values > Type I Standards
Boxed values > Type II Standards
Bold italics values > Waste Characteristics

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern: AOC 1											
				Sample ID:	**A1-0-C12**	**A1-0-C12(S)**	**A1-0-C3**	**A1-0-C3(S)**	**A1-C10-2-4**	**A1-C10-4-9**	**A1-C1-6-10**	**A1-C1-10-12**	**A1-C2-10-12**	**A1-C1-12-15**	**A1-C2-12-15**	**A1-C2-5-8**
				Sample Date:	1/27/14	1/27/14	1/27/14	1/27/14	2/10/14	2/18/14	1/13/14	1/13/14	1/27/14	1/13/14	1/29/14	1/16/14
	Residential	**Non-Residential**	**Protection of Groundwater**	**Waste Characteristics (c)**												
Volatile Organic Compounds (µg/kg)																
Acetone	7,000,000	92,000,000	22,000	-	15.5	11 J	26.8	10 J	21 U	22 U	188	215	-	371	610	62.4
Benzene	12,000	52,000	1.9	-	1.6 U (d)	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	0.72 J	1.6 U	-	1.8 U	0.77 J	1.7 U
Bromochloromethane	-	-	-	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Bromodichloromethane	10,000	46,000	1.1	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Bromoform	81,000	360,000	67	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Bromomethane	11,000	140,000	41	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
2-Butanone	4,700,000	61,000,000	29,000	-	8.1 U	16 U	8.5 U	19 U	21 U	22 U	7.3 U	8.2 U	-	646	9.2 U	8.4 U
Carbon Disulfide	780,000	10,000,000	19,000	-	1.6 U	8.2 U	1.7 U	9.3 U	11 U	11 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Carbon Tetrachloride	4,900	22,000	2.1	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Chlorobenzene	160,000	2,000,000	680	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Chloroethane	220,000	990,000	19	-	4.1 U	4.1 U	4.3 U	4.7 U	5.3 U	5.6 U	3.6 U	4.1 U	-	4.4 U	4.6 U	4.2 U
Chloroform	78,000	1,000,000	0.91	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	***1.7***	0.7 J	-	1.8 U	***1.1 J***	1.7 U
Chloromethane	-	-	930	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7
Cyclohexane	-	-	-	-	1.6 U	16 U	1.7 U	19 U	21 U	22 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Dibromochloromethane	7,600	34,000	0.83	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
1,2-Dibromo-3-chloropropane	200	3,600	0.0037	-	4.1 U	33 U	4.3 U	37 U	42 U	45 U	3.6 U	4.1 U	-	4.4 U	4.6 U	4.2 U
1,2-Dibromoethane	320	1,400	0.06	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
1,2-Dichlorobenzene	700,000	9,200,000	4,600	-	1.6	2 J	1.7 U	4.7 U	5.3 U	5.6 U	148	173	-	72.7	930	11.7
1,3-Dichlorobenzene	23,000	310,000	290	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	0.9 J	1.1 J	-	0.47 J	1.5 J	1.7 U
1,4-Dichlorobenzene	27,000	120,000	4.2	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	***20.5***	***22.5***	-	***9.4***	***35.1***	2.6
Dichlorodifluoromethane	-	-	-	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
1,1-Dichloroethane	1,600,000	20,000,000	5,100	-	1.2 J	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	134	25.2	-	15.4	147	6.3
1,2-Dichloroethane	7,000	31,000	1	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	***29.6***	1.7 U
1,1-Dichloroethene	390,000	5,100,000	2,900	-	1.3 J	6	1.7 U	4.7 U	5.3 U	5.6 U	193	30.9	-	31.6	791	15.7
cis-1,2-Dichloroethene	78,000	1,000,000	-	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	2.5	1.6 U	-	1.8 U	4.2	1.7 U
trans-1,2-Dichloroethene	160,000	2,000,000	720	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
1,2-Dichloropropane	9,400	42,000	3.4	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	0.49 J	1.6 U	-	1.8 U	1.8 U	1.7 U
cis-1,3-Dichloropropene	6,400	29,000	3.1	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
trans-1,3-Dichloropropene	6,400	29,000	3.1	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
1,4-Dioxane	-	-	-	-	2,720	2,900	2,270	1,600	1,400	29,000	25,900 J	26,400 J	-	7,320 J	81,800	11,100
Ethylbenzene	780,000	10,000,000	15,000	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	36.9	30.3	-	10.4	17.8	3.5
2-Hexanone	-	-	-	-	8.1 U	16 U	8.5 U	19 U	21 U	22 U	7.3 U	8.2 U	-	8.8 U	39.6	8.4 U
Isopropylbenzene	780,000	10,000,000	64,000	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	2.7	1.4 J	-	1.8 U	1.7 J	0.74 J
4-Methyl-2-Pentanone	-	-	59,000	-	8.1 U	16 U	3.3 J	19 U	21 U	22 U	64.2	16.4	-	10.4	25.4	12.8
Methyl-t-Butyl Ether	160,000	720,000	12	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Methyl Acetate	-	-	-	-	-	16 U	-	19 U	21 U	22 U	-	-	-	-	-	-
Methylcyclohexane	-	-	-	-	-	16 U	-	19 U	21 U	22 U	-	-	-	-	-	-
Methylene Chloride	85,000	380,000	19	-	1.6 U	4.1 U	9.4	4.7 U	5.3 U	5.6 U	15.8	14.1	-	***26.4***	***31.9***	3.7
Naphthalene	160,000	2,000,000	150	-	-	6	-	3 J	5.3 U	5.6 U	-	-	-	-	-	-
Styrene	1,600,000	20,000,000	57,000	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
1,1,2,2-Tetrachloroethane	3,200	14,000	0.68	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
Tetrachloroethene	1,200	5,300	4.7	-	1.3 J	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	***84.8***	***37.9***	-	***9.2***	***69.6***	***6.3***
Toluene	630,000	8,200,000	27,000	-	1.9	2 J	1.7 U	4.7 U	5.3 U	5.6 U	999	144	-	31.8	514	15.2
1,2,3-Trichlorobenzene	-	-	-	-	4.1 U	4.1 U	4.3 U	4.7 U	5.3 U	5.6 U	3.6 U	4.1 U	-	4.4 U	4.6 U	4.2 U
1,2,4-Trichlorobenzene	78,000	1,000,000	2,400	-	4.1 U	4.1 U	4.3 U	4.7 U	5.3 U	5.6 U	3.6 U	4.1 U	-	4.4 U	4.6 U	4.2 U
1,1,1-Trichloroethane	16,000,000	200,000,000	32,000	-	286	160	9.5 J	6	5.3 U	5.6 U	***113,000***	***95,400***	-	6,110	27,400	5,740
1,1,2-Trichloroethane	11,000	50,000	0.78	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	***9***	-	***3.7***	1.8 U	1.7 U
Trichloroethene	1,600	7,200	0.26	-	***3.7***	***3 J***	1.7 U	4.7 U	5.3 U	5.6 U	***1,050***	***96.8***	-	***12.9***	***179***	***23.5***
Trichlorofluoromethane	-	-	-	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
1,1,2-Trichlorotrifluoroethane	-	-	-	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	0.97 J	-	1.8 U	3.6	1.7 U
Vinyl Chloride	90	4,000	0.12	-	1.6 U	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	1.5 U	1.6 U	-	1.8 U	1.8 U	1.7 U
m&p-Xylene	-	-	-	-	1.8 J	8.2 U	3.4 U	9.3 U	11 U	11 U	146	125	-	42.5	69.2	14.6
o-Xylene	-	-	-	-	0.84 J	4.1 U	1.7 U	4.7 U	5.3 U	5.6 U	52.1	42	-	14	26.3	6.8
Total Xylenes	1,600,000	20,000,000	3,000	-	2.64	-	5.1	-	-	-	198	167	-	56.5	95.5	21.4
Total VOCs	-	-	-	-	3,127	3,090	2,421	1,619	1,400	29,000	142,104	122,857	-	14,812	112,795	17,107
Semivolatile Organic Compounds (µg/kg)																
Naphthalene	160,000	2,000,000	150	-	-	-	-	-	-	-	-	-	127	-	-	-
Acenaphthene	470,000	6,100,000	100,000	-	-	-	-	-	-	-	-	-	210	-	-	-
Acenaphthylene	470,000	6,100,000	100,000	-	-	-	-	-	-	-	-	-	53.7 U	-	-	-
Acetophenone	-	-	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Anthracene	2,300,000	31,000,000	470,000	-	-	-	-	-	-	-	-	-	67.3	-	-	-
Atrazine	2,900	13,000	8.8	-	-	-	-	-	-	-	-	-	107 U	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)															
Area of Concern:					AOC 1											
Sample ID:					A1-0-C12	A1-0-C12(S)	A1-0-C3	A1-0-C3(S)	A1-C10-2-4	A1-C10-4-9	A1-C1-6-10	A1-C1-10-12	A1-C2-10-12	A1-C1-12-15	A1-C2-12-15	A1-C2-5-8
Sample Date:					1/27/14	1/27/14	1/27/14	1/27/14	2/10/14	2/18/14	1/13/14	1/13/14	1/27/14	1/13/14	1/29/14	1/16/14
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)												
Benzo(a)anthracene	220	3,900	480	-	-	-	-	-	-	-	-	-	79.6	-	-	-
Benzo(a)pyrene	22	390	120	-	-	-	-	-	-	-	-	-	53.7 U	-	-	-
Benzo(b)fluoranthene	220	3,900	1,500	-	-	-	-	-	-	-	-	-	53.7 U	-	-	-
Benzo(g,h,i)perylene	230,000	3,100,000	680,000	-	-	-	-	-	-	-	-	-	53.7 U	-	-	-
Benzo(k)fluoranthene	2,200	39,000	15,000	-	-	-	-	-	-	-	-	-	53.7 U	-	-	-
Biphenyl	-	-	-	-	-	-	-	-	-	-	-	-	49.6 J	-	-	-
bis(2-chloroethoxy) methane	-	-	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
bis(2-chloroethyl) ether	580	2,600	0.044	-	-	-	-	-	-	-	-	-	107 U	-	-	-
bis(2-chloroisopropyl) ether	-	-	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
bis(2-ethylhexyl) phthalate	46,000	200,000	2,900,000	-	-	-	-	-	-	-	-	-	606	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Butyl benzyl phthalate	-	-	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Caprolactam	-	-	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
Carbazole	32,000	140,000	470	-	-	-	-	-	-	-	-	-	107 U	-	-	-
4-Chloroaniline	31,000	410,000	970	-	-	-	-	-	-	-	-	-	290 U	-	-	-
4-Chloro-3-methyl phenol	-	-	-	-	-	-	-	-	-	-	-	-	891	-	-	-
2-Chloronaphthalene	630,000	8,200,000	32,000	-	-	-	-	-	-	-	-	-	107 U	-	-	-
2-Chlorophenol	39,000	510,000	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Chrysene	22,000	390,000	48,000	-	-	-	-	-	-	-	-	-	100	-	-	-
m&p-Cresol	39,000	510,000	-	-	-	-	-	-	-	-	-	-	44.9 J	-	-	-
o-Cresol	390,000	5,100,000	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
Dibenzo(a,h)anthracene	22	390	460	-	-	-	-	-	-	-	-	-	53.7 U	-	-	-
Dibenzofuran	7,800	100,000	-	-	-	-	-	-	-	-	-	-	177	-	-	-
3,3-Dichlorobenzidine	1,400	6,400	4.9	-	-	-	-	-	-	-	-	-	161 U	-	-	-
2,4-Dichlorophenol	23,000	310,000	1,200	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Diethyl phthalate	6,300,000	82,000,000	450,000	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Dimethyl phthalate	-	-	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Di-n-butyl phthalate	780,000	10,000,000	5,000,000	-	-	-	-	-	-	-	-	-	34.7 J	-	-	-
Di-n-Octylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
2,4-Dimethylphenol	160,000	2,000,000	6,700	-	-	-	-	-	-	-	-	-	290 U	-	-	-
4,6-Dinitro-2-methyl phenol	-	-	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
2,4-Dinitrophenol	16,000	200,000	-	-	-	-	-	-	-	-	-	-	215 U	-	-	-
2,4-Dinitrotoluene	16,000	200,000	570	-	-	-	-	-	-	-	-	-	107 U	-	-	-
2,6-Dinitrotoluene	7,800	100,000	250	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Fluoranthene	310,000	4,100,000	6,300,000	-	-	-	-	-	-	-	-	-	283	-	-	-
Fluorene	310,000	4,100,000	140,000	-	-	-	-	-	-	-	-	-	235	-	-	-
Hexachlorobenzene	400	1,800	52	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Hexachlorobutadiene	8,200	37,000	1,800	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Hexachlorocyclopentadiene	47,000	610,000	1,800,000	-	-	-	-	-	-	-	-	-	290 U	-	-	-
Hexachloroethane	46,000	200,000	360	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Indeno(1,2,3-cd)pyrene	220	3,900	4,200	-	-	-	-	-	-	-	-	-	53.7 U	-	-	-
Isophorone	670,000	3,000,000	410	-	-	-	-	-	-	-	-	-	107 U	-	-	-
2-Methylnaphthalene	31,000	410,000	4,400	-	-	-	-	-	-	-	-	-	150	-	-	-
2-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
3-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
4-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
Nitrobenzene	3,900	51,000	23	-	-	-	-	-	-	-	-	-	107 U	-	-	-
2-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
4-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
N-Nitrosodi-n-propyl amine	91	410	0.047	-	-	-	-	-	-	-	-	-	107 U	-	-	-
N-Nitrosodiphenylamine	130,000	580,000	760	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Pentachlorophenol	5,300	24,000	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
Phenanthrene	2,300,000	31,000,000	470,000	-	-	-	-	-	-	-	-	-	735	-	-	-
Phenol	2,300,000	31,000,000	67,000	-	-	-	-	-	-	-	-	-	32.8 J	-	-	-
Pyrene	230,000	3,100,000	680,000	-	-	-	-	-	-	-	-	-	258	-	-	-
Pyridine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-
2,3,4,6-Tetrachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	182 J	-	-	-
2,4,5-Trichlorophenol	780,000	10,000,000	-	-	-	-	-	-	-	-	-	-	290 U	-	-	-
2,4,6-Trichlorophenol	58,000	260,000	-	-	-	-	-	-	-	-	-	-	107 U	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b) Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	A1-0-C12	A1-0-C12(S)	A1-0-C3	A1-0-C3(S)	A1-C10-2-4	A1-C10-4-9	A1-C1-6-10	A1-C1-10-12	A1-C2-10-12	A1-C1-12-15	A1-C2-12-15	A1-C2-5-8
Area of Concern:					AOC 1											
Sample Date:					1/27/14	1/27/14	1/27/14	1/27/14	2/10/14	2/18/14	1/13/14	1/13/14	1/27/14	1/13/14	1/29/14	1/16/14
Total Petroleum Hydrocarbons																
Diesel Range Organics (mg/kg)	230	620	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline Range Organics (µg/kg)	230,000	620,000	-	-	-	-	-	-	-	-	-	-	15,100	-	-	-
Polychlorinated Biphenyls (mg/kg)																
Aroclor-1260	0.32	1.4	-	-	-	-	-	-	-	-	-	-	0.036 U	-	-	-
Aroclor-1254	0.32	1.4	1.1	-	-	-	-	-	-	-	-	-	0.036 U	-	-	-
Aroclor-1221	0.32	1.4	-	-	-	-	-	-	-	-	-	-	0.036 U	-	-	-
Aroclor-1232	0.32	1.4	-	-	-	-	-	-	-	-	-	-	0.036 U	-	-	-
Aroclor-1248	0.32	1.4	-	-	-	-	-	-	-	-	-	-	0.036 U	-	-	-
Aroclor-1016	0.55	41	4.2	-	-	-	-	-	-	-	-	-	0.036 U	-	-	-
Aroclor-1242	0.32	1.4	-	-	-	-	-	-	-	-	-	-	0.036 U	-	-	-
Metals (mg/kg)																
Aluminum	7,800	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	3.1	41	13	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	0.43	1.9	0.026	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	1,600	20,000	6,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	16	200	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	3.9	51	27	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	23	310	42	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	310	4,100	11,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5,500	72,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	400	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	160	2,000	950	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	160	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	39	510	19	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	39	510	31	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.55	7.2	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	4,700	61,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	7.8	100	730	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2,300	31,000	14,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxicity (mg/l)																
Benzene	-	-	-	0.5	-	-	-	-	-	-	-	-	0.02 U	-	-	-
2-Butanone	-	-	-	200	-	-	-	-	-	-	-	-	0.2 U	-	-	-
Carbon Tetrachloride	-	-	-	0.5	-	-	-	-	-	-	-	-	0.02 U	-	-	-
Chlorobenzene	-	-	-	100	-	-	-	-	-	-	-	-	0.02 U	-	-	-
Chloroform	-	-	-	6	-	-	-	-	-	-	-	-	0.0127 J	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	-	-	-	0.5	-	-	-	-	-	-	-	-	0.02 U	-	-	-
1,1-Dichloroethene	-	-	-	0.7	-	-	-	-	-	-	-	-	0.02 U	-	-	-
Tetrachloroethene	-	-	-	0.7	-	-	-	-	-	-	-	-	0.0083 J	-	-	-
Trichloroethene	-	-	-	0.5	-	-	-	-	-	-	-	-	0.0075 J	-	-	-
Vinyl Chloride	-	-	-	0.2	-	-	-	-	-	-	-	-	0.02 U	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	0.06 U	-	-	-
m&p-Cresol	-	-	-	200	-	-	-	-	-	-	-	-	0.16 U	-	-	-
o-Cresol	-	-	-	200	-	-	-	-	-	-	-	-	0.16 U	-	-	-
2,4-Dinitrotoluene	-	-	-	0.13	-	-	-	-	-	-	-	-	0.06 U	-	-	-
Hexachlorobenzene	-	-	-	0.13	-	-	-	-	-	-	-	-	0.06 U	-	-	-
Hexachlorobutadiene	-	-	-	0.5	-	-	-	-	-	-	-	-	0.06 U	-	-	-
Hexachloroethane	-	-	-	3	-	-	-	-	-	-	-	-	0.06 U	-	-	-
Nitrobenzene	-	-	-	2	-	-	-	-	-	-	-	-	0.06 U	-	-	-
Pentachlorophenol	-	-	-	100	-	-	-	-	-	-	-	-	0.32 U	-	-	-
Pyridine	-	-	-	5	-	-	-	-	-	-	-	-	0.16 U	-	-	-
2,4,5-Trichlorophenol	-	-	-	400	-	-	-	-	-	-	-	-	0.16 U	-	-	-
2,4,6-Trichlorophenol	-	-	-	2	-	-	-	-	-	-	-	-	0.16 U	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1										
					Sample ID:	A1-0-C12	A1-0-C12(S)	A1-0-C3	A1-0-C3(S)	A1-C10-2-4	A1-C10-4-9	A1-C1-6-10	A1-C1-10-12	A1-C2-10-12	A1-C1-12-15	A1-C2-12-15	A1-C2-5-8
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	Sample Date:	1/27/14	1/27/14	1/27/14	1/27/14	2/10/14	2/18/14	1/13/14	1/13/14	1/27/14	1/13/14	1/29/14	1/16/14
Arsenic	-	-	-	500		-	-	-	-	-	-	-	-	0.056 U	-	-	-
Barium	-	-	-	1,000		-	-	-	-	-	-	-	-	1.1 U	-	-	-
Cadmium	-	-	-	100		-	-	-	-	-	-	-	-	0.0044 U	-	-	-
Chromium	-	-	-	500		-	-	-	-	-	-	-	-	0.011 U	-	-	-
Lead	-	-	-	500		-	-	-	-	-	-	-	-	0.0053 J	-	-	-
Mercury	-	-	-	20		-	-	-	-	-	-	-	-	0.002 U	-	-	-
Selenium	-	-	-	100		-	-	-	-	-	-	-	-	0.044 U	-	-	-
Silver	-	-	-	500		-	-	-	-	-	-	-	-	0.0089 U	-	-	-
Ignitability (ºF)	-	-	-	< 140		-	-	-	-	-	-	-	-	>200	-	-	-
Reactivity (mg/l)																	
Cyanide, Reactive	-	-	-	-		-	-	-	-	-	-	-	-	10 U	-	-	-
Sulfide, Reactive	-	-	-	-		-	-	-	-	-	-	-	-	6.2 U	-	-	-
Cyanide, Reactive	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Corrosivity (S.U.)																	
pH	-	-	-	≤ 2 or ≥12.5		-	-	-	-	-	-	-	-	4.02	-	-	-
Total Solids (%)	-	-	-	-		97.1	-	96.5	-	-	-	92.5	93.4	91	91	83.6	96
Moisture (%)	-	-	-	-		2.9	4	3.5	4	7	13	7.5	6.6	9	9	16.4	4

Shaded values > Residential Standards
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Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1										
					Sample ID:	A1-C2-8-9	A1-C2-9-10	A1-C3-10-13	A1-C3-13-15	A1-C3-4	A1-C3-4-6	A1-C3-6-8	A1-C3-8-10	A1-C4-3-4	A1-C4-4-8	A1-C4-8-10	A1-C4-10-12
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	Sample Date:	1/16/14	1/16/14	1/27/14	1/27/14	1/27/14	1/27/14	1/27/14	1/27/14	1/29/14	1/29/14	1/29/14	1/29/14
Volatile Organic Compounds (µg/kg)																
Acetone	7,000,000	92,000,000	22,000	-		129	408	376	545	28.7	76.1	514 U	124	9 J	28.6	115	342
Benzene	12,000	52,000	1.9	-		1.8 U	0.52 J	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	0.53 J	1.6 U
Bromochloromethane	-	-	-	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Bromodichloromethane	10,000	46,000	1.1	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Bromoform	81,000	360,000	67	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Bromomethane	11,000	140,000	41	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
2-Butanone	4,700,000	61,000,000	29,000	-		8.8 U	9.1 U	9.2 U	356	8 U	9.3 U	492 J	8.7 U	9.3 U	7.9 U	8 U	8.1 U
Carbon Disulfide	780,000	10,000,000	19,000	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.8	1.9 U	1.6 U	1.6 U	1.6 U
Carbon Tetrachloride	4,900	22,000	2.1	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	***823***
Chlorobenzene	160,000	2,000,000	680	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Chloroethane	220,000	990,000	19	-		4.4 U	4.6 U	4.6 U	5 U	4 U	4.6 U	51.4 U	4.3 U	4.7 U	4 U	4 U	4 U
Chloroform	78,000	1,000,000	0.91	-		1.8 U	***1.1 J***	1.8 U	2 U	1.6 U	1.9 U	***56.4***	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Chloromethane	-	-	930	-		1.3 J	1.3 J	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Cyclohexane	-	-	-	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Dibromochloromethane	7,600	34,000	0.83	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
1,2-Dibromo-3-chloropropane	200	3,600	0.0037	-		4.4 U	4.6 U	4.6 U	5 U	4 U	4.6 U	360 U	4.3 U	4.7 U	4 U	4 U	4 U
1,2-Dibromoethane	320	1,400	0.06	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
1,2-Dichlorobenzene	700,000	9,200,000	4,600	-		33.8	695	28.8	21.4	0.61 J	1.9 U	83.6	5.2	1.9 U	1.6 U	5.4	1.9
1,3-Dichlorobenzene	23,000	310,000	290	-		1.8 U	1.5 J	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
1,4-Dichlorobenzene	27,000	120,000	4.2	-		1.8 U	***30.9***	3.9	2.8	1.6 U	1.9 U	51.4 U	0.88 J	1.9 U	1.6 U	0.8 J	1.6 U
Dichlorodifluoromethane	-	-	-	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
1,1-Dichloroethane	1,600,000	20,000,000	5,100	-		35.5	68.4	500	68	1.6 U	6	2,820	111	1.9 U	23.3	2,710	112
1,2-Dichloroethane	7,000	31,000	1	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	***14.9***	1.6 U
1,1-Dichloroethene	390,000	5,100,000	2,900	-		118 J	98.3 J	947	41.5	1.6 U	4	309	23	1.9 U	4.7	530	39.2
cis-1,2-Dichloroethene	78,000	1,000,000	-	-		1.8 U	1.2 J	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.5 J	1.6 U
trans-1,2-Dichloroethene	160,000	2,000,000	720	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
1,2-Dichloropropane	9,400	42,000	3.4	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
cis-1,3-Dichloropropene	6,400	29,000	3.1	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
trans-1,3-Dichloropropene	6,400	29,000	3.1	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
1,4-Dioxane	-	-	-	-		21,400 J	28,200 J	34,200 J	34,500	1,500	5,000	19,400	15,900	1,490	4,940	15,000	27,700
Ethylbenzene	780,000	10,000,000	15,000	-		20.7	50.4	15.6	2.5	1.6 U	1.3 J	319	7.3	1.9 U	0.56 J	28.1	5.5
2-Hexanone	-	-	-	-		8.8 U	9.1 U	44.1	12.2	8 U	9.3 U	257 U	8.7 U	9.3 U	7.9 U	30.5	9.9
Isopropylbenzene	780,000	10,000,000	64,000	-		3.1	5.8	1.7 J	2 U	1.6 U	1.9 U	32.3 J	0.67 J	1.9 U	1.6 U	4.3	0.57 J
4-Methyl-2-Pentanone	-	-	59,000	-		31.5	34.5	29.7	10.2	6.5 J	15	257 U	37	9.3 U	8.3	42.5	18.6
Methyl-t-Butyl Ether	160,000	720,000	12	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Methyl Acetate	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Methylcyclohexane	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	85,000	380,000	19	-		1.4 J	4	8.3	10.6	4.7	11.3	***104***	3.2	1.9 U	2.2	8.2	1.9
Naphthalene	160,000	2,000,000	150	-		-	-	-	-	-	-	-	-	-	-	-	-
Styrene	1,600,000	20,000,000	57,000	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
1,1,2,2-Tetrachloroethane	3,200	14,000	0.68	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Tetrachloroethene	1,200	5,300	4.7	-		***44.2***	***112***	***19.3***	***6.5***	1.6 U	1.4 J	***138***	***4.9***	1.9 U	1.1 J	***16.3***	3.2
Toluene	630,000	8,200,000	27,000	-		134	895	103	25.5	1.6 U	3.3	954	27	1.9 U	2	156	22.6
1,2,3-Trichlorobenzene	-	-	-	-		4.4 U	4.6 U	4.6 U	5 U	4 U	4.6 U	103 U	4.3 U	4.7 U	4 U	4 U	4 U
1,2,4-Trichlorobenzene	78,000	1,000,000	2,400	-		4.4 U	4.6 U	4.6 U	5 U	4 U	4.6 U	103 U	4.3 U	4.7 U	4 U	4 U	4 U
1,1,1-Trichloroethane	16,000,000	200,000,000	32,000	-		***41,800***	***64,200***	***60,300***	2,940	11.6	1,470	***165,000***	22,400	18.4	2,130	***183,000***	3,150
1,1,2-Trichloroethane	11,000	50,000	0.78	-		1.8 U	1.8 U	1.8 U	***3.2***	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
Trichloroethene	1,600	7,200	0.26	-		***363***	***491***	***168***	***25.1***	1.6 U	***14.7***	***1,400***	***83.1***	1.9 U	***9.4***	***1,320***	***39.7***
Trichlorofluoromethane	-	-	-	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
1,1,2-Trichlorotrifluoroethane	-	-	-	-		1.8 U	1.8 U	7.8	2 U	1.6 U	1.9 U	40.3 J	1.7 U	1.9 U	1.6 U	13.1	1.2 J
Vinyl Chloride	90	4,000	0.12	-		1.8 U	1.8 U	1.8 U	2 U	1.6 U	1.9 U	51.4 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U
m&p-Xylene	-	-	-	-		86.1	206	64.6	10.1	3.2 U	5	1,230	29.7	3.7 U	1.9 J	111	21.8
o-Xylene	-	-	-	-		35.6	75.8	25.5	4.1	1.6 U	2.2	464	11.5	1.9 U	0.84 J	44.8	8.7
Total Xylenes	1,600,000	20,000,000	3,000	-		122	282	90.1	14.2	4.8	7.2	1,694	41.2	5.6	2.74	156	30.5
Total VOCs	-	-	-	-		64,322	95,658	96,919	38,660	1,646	6,706	195,875	38,850	1,641	7,234	203,215	32,369
Semivolatile Organic Compounds (µg/kg)																
Naphthalene	160,000	2,000,000	150	-		-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	470,000	6,100,000	100,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	470,000	6,100,000	100,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Acetophenone	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	2,300,000	31,000,000	470,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Atrazine	2,900	13,000	8.8	-		-	-	-	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)																
				Area of Concern:	AOC 1												
				Sample ID:	A1-C2-8-9	A1-C2-9-10	A1-C3-10-13	A1-C3-13-15	A1-C3-4	A1-C3-4-6	A1-C3-6-8	A1-C3-8-10	A1-C4-3-4	A1-C4-4-8	A1-C4-8-10	A1-C4-10-12
				Sample Date:	1/16/14	1/16/14	1/27/14	1/27/14	1/27/14	1/27/14	1/27/14	1/27/14	1/29/14	1/29/14	1/29/14	1/29/14
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)												
Benzo(a)anthracene	220	3,900	480	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	22	390	120	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	220	3,900	1,500	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	230,000	3,100,000	680,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	2,200	39,000	15,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Biphenyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-chloroethoxy) methane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-chloroethyl) ether	580	2,600	0.044	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-chloroisopropyl) ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-ethylhexyl) phthalate	46,000	200,000	2,900,000	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caprolactam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbazole	32,000	140,000	470	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	31,000	410,000	970	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methyl phenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	630,000	8,200,000	32,000	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	39,000	510,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	22,000	390,000	48,000	-	-	-	-	-	-	-	-	-	-	-	-	-
m&p-Cresol	39,000	510,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Cresol	390,000	5,100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)anthracene	22	390	460	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	7,800	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3-Dichlorobenzidine	1,400	6,400	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	23,000	310,000	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	6,300,000	82,000,000	450,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethyl phthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butyl phthalate	780,000	10,000,000	5,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-Octylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	160,000	2,000,000	6,700	-	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methyl phenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	16,000	200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	16,000	200,000	570	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	7,800	100,000	250	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	310,000	4,100,000	6,300,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	310,000	4,100,000	140,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	400	1,800	52	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	8,200	37,000	1,800	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	47,000	610,000	1,800,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	46,000	200,000	360	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	220	3,900	4,200	-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	670,000	3,000,000	410	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	31,000	410,000	4,400	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	3,900	51,000	23	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propyl amine	91	410	0.047	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	130,000	580,000	760	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	5,300	24,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	2,300,000	31,000,000	470,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	2,300,000	31,000,000	67,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	230,000	3,100,000	680,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyridine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	780,000	10,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	58,000	260,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
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Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)															
				Area of Concern:	AOC 1											
				Sample ID:	A1-C2-8-9	A1-C2-9-10	A1-C3-10-13	A1-C3-13-15	A1-C3-4	A1-C3-4-6	A1-C3-6-8	A1-C3-8-10	A1-C4-3-4	A1-C4-4-8	A1-C4-8-10	A1-C4-10-12
				Sample Date:	1/16/14	1/16/14	1/27/14	1/27/14	1/27/14	1/27/14	1/27/14	1/27/14	1/29/14	1/29/14	1/29/14	1/29/14
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)												
Total Petroleum Hydrocarbons																
Diesel Range Organics (mg/kg)	230	620	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline Range Organics (µg/kg)	230,000	620,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (mg/kg)																
Aroclor-1260	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1254	0.32	1.4	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1221	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1232	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1248	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1016	0.55	41	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1242	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals (mg/kg)																
Aluminum	7,800	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	3.1	41	13	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	0.43	1.9	0.026	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	1,600	20,000	6,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	16	200	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	3.9	51	27	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	23	310	42	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	310	4,100	11,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5,500	72,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	400	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	160	2,000	950	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	160	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	39	510	19	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	39	510	31	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.55	7.2	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	4,700	61,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	7.8	100	730	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2,300	31,000	14,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxicity (mg/l)																
Benzene	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-
m&p-Cresol	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-
o-Cresol	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	-	-	-	0.13	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	-	-	-	0.13	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-
Pyridine	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	-	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)															
				Area of Concern:	AOC 1											
				Sample ID:	A1-C2-8-9	A1-C2-9-10	A1-C3-10-13	A1-C3-13-15	A1-C3-4	A1-C3-4-6	A1-C3-6-8	A1-C3-8-10	A1-C4-3-4	A1-C4-4-8	A1-C4-8-10	A1-C4-10-12
				Sample Date:	1/16/14	1/16/14	1/27/14	1/27/14	1/27/14	1/27/14	1/27/14	1/27/14	1/29/14	1/29/14	1/29/14	1/29/14
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)												
Arsenic	-	-	-	500	-	-	-	-	-	-	-	-	-	-	-	-
Barium	-	-	-	1,000	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	500	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	500	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-
Silver	-	-	-	500	-	-	-	-	-	-	-	-	-	-	-	-
Ignitability (ºF)	-	-	-	< 140	-	-	-	-	-	-	-	-	-	-	-	-
Reactivity (mg/l)																
Cyanide, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corrosivity (S.U.)																
pH	-	-	-	≤ 2 or ≥12.5	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids (%)	-	-	-	-	95.7	96.6	92.5	88.3	92.2	94	95.2	94.1	96.7	97.9	95.6	91
Moisture (%)	-	-	-	-	4.3	3.4	7.5	11.7	7.8	6	4.8	5.9	3.3	2.1	4.4	9

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1										
					Sample ID:	A1-C4-13-15	A1-C5-3-7	A1-C5-7-12	A1-C5-12-13	A1-C5-12-15	A1-C6-4-7	A1-C6-7-11	A1-C6-11-15	A1-C68-2-4	A1-C7-5-11	A1-C7-11-15	A1-C8-5-8
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	Sample Date:	1/29/14	1/31/14	1/31/14	1/31/14	1/31/14	2/7/14	2/7/14	2/7/14	2/7/14	2/10/14	2/10/14	2/11/14
Volatile Organic Compounds (µg/kg)																
Acetone	7,000,000	92,000,000	22,000	-		665	8.8 U	4.9 J	272	742	30.4	474 U	638 U	7.7 J	150 J	130 J	220 U
Benzene	12,000	52,000	1.9	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Bromochloromethane	-	-	-	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Bromodichloromethane	10,000	46,000	1.1	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Bromoform	81,000	360,000	67	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Bromomethane	11,000	140,000	41	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
2-Butanone	4,700,000	61,000,000	29,000	-		370	8.8 U	9.5 U	8.9 U	161	10.4 U	474 U	638 U	9.2 U	220 U	230 U	220 U
Carbon Disulfide	780,000	10,000,000	19,000	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	110 U	110 U	110 U
Carbon Tetrachloride	4,900	22,000	2.1	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Chlorobenzene	160,000	2,000,000	680	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Chloroethane	220,000	990,000	19	-		4.1 U	4.4 U	4.8 U	4.4 U	5.1 U	5.2 U	47.4 U	63.8 U	4.6 U	55 U	57 U	56 U
Chloroform	78,000	1,000,000	0.91	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Chloromethane	-	-	930	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Cyclohexane	-	-	-	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	220 U	230 U	220 U
Dibromochloromethane	7,600	34,000	0.83	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,2-Dibromo-3-chloropropane	200	3,600	0.0037	-		4.1 U	4.4 U	4.8 U	4.4 U	5.1 U	5.2 U	332 U	447 U	4.6 U	440 U	460 U	440 U
1,2-Dibromoethane	320	1,400	0.06	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,2-Dichlorobenzene	700,000	9,200,000	4,600	-		0.85 J	1.8 U	1.3 J	1.8 U	2 U	1.8 J	47.4 U	63.8 U	1.8 U	29 J	160	56 U
1,3-Dichlorobenzene	23,000	310,000	290	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,4-Dichlorobenzene	27,000	120,000	4.2	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	***37 J***	56 U
Dichlorodifluoromethane	-	-	-	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,1-Dichloroethane	1,600,000	20,000,000	5,100	-		48.2	1.8 U	5.2	18.8	139	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,2-Dichloroethane	7,000	31,000	1	-		1.6 U	1.8 U	1.9 U	1.8 U	***7.4***	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,1-Dichloroethene	390,000	5,100,000	2,900	-		26.6	1.8 U	3	12.5	130	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
cis-1,2-Dichloroethene	78,000	1,000,000	-	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
trans-1,2-Dichloroethene	160,000	2,000,000	720	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,2-Dichloropropane	9,400	42,000	3.4	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
cis-1,3-Dichloropropene	6,400	29,000	3.1	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
trans-1,3-Dichloropropene	6,400	29,000	3.1	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,4-Dioxane	-	-	-	-		32,800	2,880	8,210 J	16,200	15,900	10,300 J	11,700 J	11,600 J	1,690	38,000	25,000	26,000
Ethylbenzene	780,000	10,000,000	15,000	-		1.6 U	1.8 U	5.4	1.4 J	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
2-Hexanone	-	-	-	-		8 J	8.8 U	9.5 U	8.9 U	10.2 U	10.4 U	237 U	319 U	9.2 U	220 U	230 U	220 U
Isopropylbenzene	780,000	10,000,000	64,000	-		1.6 U	1.8 U	3.7	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
4-Methyl-2-Pentanone	-	-	59,000	-		14.8	8.8 U	9.5 U	8.9 U	26.8	5.3 J	237 U	319 U	9.2 U	220 U	230 U	220 U
Methyl-t-Butyl Ether	160,000	720,000	12	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Methyl Acetate	-	-	-	-		-	-	-	-	-	-	-	-	-	220 U	230 U	220 U
Methylcyclohexane	-	-	-	-		-	-	-	-	-	-	-	-	-	220 U	230 U	220 U
Methylene Chloride	85,000	380,000	19	-		7.4	5.1	1.9 U	6.8	***37.4***	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Naphthalene	160,000	2,000,000	150	-		-	-	-	-	-	-	-	-	-	55 U	47 J	56 U
Styrene	1,600,000	20,000,000	57,000	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,1,2,2-Tetrachloroethane	3,200	14,000	0.68	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Tetrachloroethene	1,200	5,300	4.7	-		1.6 U	1.8 U	3.9	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	***29 J***
Toluene	630,000	8,200,000	27,000	-		1.3 J	1.8 U	14.8	4.5	3.5	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	33 J
1,2,3-Trichlorobenzene	-	-	-	-		4.1 U	4.4 U	4.8 U	4.4 U	5.1 U	5.2 U	94.9 U	128 U	4.6 U	55 U	34 J	56 U
1,2,4-Trichlorobenzene	78,000	1,000,000	2,400	-		4.1 U	4.4 U	4.8 U	4.4 U	5.1 U	5.2 U	94.9 U	128 U	4.6 U	55 U	34 J	56 U
1,1,1-Trichloroethane	16,000,000	200,000,000	32,000	-		208	3.5	641	940	71.2	3.4	47.4 U	63.8 U	1.7 J	55 U	57 U	46 J
1,1,2-Trichloroethane	11,000	50,000	0.78	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Trichloroethene	1,600	7,200	0.26	-		***1.7***	1.8 U	***10.7***	***3.6***	***3.6***	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Trichlorofluoromethane	-	-	-	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
1,1,2-Trichlorotrifluoroethane	-	-	-	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
Vinyl Chloride	90	4,000	0.12	-		1.6 U	1.8 U	1.9 U	1.8 U	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	57 U	56 U
m&p-Xylene	-	-	-	-		1.1 J	3.5 U	18.7	5.8	0.92 J	4.2 U	94.9 U	128 U	3.7 U	110 U	90 J	110 U
o-Xylene	-	-	-	-		0.59 J	1.8 U	10.7	2.8	2 U	2.1 U	47.4 U	63.8 U	1.8 U	55 U	35 J	56 U
Total Xylenes	1,600,000	20,000,000	3,000	-		1.69	5.3	29.4	8.6	2.92	18.9	427	575	16.5	-	125	-
Total VOCs	-	-	-	-		34,221	3,013	9,038	17,570	17,319	31,399	47,046	50,882	5,458	38,179	25,567	26,108
Semivolatile Organic Compounds (µg/kg)																
Naphthalene	160,000	2,000,000	150	-		-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	470,000	6,100,000	100,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	470,000	6,100,000	100,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Acetophenone	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	2,300,000	31,000,000	470,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Atrazine	2,900	13,000	8.8	-		-	-	-	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1										
					Sample ID:	A1-C4-13-15	A1-C5-3-7	A1-C5-7-12	A1-C5-12-13	A1-C5-12-15	A1-C6-4-7	A1-C6-7-11	A1-C6-11-15	A1-C68-2-4	A1-C7-5-11	A1-C7-11-15	A1-C8-5-8
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	Sample Date:	1/29/14	1/31/14	1/31/14	1/31/14	1/31/14	2/7/14	2/7/14	2/7/14	2/7/14	2/10/14	2/10/14	2/11/14
Benzo(a)anthracene	220	3,900	480	-		-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	22	390	120	-		-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	220	3,900	1,500	-		-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	230,000	3,100,000	680,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	2,200	39,000	15,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Biphenyl	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
bis(2-chloroethoxy) methane	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
bis(2-chloroethyl) ether	580	2,600	0.044	-		-	-	-	-	-	-	-	-	-	-	-	-
bis(2-chloroisopropyl) ether	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
bis(2-ethylhexyl) phthalate	46,000	200,000	2,900,000	-		-	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Caprolactam	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Carbazole	32,000	140,000	470	-		-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	31,000	410,000	970	-		-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methyl phenol	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	630,000	8,200,000	32,000	-		-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	39,000	510,000	-	-		-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	22,000	390,000	48,000	-		-	-	-	-	-	-	-	-	-	-	-	-
m&p-Cresol	39,000	510,000	-	-		-	-	-	-	-	-	-	-	-	-	-	-
o-Cresol	390,000	5,100,000	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)anthracene	22	390	460	-		-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	7,800	100,000	-	-		-	-	-	-	-	-	-	-	-	-	-	-
3,3-Dichlorobenzidine	1,400	6,400	4.9	-		-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	23,000	310,000	1,200	-		-	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	6,300,000	82,000,000	450,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Dimethyl phthalate	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butyl phthalate	780,000	10,000,000	5,000,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Di-n-Octylphthalate	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	160,000	2,000,000	6,700	-		-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methyl phenol	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	16,000	200,000	-	-		-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	16,000	200,000	570	-		-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	7,800	100,000	250	-		-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	310,000	4,100,000	6,300,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	310,000	4,100,000	140,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	400	1,800	52	-		-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	8,200	37,000	1,800	-		-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	47,000	610,000	1,800,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	46,000	200,000	360	-		-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	220	3,900	4,200	-		-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	670,000	3,000,000	410	-		-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	31,000	410,000	4,400	-		-	-	-	-	-	-	-	-	-	-	-	-
2-Nitroaniline	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	3,900	51,000	23	-		-	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propyl amine	91	410	0.047	-		-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	130,000	580,000	760	-		-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	5,300	24,000	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	2,300,000	31,000,000	470,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Phenol	2,300,000	31,000,000	67,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	230,000	3,100,000	680,000	-		-	-	-	-	-	-	-	-	-	-	-	-
Pyridine	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	780,000	10,000,000	-	-		-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	58,000	260,000	-	-		-	-	-	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern: AOC 1											
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	A1-C4-13-15	A1-C5-3-7	A1-C5-7-12	A1-C5-12-13	A1-C5-12-15	A1-C6-4-7	A1-C6-7-11	A1-C6-11-15	A1-C68-2-4	A1-C7-5-11	A1-C7-11-15	A1-C8-5-8
Sample Date:					1/29/14	1/31/14	1/31/14	1/31/14	1/31/14	2/7/14	2/7/14	2/7/14	2/7/14	2/10/14	2/10/14	2/11/14
Total Petroleum Hydrocarbons																
Diesel Range Organics (mg/kg)	230	620	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline Range Organics (µg/kg)	230,000	620,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (mg/kg)																
Aroclor-1260	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1254	0.32	1.4	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1221	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1232	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1248	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1016	0.55	41	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1242	0.32	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals (mg/kg)																
Aluminum	7,800	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	3.1	41	13	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	0.43	1.9	0.026	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	1,600	20,000	6,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	16	200	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	3.9	51	27	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	23	310	42	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	310	4,100	11,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5,500	72,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	400	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	160	2,000	950	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	160	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	39	510	19	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	39	510	31	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.55	7.2	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	4,700	61,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	7.8	100	730	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2,300	31,000	14,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxicity (mg/l)																
Benzene	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-
m&p-Cresol	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-
o-Cresol	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	-	-	-	0.13	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	-	-	-	0.13	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-
Pyridine	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	-	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1										
					Sample ID:	A1-C4-13-15	A1-C5-3-7	A1-C5-7-12	A1-C5-12-13	A1-C5-12-15	A1-C6-4-7	A1-C6-7-11	A1-C6-11-15	A1-C68-2-4	A1-C7-5-11	A1-C7-11-15	A1-C8-5-8
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	Sample Date:	1/29/14	1/31/14	1/31/14	1/31/14	1/31/14	2/7/14	2/7/14	2/7/14	2/7/14	2/10/14	2/10/14	2/11/14
Arsenic	-	-	-	500		-	-	-	-	-	-	-	-	-	-	-	-
Barium	-	-	-	1,000		-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	100		-	-	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	500		-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	500		-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	20		-	-	-	-	-	-	-	-	-	-	-	-
Selenium	-	-	-	100		-	-	-	-	-	-	-	-	-	-	-	-
Silver	-	-	-	500		-	-	-	-	-	-	-	-	-	-	-	-
Ignitability (ºF)	-	-	-	< 140		-	-	-	-	-	-	-	-	-	-	-	-
Reactivity (mg/l)																	
Cyanide, Reactive	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Sulfide, Reactive	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Reactive	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Corrosivity (S.U.)																	
pH	-	-	-	$\leq$ 2 or $\geq$12.5		-	-	-	-	-	-	-	-	-	-	-	-
Total Solids (%)	-	-	-	-		89.7	96	94.6	91.5	87.7	92.4	89.8	88.6	96.3	-	-	-
Moisture (%)	-	-	-	-		10.3	4	5.4	8.5	12.3	7.6	10.2	11.4	3.7	9	13	10

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern: AOC 1											
Sample ID:					A1-C8-8-12	A1-C8-12-15	CT-1	CT-1	OVER-A1-C3	OVER-A1-C5	P-A1-N-C1-2	P-A1-N-C1-4	P-A1-N-C1-6	P-A1-N-C3-2	P-A1-N-C3-4	P-A1-N-C3-6
Sample Date:	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	2/11/14	2/11/14	1/9/14	1/13/14	1/16/14	1/27/14	1/27/14	1/30/14	1/30/14	1/27/14	1/30/14	1/30/14
Volatile Organic Compounds (µg/kg)																
Acetone	7,000,000	92,000,000	22,000	-	2,200 U	310	234	-	21.4	26.9	6.8 J	6.8 J	16.4	12.4	5.8 J	8.7 J
Benzene	12,000	52,000	1.9	-	550 U	55 U	0.45 J	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Bromochloromethane	-	-	-	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Bromodichloromethane	10,000	46,000	1.1	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Bromoform	81,000	360,000	67	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Bromomethane	11,000	140,000	41	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
2-Butanone	4,700,000	61,000,000	29,000	-	2,200 U	270	47.9	-	5 J	8.6 U	8.8 U	9.1 U	10.4 U	8.9 U	8.5 U	9.8 U
Carbon Disulfide	780,000	10,000,000	19,000	-	1,100 U	110 U	2.6	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Carbon Tetrachloride	4,900	22,000	2.1	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Chlorobenzene	160,000	2,000,000	680	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Chloroethane	220,000	990,000	19	-	550 U	55 U	4.2 U	-	4.4 U	4.3 U	4.4 U	4.5 U	5.2 U	4.4 U	4.3 U	4.9 U
Chloroform	78,000	1,000,000	0.91	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Chloromethane	-	-	930	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Cyclohexane	-	-	-	-	2,200 U	220 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Dibromochloromethane	7,600	34,000	0.83	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,2-Dibromo-3-chloropropane	200	3,600	0.0037	-	4,400 U	440 U	4.2 U	-	4.4 U	4.3 U	4.4 U	4.5 U	5.2 U	4.4 U	4.3 U	4.9 U
1,2-Dibromoethane	320	1,400	0.06	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,2-Dichlorobenzene	700,000	9,200,000	4,600	-	350 J	38 J	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	6.4	1.8 U	1.7 U	2 U
1,3-Dichlorobenzene	23,000	310,000	290	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,4-Dichlorobenzene	27,000	120,000	4.2	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Dichlorodifluoromethane	-	-	-	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,1-Dichloroethane	1,600,000	20,000,000	5,100	-	550 U	55 U	60	-	4	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,2-Dichloroethane	7,000	31,000	1	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,1-Dichloroethene	390,000	5,100,000	2,900	-	2,100	55 U	12	-	11.8	1.7 U	1.8 U	1.8 U	1.2 J	1.8 U	1.7 U	2 U
cis-1,2-Dichloroethene	78,000	1,000,000	-	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
trans-1,2-Dichloroethene	160,000	2,000,000	720	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,2-Dichloropropane	9,400	42,000	3.4	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
cis-1,3-Dichloropropene	6,400	29,000	3.1	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
trans-1,3-Dichloropropene	6,400	29,000	3.1	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,4-Dioxane	-	-	-	-	34,000	36,000	535	-	1,060	469	1,080	2,520	6,560 J	81.3	4,170	6,510 J
Ethylbenzene	780,000	10,000,000	15,000	-	550 U	55 U	3.8	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
2-Hexanone	-	-	-	-	2,200 U	220 U	8.3 U	-	8.8 U	8.6 U	8.8 U	9.1 U	10.4 U	8.9 U	8.5 U	9.8 U
Isopropylbenzene	780,000	10,000,000	64,000	-	550 U	55 U	1 J	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
4-Methyl-2-Pentanone	-	-	59,000	-	2,200 U	220 U	8.3 U	-	8.8 U	3.5 J	8.8 U	9.1 U	4.8 J	8.9 U	8.5 U	9.8 U
Methyl-t-Butyl Ether	160,000	720,000	12	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Methyl Acetate	-	-	-	-	2,200 U	220 U	-	-	-	-	-	-	-	-	-	-
Methylcyclohexane	-	-	-	-	2,200 U	220 U	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	85,000	380,000	19	-	550 U	55 U	1.7 J	-	0.83 J	9.8	5.4	1.8 U	4	6.6	1.7 J	2.7
Naphthalene	160,000	2,000,000	150	-	550 U	55 U	-	-	-	-	-	-	-	-	-	-
Styrene	1,600,000	20,000,000	57,000	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,1,2,2-Tetrachloroethane	3,200	14,000	0.68	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Tetrachloroethene	1,200	5,300	4.7	-	***800***	55 U	1.1 J	-	1.8 U	1.7 U	1.8 U	1.8 U	2.3	1.8 U	1.7 U	2 U
Toluene	630,000	8,200,000	27,000	-	1,700	55 U	9.2	-	1 J	1.7 U	1.8 U	1.8 U	1.1 J	1.8 U	1.5 J	0.91 J
1,2,3-Trichlorobenzene	-	-	-	-	550 U	55 U	4.2 U	-	4.4 U	4.3 U	4.4 U	4.5 U	5.2 U	4.4 U	4.3 U	4.9 U
1,2,4-Trichlorobenzene	78,000	1,000,000	2,400	-	550 U	55 U	4.2 U	-	4.4 U	4.3 U	4.4 U	4.5 U	5.2 U	4.4 U	4.3 U	4.9 U
1,1,1-Trichloroethane	16,000,000	200,000,000	32,000	-	28,000	55 U	129	-	266	4.8	1.8 U	1.8 U	10.3	1.8 J	1.7 U	0.93 J
1,1,2-Trichloroethane	11,000	50,000	0.78	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Trichloroethene	1,600	7,200	0.26	-	***890***	55 U	***0.95 J***	-	***1.1 J***	1.7 U	1.8 U	1.8 U	***1.2 J***	1.8 U	1.7 U	2 U
Trichlorofluoromethane	-	-	-	-	550 U	55 U	1.7 U	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
1,1,2-Trichlorotrifluoroethane	-	-	-	-	550 U	55 U	0.88 J	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
Vinyl Chloride	90	4,000	0.12	-	550 U	55 U	***1.5 J***	-	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.8 U	1.7 U	2 U
m&p-Xylene	-	-	-	-	880 J	110 U	21.3	-	3.5 U	3.5 U	3.5 U	3.6 U	2.3 J	3.6 U	3.4 U	3.9 U
o-Xylene	-	-	-	-	310 J	55 U	11.3	-	1.8 U	1.7 U	1.8 U	1.8 U	0.98 J	1.8 U	1.7 U	2 U
Total Xylenes	1,600,000	20,000,000	3,000	-	1,190	-	32.6	-	5.3	5.2	5.3	5.4	3.28	5.4	5.1	5.9
Total VOCs	-	-	-	-	69,030	36,618	1,151	-	1,471	617	1,210	2,648	6,720	218	4,290	6,650
Semivolatile Organic Compounds (µg/kg)																
Naphthalene	160,000	2,000,000	150	-	-	-	***800 J***	-	-	-	-	-	-	-	-	-
Acenaphthene	470,000	6,100,000	100,000	-	-	-	2,310	-	-	-	-	-	-	-	-	-
Acenaphthylene	470,000	6,100,000	100,000	-	-	-	351 J	-	-	-	-	-	-	-	-	-
Acetophenone	-	-	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Anthracene	2,300,000	31,000,000	470,000	-	-	-	742 J	-	-	-	-	-	-	-	-	-
Atrazine	2,900	13,000	8.8	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)															
				Area of Concern:	AOC 1											
				Sample ID:	A1-C8-8-12	A1-C8-12-15	CT-1	CT-1	OVER-A1-C3	OVER-A1-C5	P-A1-N-C1-2	P-A1-N-C1-4	P-A1-N-C1-6	P-A1-N-C3-2	P-A1-N-C3-4	P-A1-N-C3-6
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c) / Sample Date:	2/11/14	2/11/14	1/9/14	1/13/14	1/16/14	1/27/14	1/27/14	1/30/14	1/30/14	1/27/14	1/30/14	1/30/14
Benzo(a)anthracene	220	3,900	480	-	-	-	***1,450***	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	22	390	120	-	-	-	1,060 U	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	220	3,900	1,500	-	-	-	1,060 U	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	230,000	3,100,000	680,000	-	-	-	1,060 U	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	2,200	39,000	15,000	-	-	-	1,060 U	-	-	-	-	-	-	-	-	-
Biphenyl	-	-	-	-	-	-	562 J	-	-	-	-	-	-	-	-	-
bis(2-chloroethoxy) methane	-	-	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
bis(2-chloroethyl) ether	580	2,600	0.044	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
bis(2-chloroisopropyl) ether	-	-	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
bis(2-ethylhexyl) phthalate	46,000	200,000	2,900,000	-	-	-	2,920	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	-	-	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Caprolactam	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
Carbazole	32,000	140,000	470	-	-	-	***504 J***	-	-	-	-	-	-	-	-	-
4-Chloroaniline	31,000	410,000	970	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
4-Chloro-3-methyl phenol	-	-	-	-	-	-	5,680 J	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	630,000	8,200,000	32,000	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
2-Chlorophenol	39,000	510,000	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Chrysene	22,000	390,000	48,000	-	-	-	2,160	-	-	-	-	-	-	-	-	-
m&p-Cresol	39,000	510,000	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
o-Cresol	390,000	5,100,000	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)anthracene	22	390	460	-	-	-	1,060 U	-	-	-	-	-	-	-	-	-
Dibenzofuran	7,800	100,000	-	-	-	-	2,760	-	-	-	-	-	-	-	-	-
3,3-Dichlorobenzidine	1,400	6,400	4.9	-	-	-	3,170 U	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	23,000	310,000	1,200	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Diethyl phthalate	6,300,000	82,000,000	450,000	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Dimethyl phthalate	-	-	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Di-n-butyl phthalate	780,000	10,000,000	5,000,000	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Di-n-Octylphthalate	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	160,000	2,000,000	6,700	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methyl phenol	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	16,000	200,000	-	-	-	-	4,220 U	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	16,000	200,000	570	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	7,800	100,000	250	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Fluoranthene	310,000	4,100,000	6,300,000	-	-	-	6,390	-	-	-	-	-	-	-	-	-
Fluorene	310,000	4,100,000	140,000	-	-	-	1,650	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	400	1,800	52	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	8,200	37,000	1,800	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	47,000	610,000	1,800,000	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
Hexachloroethane	46,000	200,000	360	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	220	3,900	4,200	-	-	-	454 J	-	-	-	-	-	-	-	-	-
Isophorone	670,000	3,000,000	410	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	31,000	410,000	4,400	-	-	-	1,060	-	-	-	-	-	-	-	-	-
2-Nitroaniline	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
4-Nitroaniline	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
Nitrobenzene	3,900	51,000	23	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
2-Nitrophenol	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
4-Nitrophenol	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propyl amine	91	410	0.047	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	130,000	580,000	760	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Pentachlorophenol	5,300	24,000	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
Phenanthrene	2,300,000	31,000,000	470,000	-	-	-	9,760	-	-	-	-	-	-	-	-	-
Phenol	2,300,000	31,000,000	67,000	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
Pyrene	230,000	3,100,000	680,000	-	-	-	4,970	-	-	-	-	-	-	-	-	-
Pyridine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	-	-	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	-	-	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	780,000	10,000,000	-	-	-	-	5,700 U	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	58,000	260,000	-	-	-	-	2,110 U	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern: AOC 1											
			Protection of	Waste	Sample ID: A1-C8-8-12	A1-C8-12-15	CT-1	CT-1	OVER-A1-C3	OVER-A1-C5	P-A1-N-C1-2	P-A1-N-C1-4	P-A1-N-C1-6	P-A1-N-C3-2	P-A1-N-C3-4	P-A1-N-C3-6
	Residential	Non-Residential	Groundwater	Characteristics (c)	Sample Date: 2/11/14	2/11/14	1/9/14	1/13/14	1/16/14	1/27/14	1/27/14	1/30/14	1/30/14	1/27/14	1/30/14	1/30/14
Total Petroleum Hydrocarbons																
Diesel Range Organics (mg/kg)	230	620	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline Range Organics (µg/kg)	230,000	620,000	-	-	-	-	-	13,400	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (mg/kg)																
Aroclor-1260	0.32	1.4	-	-	-	-	-	0.033 U	-	-	-	-	-	-	-	-
Aroclor-1254	0.32	1.4	1.1	-	-	-	-	0.033 U	-	-	-	-	-	-	-	-
Aroclor-1221	0.32	1.4	-	-	-	-	-	0.033 U	-	-	-	-	-	-	-	-
Aroclor-1232	0.32	1.4	-	-	-	-	-	0.033 U	-	-	-	-	-	-	-	-
Aroclor-1248	0.32	1.4	-	-	-	-	-	0.033 U	-	-	-	-	-	-	-	-
Aroclor-1016	0.55	41	4.2	-	-	-	-	0.033 U	-	-	-	-	-	-	-	-
Aroclor-1242	0.32	1.4	-	-	-	-	-	0.033 U	-	-	-	-	-	-	-	-
Metals (mg/kg)																
Aluminum	7,800	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	3.1	41	13	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	0.43	1.9	0.026	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	1,600	20,000	6,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	16	200	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	3.9	51	27	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	23	310	42	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	310	4,100	11,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5,500	72,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	400	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	160	2,000	950	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	160	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	39	510	19	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	39	510	31	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.55	7.2	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	4,700	61,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	7.8	100	730	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2,300	31,000	14,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxicity (mg/l)																
Benzene	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-
m&p-Cresol	-	-	-	200	-	-	0.16 U	-	-	-	-	-	-	-	-	-
o-Cresol	-	-	-	200	-	-	0.16 U	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	-	-	-	0.13	-	-	0.06 U	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	-	-	-	0.13	-	-	0.06 U	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	-	-	-	0.5	-	-	0.06 U	-	-	-	-	-	-	-	-	-
Hexachloroethane	-	-	-	3	-	-	0.06 U	-	-	-	-	-	-	-	-	-
Nitrobenzene	-	-	-	2	-	-	0.06 U	-	-	-	-	-	-	-	-	-
Pentachlorophenol	-	-	-	100	-	-	0.32 U	-	-	-	-	-	-	-	-	-
Pyridine	-	-	-	5	-	-	0.16 U	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	-	-	-	400	-	-	0.16 U	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	-	-	-	2	-	-	0.16 U	-	-	-	-	-	-	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1										
					Sample ID:	A1-C8-8-12	A1-C8-12-15	CT-1	CT-1	OVER-A1-C3	OVER-A1-C5	P-A1-N-C1-2	P-A1-N-C1-4	P-A1-N-C1-6	P-A1-N-C3-2	P-A1-N-C3-4	P-A1-N-C3-6
					Sample Date:	2/11/14	2/11/14	1/9/14	1/13/14	1/16/14	1/27/14	1/27/14	1/30/14	1/30/14	1/27/14	1/30/14	1/30/14
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)													
Arsenic	-	-	-	500		-	-	0.056 U	-	-	-	-	-	-	-	-	-
Barium	-	-	-	1,000		-	-	2	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	100		-	-	0.0049	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	500		-	-	0.011 U	-	-	-	-	-	-	-	-	-
Lead	-	-	-	500		-	-	0.0051 J	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	20		-	-	0.002 U	-	-	-	-	-	-	-	-	-
Selenium	-	-	-	100		-	-	0.019 J	-	-	-	-	-	-	-	-	-
Silver	-	-	-	500		-	-	0.0089 U	-	-	-	-	-	-	-	-	-
Ignitability (ºF)	-	-	-	< 140		-	-	>200	-	-	-	-	-	-	-	-	-
Reactivity (mg/l)																	
Cyanide, Reactive	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Sulfide, Reactive	-	-	-	-		-	-	6.2 U	-	-	-	-	-	-	-	-	-
Cyanide, Reactive	-	-	-	-		-	-	10 U	-	-	-	-	-	-	-	-	-
Corrosivity (S.U.)																	
pH	-	-	-	≤ 2 or ≥12.5		-	-	7.17	-	-	-	-	-	-	-	-	-
Total Solids (%)	-	-	-	-		-	-	94.1	96	97.9	96.7	94.1	96.2	92.5	95.6	96.2	88.9
Moisture (%)	-	-	-	-		9	11	5.9	4	2.1	3.3	5.9	3.8	7.5	4.4	3.8	11.1

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1									
					Sample ID:	**P-A1-N-C5-2**	**P-A1-N-C5-4**	**P-A1-N-C5-6**	**SP-1**	**SP-2**	**SP-3**	**SP-4**	**SP-5**	**SP-6**	**SP-7**
	Residential	**Non-Residential**	**Protection of Groundwater**	**Waste Characteristics (c)**	**Sample Date:**	**1/27/14**	**1/30/14**	**1/30/14**	**2/10/14**	**2/10/14**	**2/10/14**	**2/10/14**	**2/14/14**	**2/14/14**	**2/14/14**
Volatile Organic Compounds (µg/kg)															
Acetone	7,000,000	92,000,000	22,000	-	9.4 J	10.5 U	4.7 J	290	220 U	380	240 J	23	81	130 J	410
Benzene	12,000	52,000	1.9	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Bromochloromethane	-	-	-	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Bromodichloromethane	10,000	46,000	1.1	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Bromoform	81,000	360,000	67	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Bromomethane	11,000	140,000	41	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
2-Butanone	4,700,000	61,000,000	29,000	-	9.4 U	10.5 U	9.2 U	220 J	220 U	220 U	440 U	22 U	43	210 U	300
Carbon Disulfide	780,000	10,000,000	19,000	-	1.9 U	2.1 U	1.8 U	110 U	110 U	110 U	220 U	11 U	11 U	110 U	11 U
Carbon Tetrachloride	4,900	22,000	2.1	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Chlorobenzene	160,000	2,000,000	680	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Chloroethane	220,000	990,000	19	-	4.7 U	5.3 U	4.6 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Chloroform	78,000	1,000,000	0.91	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Chloromethane	-	-	930	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Cyclohexane	-	-	-	-	1.9 U	2.1 U	1.8 U	220 U	220 U	220 U	440 U	22 U	22 U	210 U	23 U
Dibromochloromethane	7,600	34,000	0.83	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,2-Dibromo-3-chloropropane	200	3,600	0.0037	-	4.7 U	5.3 U	4.6 U	440 U	440 U	430 U	880 U	43 U	45 U	430 U	45 U
1,2-Dibromoethane	320	1,400	0.06	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,2-Dichlorobenzene	700,000	9,200,000	4,600	-	1.9 U	2.1 U	1.8 U	350	55 U	55	120	5.4 U	13	36 J	5.6 U
1,3-Dichlorobenzene	23,000	310,000	290	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,4-Dichlorobenzene	27,000	120,000	4.2	-	1.9 U	2.1 U	1.8 U	***47 J***	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Dichlorodifluoromethane	-	-	-	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,1-Dichloroethane	1,600,000	20,000,000	5,100	-	1.9 U	1.7 J	70.5	56 U	55 U	54 U	110 U	5.4 U	64	53 U	29
1,2-Dichloroethane	7,000	31,000	1	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	***13***	53 U	***8***
1,1-Dichloroethene	390,000	5,100,000	2,900	-	1.9 U	2.1 U	36.7	56 U	55 U	54 U	110 U	5.4 U	***3,300***	53 U	4 J
cis-1,2-Dichloroethene	78,000	1,000,000	-	-	1.9 U	2.1 U	0.81 J	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
trans-1,2-Dichloroethene	160,000	2,000,000	720	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,2-Dichloropropane	9,400	42,000	3.4	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
cis-1,3-Dichloropropene	6,400	29,000	3.1	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
trans-1,3-Dichloropropene	6,400	29,000	3.1	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,4-Dioxane	-	-	-	-	884	8,410 J	21,500	55,000	3,400	29,000	32,000	16,000	25,000	15,000	41,000
Ethylbenzene	780,000	10,000,000	15,000	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	17	53 U	5.6 U
2-Hexanone	-	-	-	-	9.4 U	10.5 U	9.2 U	220 U	220 U	220 U	440 U	22 U	22 U	210 U	23 U
Isopropylbenzene	780,000	10,000,000	64,000	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
4-Methyl-2-Pentanone	-	-	59,000	-	9.4 U	10.5 U	10.4	220 U	220 U	110 J	440 U	22 U	22 U	210 U	23 U
Methyl-t-Butyl Ether	160,000	720,000	12	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Methyl Acetate	-	-	-	-	-	-	-	220 U	220 U	220 U	440 U	22 U	22 U	210 U	23 U
Methylcyclohexane	-	-	-	-	-	-	-	220 U	220 U	220 U	440 U	22 U	22 U	210 U	23 U
Methylene Chloride	85,000	380,000	19	-	3.9	2.1 J	***35.8***	56 U	55 U	54 U	110 U	5.4 U	3 J	53 U	***35***
Naphthalene	160,000	2,000,000	150	-	-	-	-	65	55 U	54 U	110 U	5.4 U	10	28 J	5.6 U
Styrene	1,600,000	20,000,000	57,000	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,1,2,2-Tetrachloroethane	3,200	14,000	0.68	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Tetrachloroethene	1,200	5,300	4.7	-	1.9 U	2.1 U	1.8 U	***31 J***	55 U	54 U	110 U	5.4 U	***64***	***45 J***	5.6 U
Toluene	630,000	8,200,000	27,000	-	1.9 U	2.1 U	1.6 J	46 J	55 U	32 J	110 U	5.4 U	290	74	5.6 U
1,2,3-Trichlorobenzene	-	-	-	-	4.7 U	5.3 U	4.6 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,2,4-Trichlorobenzene	78,000	1,000,000	2,400	-	4.7 U	5.3 U	4.6 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,1,1-Trichloroethane	16,000,000	200,000,000	32,000	-	1.6 J	2.1 U	0.78 J	56	55 U	280	110 U	5 J	***51,000***	260	23
1,1,2-Trichloroethane	11,000	50,000	0.78	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Trichloroethene	1,600	7,200	0.26	-	1.9 U	2.1 U	***1.8 J***	56 U	55 U	54 U	110 U	5.4 U	***330***	53 U	5.6 U
Trichlorofluoromethane	-	-	-	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
1,1,2-Trichlorotrifluoroethane	-	-	-	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
Vinyl Chloride	90	4,000	0.12	-	1.9 U	2.1 U	1.8 U	56 U	55 U	54 U	110 U	5.4 U	5.6 U	53 U	5.6 U
m&p-Xylene	-	-	-	-	3.8 U	4.2 U	3.7 U	130	110 U	60 J	220 U	11 U	73	87 J	11 U
o-Xylene	-	-	-	-	1.9 U	2.1 U	1.8 U	48 J	55 U	54 U	110 U	5.4 U	27	33 J	5.6 U
Total Xylenes	1,600,000	20,000,000	3,000	-	5.7	6.3	5.5	178	-	60	-	-	100	120	-
Total VOCs	-	-	-	-	1,022	8,561	21,763	56,283	3,400	29,917	32,360	16,028	80,328	15,693	41,809
Semivolatile Organic Compounds (µg/kg)															
Naphthalene	160,000	2,000,000	150	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Acenaphthene	470,000	6,100,000	100,000	-	-	-	-	160 J	100 J	140 J	180 U	180 U	180 U	180 U	190 U
Acenaphthylene	470,000	6,100,000	100,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Acetophenone	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Anthracene	2,300,000	31,000,000	470,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Atrazine	2,900	13,000	8.8	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1									
					Sample ID:	P-A1-N-C5-4	P-A1-N-C5-6	SP-1	SP-2	SP-3	SP-4	SP-5	SP-6	SP-7	SP-8
					Sample Date:										
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	P-A1-N-C5-2 1/27/14	P-A1-N-C5-4 1/30/14	P-A1-N-C5-6 1/30/14	SP-1 2/10/14	SP-2 2/10/14	SP-3 2/10/14	SP-4 2/10/14	SP-5 2/14/14	SP-6 2/14/14	SP-7 2/14/14	SP-8 2/18/14
Benzo(a)anthracene	220	3,900	480	-	-	-	-	180 U	130 J	180 U	180 U	180 U	180 U	180 U	190 U
Benzo(a)pyrene	22	390	120	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Benzo(b)fluoranthene	220	3,900	1,500	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Benzo(g,h,i)perylene	230,000	3,100,000	680,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Benzo(k)fluoranthene	2,200	39,000	15,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Biphenyl	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
bis(2-chloroethoxy) methane	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
bis(2-chloroethyl) ether	580	2,600	0.044	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
bis(2-chloroisopropyl) ether	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
bis(2-ethylhexyl) phthalate	46,000	200,000	2,900,000	-	-	-	-	180 J	180 U	180 U	180 U	180 U	110 J	180 U	190 U
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Butyl benzyl phthalate	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Caprolactam	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Carbazole	32,000	140,000	470	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
4-Chloroaniline	31,000	410,000	970	-	-	-	-	370 U	360 U	360 U	360 U	360 U	360 U	370 U	380 U
4-Chloro-3-methyl phenol	-	-	-	-	-	-	-	650	180 U	410	270	180 U	200	180 U	190 U
2-Chloronaphthalene	630,000	8,200,000	32,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
2-Chlorophenol	39,000	510,000	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Chrysene	22,000	390,000	48,000	-	-	-	-	180 U	190	180 U	180 U	180 U	180 U	180 U	190 U
m&p-Cresol	39,000	510,000	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
o-Cresol	390,000	5,100,000	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Dibenzo(a,h)anthracene	22	390	460	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Dibenzofuran	7,800	100,000	-	-	-	-	-	130 J	99 J	120 J	180 U	180 U	180 U	180 U	190 U
3,3-Dichlorobenzidine	1,400	6,400	4.9	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
2,4-Dichlorophenol	23,000	310,000	1,200	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Diethyl phthalate	6,300,000	82,000,000	450,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Dimethyl phthalate	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Di-n-butyl phthalate	780,000	10,000,000	5,000,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Di-n-Octylphthalate	-	-	-	-	-	-	-	370 U	360 U	360 U	360 U	360 U	360 U	370 U	380 U
2,4-Dimethylphenol	160,000	2,000,000	6,700	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
4,6-Dinitro-2-methyl phenol	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
2,4-Dinitrophenol	16,000	200,000	-	-	-	-	-	370 U	360 U	360 U	360 U	360 U	360 U	370 U	380 U
2,4-Dinitrotoluene	16,000	200,000	570	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
2,6-Dinitrotoluene	7,800	100,000	250	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Fluoranthene	310,000	4,100,000	6,300,000	-	-	-	-	160 J	400	210	180 U	92 J	180 U	180 U	190 U
Fluorene	310,000	4,100,000	140,000	-	-	-	-	120 J	180 U	100 J	180 U	180 U	180 U	180 U	190 U
Hexachlorobenzene	400	1,800	52	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Hexachlorobutadiene	8,200	37,000	1,800	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Hexachlorocyclopentadiene	47,000	610,000	1,800,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Hexachloroethane	46,000	200,000	360	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Indeno(1,2,3-cd)pyrene	220	3,900	4,200	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Isophorone	670,000	3,000,000	410	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
2-Methylnaphthalene	31,000	410,000	4,400	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
2-Nitroaniline	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
3-Nitroaniline	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
4-Nitroaniline	-	-	-	-	-	-	-	370 U	360 U	360 U	360 U	360 U	360 U	370 U	380 U
Nitrobenzene	3,900	51,000	23	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
2-Nitrophenol	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
4-Nitrophenol	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
N-Nitrosodi-n-propyl amine	91	410	0.047	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
N-Nitrosodiphenylamine	130,000	580,000	760	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Pentachlorophenol	5,300	24,000	-	-	-	-	-	370 U	360 U	360 U	360 U	360 U	360 U	370 U	380 U
Phenanthrene	2,300,000	31,000,000	470,000	-	-	-	-	530	680	530	230	180 U	190	180 U	190 U
Phenol	2,300,000	31,000,000	67,000	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
Pyrene	230,000	3,100,000	680,000	-	-	-	-	180 U	410	210	180 U	180 U	180 U	180 U	190 U
Pyridine	-	-	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
1,2,4,5-Tetrachlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	780,000	10,000,000	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U
2,4,6-Trichlorophenol	58,000	260,000	-	-	-	-	-	180 U	180 U	180 U	180 U	180 U	180 U	180 U	190 U

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b) Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	P-A1-N-C5-2	P-A1-N-C5-4	P-A1-N-C5-6	SP-1	SP-2	SP-3	SP-4	SP-5	SP-6	SP-7	SP-8
Area of Concern:					AOC 1										
Sample Date:					1/27/14	1/30/14	1/30/14	2/10/14	2/10/14	2/10/14	2/10/14	2/14/14	2/14/14	2/14/14	2/18/14
Total Petroleum Hydrocarbons															
Diesel Range Organics (mg/kg)	230	620	-	-	-	-	-	5,500	2,100	2,200	1,500	64	760	140	70
Gasoline Range Organics (µg/kg)	230,000	620,000	-	-	-	-	-	3,000	95 J	950	1,300	260	3,500	1,800	500
Polychlorinated Biphenyls (mg/kg)															
Aroclor-1260	0.32	1.4	-	-	-	-	-	0.11 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	0.11 U	0.11 U
Aroclor-1254	0.32	1.4	1.1	-	-	-	-	0.11 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	0.11 U	0.11 U
Aroclor-1221	0.32	1.4	-	-	-	-	-	0.11 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	0.11 U	0.11 U
Aroclor-1232	0.32	1.4	-	-	-	-	-	0.11 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	0.11 U	0.11 U
Aroclor-1248	0.32	1.4	-	-	-	-	-	0.11 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	0.11 U	0.11 U
Aroclor-1016	0.55	41	4.2	-	-	-	-	0.11 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	0.11 U	0.11 U
Aroclor-1242	0.32	1.4	-	-	-	-	-	0.11 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	0.11 U	0.11 U
Metals (mg/kg)															
Aluminum	7,800	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	3.1	41	13	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	0.43	1.9	0.026	-	-	-	-	-	-	-	-	-	-	-	-
Barium	1,600	20,000	6,000	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	16	200	1,200	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	3.9	51	27	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	23	310	42	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	310	4,100	11,000	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5,500	72,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	400	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	160	2,000	950	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	160	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	39	510	19	-	-	-	-	-	-	-	-	-	-	-	-
Silver	39	510	31	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.55	7.2	3.6	-	-	-	-	-	-	-	-	-	-	-	-
Tin	4,700	61,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	7.8	100	730	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2,300	31,000	14,000	-	-	-	-	-	-	-	-	-	-	-	-
Toxicity (mg/l)															
Benzene	-	-	-	0.5	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-Butanone	-	-	-	200	-	-	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	-	-	-	0.5	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chlorobenzene	-	-	-	100	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chloroform	-	-	-	6	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-Dichloroethane	-	-	-	0.5	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1-Dichloroethene	-	-	-	0.7	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Tetrachloroethene	-	-	-	0.7	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Trichloroethene	-	-	-	0.5	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl Chloride	-	-	-	0.2	-	-	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-
m&p-Cresol	-	-	-	200	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
o-Cresol	-	-	-	200	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2,4-Dinitrotoluene	-	-	-	0.13	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Hexachlorobenzene	-	-	-	0.13	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Hexachlorobutadiene	-	-	-	0.5	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Hexachloroethane	-	-	-	3	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Nitrobenzene	-	-	-	2	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Pentachlorophenol	-	-	-	100	-	-	-	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Pyridine	-	-	-	5	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2,4,5-Trichlorophenol	-	-	-	400	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2,4,6-Trichlorophenol	-	-	-	2	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 1									
					Sample ID:										
					P-A1-N-C5-2	**P-A1-N-C5-4**	**P-A1-N-C5-6**	**SP-1**	**SP-2**	**SP-3**	**SP-4**	**SP-5**	**SP-6**	**SP-7**	**SP-8**
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	Sample Date: 1/27/14	1/30/14	1/30/14	2/10/14	2/10/14	2/10/14	2/10/14	2/14/14	2/14/14	2/14/14	2/18/14
Arsenic	-	-	-	500	-	-	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Barium	-	-	-	1,000	-	-	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	-	-	-	100	-	-	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chromium	-	-	-	500	-	-	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Lead	-	-	-	500	-	-	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Mercury	-	-	-	20	-	-	-	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Selenium	-	-	-	100	-	-	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Silver	-	-	-	500	-	-	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Ignitability (ºF)	-	-	-	< 140	-	-	-	>200	>200	>200	>200	>200	>200	>200	>200
Reactivity (mg/l)															
Cyanide, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Reactive	-	-	-	-	-	-	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Corrosivity (S.U.)															
pH	-	-	-	≤ 2 or ≥12.5	-	-	-	4.7	7.4	7.4	5.2	5.4	5.4	5	4.8
Total Solids (%)	-	-	-	-	93.7	84.5	84.6	-	-	-	-	-	-	-	-
Moisture (%)	-	-	-	-	6.3	15.5	15.4	10	9	8	9	8	8	10	12

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 2									
					Sample ID:	2-Black-15	2-Black-15	AOC2-COMP	AOC2-OVER1	Black-15	CELL1-17-20	CELL1-2-10-50	CELL1-2-10-50	CELL123-50-350	CELL123-50-350	CELL3-16-21
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	Sample Date:	12/12/13	12/19/13	1/14/14	12/4/13	12/5/13	12/5/13	12/5/13	12/19/13	12/12/13	12/19/13	12/11/13
Volatile Organic Compounds (µg/kg)															
Acetone	7,000,000	92,000,000	22,000	-		8.8 U	-	-	9.2 U	29.2	8.8 U	16.8	-	8.5 U	-	5.5 J
Benzene	12,000	52,000	1.9	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Bromochloromethane	-	-	-	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Bromodichloromethane	10,000	46,000	1.1	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Bromoform	81,000	360,000	67	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Bromomethane	11,000	140,000	41	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
2-Butanone	4,700,000	61,000,000	29,000	-		8.8 U	-	-	9.2 U	24.2	8.8 U	8.4 U	-	8.5 U	-	8.4 U
Carbon Disulfide	780,000	10,000,000	19,000	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	0.56 J	-	1.7 U	-	1.7 U
Carbon Tetrachloride	4,900	22,000	2.1	-		1.8 U	-	-	1.8 U	1.9 U	***5.8***	1.7 U	-	1.7 U	-	1.7 U
Chlorobenzene	160,000	2,000,000	680	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Chloroethane	220,000	990,000	19	-		4.4 U	-	-	4.6 U	4.9 U	4.4 U	14	-	4.3 U	-	4.2 U
Chloroform	78,000	1,000,000	0.91	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Chloromethane	-	-	930	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Cyclohexane	-	-	-	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Dibromochloromethane	7,600	34,000	0.83	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,2-Dibromo-3-chloropropane	200	3,600	0.0037	-		4.4 U	-	-	4.6 U	4.9 U	4.4 U	4.2 U	-	4.3 U	-	4.2 U
1,2-Dibromoethane	320	1,400	0.06	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,2-Dichlorobenzene	700,000	9,200,000	4,600	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,3-Dichlorobenzene	23,000	310,000	290	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,4-Dichlorobenzene	27,000	120,000	4.2	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Dichlorodifluoromethane	-	-	-	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,1-Dichloroethane	1,600,000	20,000,000	5,100	-		19.1	-	-	1.8 U	41.4	1.6 J	116	-	2.5	-	56.7
1,2-Dichloroethane	7,000	31,000	1	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,1-Dichloroethene	390,000	5,100,000	2,900	-		23.8	-	-	1.8 U	13.2	1.2 J	1,530	-	40.4	-	104
cis-1,2-Dichloroethene	78,000	1,000,000	-	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
trans-1,2-Dichloroethene	160,000	2,000,000	720	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,2-Dichloropropane	9,400	42,000	3.4	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
cis-1,3-Dichloropropene	6,400	29,000	3.1	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
trans-1,3-Dichloropropene	6,400	29,000	3.1	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,4-Dioxane	-	-	-	-		66.4 U	-	-	68.6 U	72.8 U	66.2 U	62.9 U	-	63.9 U	-	62.7 U
Ethylbenzene	780,000	10,000,000	15,000	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	4.5	-	1.9	-	1.8
2-Hexanone	-	-	-	-		8.8 U	-	-	9.2 U	9.7 U	8.8 U	8.4 U	-	8.5 U	-	8.4 U
Isopropylbenzene	780,000	10,000,000	64,000	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	6.4	-	1.6 J	-	1.4 J
4-Methyl-2-Pentanone	-	-	59,000	-		8.8 U	-	-	9.2 U	9.7 U	8.8 U	8.4 U	-	8.5 U	-	8.4 U
Methyl-t-Butyl Ether	160,000	720,000	12	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Methyl Acetate	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Methylcyclohexane	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	85,000	380,000	19	-		3.2	-	-	18.5	12.5	7.7	5.1	-	2.6	-	6.6
Naphthalene	160,000	2,000,000	150	-		-	-	-	-	-	-	-	-	-	-	-
Styrene	1,600,000	20,000,000	57,000	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,1,2,2-Tetrachloroethane	3,200	14,000	0.68	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Tetrachloroethene	1,200	5,300	4.7	-		2	-	-	1.8 U	1.9 U	1.8 U	***58***	-	***18.2***	-	***11.1***
Toluene	630,000	8,200,000	27,000	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	216	-	8.2	-	0.91 J
1,2,3-Trichlorobenzene	-	-	-	-		4.4 U	-	-	4.6 U	4.9 U	4.4 U	4.2 U	-	4.3 U	-	4.2 U
1,2,4-Trichlorobenzene	78,000	1,000,000	2,400	-		4.4 U	-	-	4.6 U	4.9 U	4.4 U	4.2 U	-	4.3 U	-	4.2 U
1,1,1-Trichloroethane	16,000,000	200,000,000	32,000	-		1,060	-	-	19.8	104	12	1,820	-	5,050	-	2,600
1,1,2-Trichloroethane	11,000	50,000	0.78	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
Trichloroethene	1,600	7,200	0.26	-		***2.6***	-	-	1.8 U	1.9 U	1.8 U	***431***	-	***14***	-	***7.5***
Trichlorofluoromethane	-	-	-	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
1,1,2-Trichlorotrifluoroethane	-	-	-	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	370	-	14.5	-	1.7 U
Vinyl Chloride	90	4,000	0.12	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	1.7 U	-	1.7 U	-	1.7 U
m&p-Xylene	-	-	-	-		1.1 J	-	-	3.7 U	3.9 U	3.5 U	9.3	-	6.9	-	6.2
o-Xylene	-	-	-	-		1.8 U	-	-	1.8 U	1.9 U	1.8 U	6.2	-	3.6	-	3.8
Total Xylenes	1,600,000	20,000,000	3,000	-		2.9	-	-	5.5	5.8	5.3	15.5	-	10.5	-	10
Total VOCs	-	-	-	-		1,292	-	-	234	409	214	4,752	-	5,329	-	2,961
Semivolatile Organic Compounds (µg/kg)																
Naphthalene	160,000	2,000,000	150	-		-	57.9 U	-	-	-	-	-	55.9 U	-	53.3 U	-
Acenaphthene	470,000	6,100,000	100,000	-		-	57.9 U	-	-	-	-	-	55.9 U	-	53.3 U	-
Acenaphthylene	470,000	6,100,000	100,000	-		-	57.9 U	-	-	-	-	-	55.9 U	-	53.3 U	-
Acetophenone	-	-	-	-		-	116 U	-	-	-	-	-	112 U	-	107 U	-
Anthracene	2,300,000	31,000,000	470,000	-		-	57.9 U	-	-	-	-	-	55.9 U	-	53.3 U	-
Atrazine	2,900	13,000	8.8	-		-	116 U	-	-	-	-	-	112 U	-	107 U	-

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Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)														
				Area of Concern:	AOC 2										
				Sample ID:	2-Black-15	2-Black-15	AOC2-COMP	AOC2-OVER1	Black-15	CELL1-17-20	CELL1-2-10-50	CELL1-2-10-50	CELL123-50-350	CELL123-50-350	CELL3-16-21
				Sample Date:	12/12/13	12/19/13	1/14/14	12/4/13	12/5/13	12/5/13	12/5/13	12/19/13	12/12/13	12/19/13	12/11/13
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)											
Benzo(a)anthracene	220	3,900	480	-	-	57.9 U	-	-	-	-	-	20.7 J	-	48.1 J	-
Benzo(a)pyrene	22	390	120	-	-	57.9 U	-	-	-	-	-	55.9 U	-	39.1 J	-
Benzo(b)fluoranthene	220	3,900	1,500	-	-	57.9 U	-	-	-	-	-	55.9 U	-	53.3 U	-
Benzo(g,h,i)perylene	230,000	3,100,000	680,000	-	-	57.9 U	-	-	-	-	-	55.9 U	-	25.3 J	-
Benzo(k)fluoranthene	2,200	39,000	15,000	-	-	57.9 U	-	-	-	-	-	55.9 U	-	19.5 J	-
Biphenyl	-	-	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
bis(2-chloroethoxy) methane	-	-	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
bis(2-chloroethyl) ether	580	2,600	0.044	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
bis(2-chloroisopropyl) ether	-	-	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
bis(2-ethylhexyl) phthalate	46,000	200,000	2,900,000	-	-	82.1 J	-	-	-	-	-	212	-	218	-
4-Bromophenyl phenyl ether	-	-	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Butyl benzyl phthalate	-	-	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Caprolactam	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
Carbazole	32,000	140,000	470	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
4-Chloroaniline	31,000	410,000	970	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
4-Chloro-3-methyl phenol	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
2-Chloronaphthalene	630,000	8,200,000	32,000	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
2-Chlorophenol	39,000	510,000	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Chrysene	22,000	390,000	48,000	-	-	57.9 U	-	-	-	-	-	30.1 J	-	42.8 J	-
m&p-Cresol	39,000	510,000	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
o-Cresol	390,000	5,100,000	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
Dibenzo(a,h)anthracene	22	390	460	-	-	57.9 U	-	-	-	-	-	55.9 U	-	53.3 U	-
Dibenzofuran	7,800	100,000	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
3,3-Dichlorobenzidine	1,400	6,400	4.9	-	-	174 U	-	-	-	-	-	168 U	-	160 U	-
2,4-Dichlorophenol	23,000	310,000	1,200	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Diethyl phthalate	6,300,000	82,000,000	450,000	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Dimethyl phthalate	-	-	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Di-n-butyl phthalate	780,000	10,000,000	5,000,000	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Di-n-Octylphthalate	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
2,4-Dimethylphenol	160,000	2,000,000	6,700	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
4,6-Dinitro-2-methyl phenol	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
2,4-Dinitrophenol	16,000	200,000	-	-	-	232 U	-	-	-	-	-	223 U	-	213 U	-
2,4-Dinitrotoluene	16,000	200,000	570	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
2,6-Dinitrotoluene	7,800	100,000	250	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Fluoranthene	310,000	4,100,000	6,300,000	-	-	57.9 U	-	-	-	-	-	54.9 J	-	88.4	-
Fluorene	310,000	4,100,000	140,000	-	-	57.9 U	-	-	-	-	-	55.9 U	-	53.3 U	-
Hexachlorobenzene	400	1,800	52	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Hexachlorobutadiene	8,200	37,000	1,800	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Hexachlorocyclopentadiene	47,000	610,000	1,800,000	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
Hexachloroethane	46,000	200,000	360	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Indeno(1,2,3-cd)pyrene	220	3,900	4,200	-	-	57.9 U	-	-	-	-	-	55.9 U	-	29.8 J	-
Isophorone	670,000	3,000,000	410	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
2-Methylnaphthalene	31,000	410,000	4,400	-	-	57.9 U	-	-	-	-	-	55.9 U	-	53.3 U	-
2-Nitroaniline	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
3-Nitroaniline	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
4-Nitroaniline	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
Nitrobenzene	3,900	51,000	23	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
2-Nitrophenol	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
4-Nitrophenol	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
N-Nitrosodi-n-propyl amine	91	410	0.047	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
N-Nitrosodiphenylamine	130,000	580,000	760	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Pentachlorophenol	5,300	24,000	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
Phenanthrene	2,300,000	31,000,000	470,000	-	-	57.9 U	-	-	-	-	-	19.6 J	-	58	-
Phenol	2,300,000	31,000,000	67,000	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
Pyrene	230,000	3,100,000	680,000	-	-	57.9 U	-	-	-	-	-	42.7 J	-	71.8	-
Pyridine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	-	-	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-
2,3,4,6-Tetrachlorophenol	-	-	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
2,4,5-Trichlorophenol	780,000	10,000,000	-	-	-	313 U	-	-	-	-	-	302 U	-	288 U	-
2,4,6-Trichlorophenol	58,000	260,000	-	-	-	116 U	-	-	-	-	-	112 U	-	107 U	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b) Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	AOC 2: 2-Black-15 12/12/13	2-Black-15 12/19/13	AOC2-COMP 1/14/14	AOC2-OVER1 12/4/13	Black-15 12/5/13	CELL1-17-20 12/5/13	CELL1-2-10-50 12/5/13	CELL1-2-10-50 12/19/13	CELL123-50-350 12/12/13	CELL123-50-350 12/19/13	CELL3-16-21 12/11/13
Total Petroleum Hydrocarbons															
Diesel Range Organics (mg/kg)	230	620	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline Range Organics (µg/kg)	230,000	620,000	-	-	-	-	1,200 J	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (mg/kg)															
Aroclor-1260	0.32	1.4	-	-	-	-	0.038 U	-	-	-	-	-	-	-	-
Aroclor-1254	0.32	1.4	1.1	-	-	-	0.038 U	-	-	-	-	-	-	-	-
Aroclor-1221	0.32	1.4	-	-	-	-	0.038 U	-	-	-	-	-	-	-	-
Aroclor-1232	0.32	1.4	-	-	-	-	0.038 U	-	-	-	-	-	-	-	-
Aroclor-1248	0.32	1.4	-	-	-	-	0.038 U	-	-	-	-	-	-	-	-
Aroclor-1016	0.55	41	4.2	-	-	-	0.038 U	-	-	-	-	-	-	-	-
Aroclor-1242	0.32	1.4	-	-	-	-	0.038 U	-	-	-	-	-	-	-	-
Metals (mg/kg)															
Aluminum	7,800	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	3.1	41	13	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	0.43	1.9	0.026	-	-	-	-	-	-	-	-	-	-	-	-
Barium	1,600	20,000	6,000	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	16	200	1,200	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	3.9	51	27	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	23	310	42	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	310	4,100	11,000	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5,500	72,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	400	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	160	2,000	950	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	160	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	39	510	19	-	-	-	-	-	-	-	-	-	-	-	-
Silver	39	510	31	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.55	7.2	3.6	-	-	-	-	-	-	-	-	-	-	-	-
Tin	4,700	61,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	7.8	100	730	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2,300	31,000	14,000	-	-	-	-	-	-	-	-	-	-	-	-
Toxicity (mg/l)															
Benzene	-	-	-	0.5	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
2-Butanone	-	-	-	200	-	0.2 U	-	-	-	-	-	0.2 U	-	0.2 U	-
Carbon Tetrachloride	-	-	-	0.5	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
Chlorobenzene	-	-	-	100	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
Chloroform	-	-	-	6	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	-	-	-	0.5	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
1,1-Dichloroethene	-	-	-	0.7	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
Tetrachloroethene	-	-	-	0.7	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
Trichloroethene	-	-	-	0.5	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
Vinyl Chloride	-	-	-	0.2	-	0.02 U	-	-	-	-	-	0.02 U	-	0.02 U	-
1,4-Dichlorobenzene	-	-	-	7.5	-	0.06 U	-	-	-	-	-	0.06 U	-	0.06 U	-
m&p-Cresol	-	-	-	200	-	0.16 U	-	-	-	-	-	0.16 U	-	0.16 U	-
o-Cresol	-	-	-	200	-	0.16 U	-	-	-	-	-	0.16 U	-	0.16 U	-
2,4-Dinitrotoluene	-	-	-	0.13	-	0.06 U	-	-	-	-	-	0.06 U	-	0.06 U	-
Hexachlorobenzene	-	-	-	0.13	-	0.06 U	-	-	-	-	-	0.06 U	-	0.06 U	-
Hexachlorobutadiene	-	-	-	0.5	-	0.06 U	-	-	-	-	-	0.06 U	-	0.06 U	-
Hexachloroethane	-	-	-	3	-	0.06 U	-	-	-	-	-	0.06 U	-	0.06 U	-
Nitrobenzene	-	-	-	2	-	0.06 U	-	-	-	-	-	0.06 U	-	0.06 U	-
Pentachlorophenol	-	-	-	100	-	0.32 U	-	-	-	-	-	0.32 U	-	0.32 U	-
Pyridine	-	-	-	5	-	0.16 U	-	-	-	-	-	0.16 U	-	0.16 U	-
2,4,5-Trichlorophenol	-	-	-	400	-	0.16 U	-	-	-	-	-	0.16 U	-	0.16 U	-
2,4,6-Trichlorophenol	-	-	-	2	-	0.16 U	-	-	-	-	-	0.16 U	-	0.16 U	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern: AOC 2										
					Sample ID: 2-Black-15	2-Black-15	AOC2-COMP	AOC2-OVER1	Black-15	CELL1-17-20	CELL1-2-10-50	CELL1-2-10-50	CELL123-50-350	CELL123-50-350	CELL3-16-21
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	**Sample Date:** 12/12/13	12/19/13	1/14/14	12/4/13	12/5/13	12/5/13	12/5/13	12/19/13	12/12/13	12/19/13	12/11/13
Arsenic	-	-	-	500	-	0.056 U	-	-	-	-	-	0.056 U	-	0.056 U	-
Barium	-	-	-	1,000	-	1.1 U	-	-	-	-	-	1.1 U	-	1.1 U	-
Cadmium	-	-	-	100	-	0.0044 U	-	-	-	-	-	0.0044 U	-	0.0044 U	-
Chromium	-	-	-	500	-	0.011 U	-	-	-	-	-	0.011 U	-	0.011 U	-
Lead	-	-	-	500	-	0.19	-	-	-	-	-	0.16	-	0.25	-
Mercury	-	-	-	20	-	0.002 U	-	-	-	-	-	0.002 U	-	0.002 U	-
Selenium	-	-	-	100	-	0.044 U	-	-	-	-	-	0.044 U	-	0.044 U	-
Silver	-	-	-	500	-	0.0089 U	-	-	-	-	-	0.0089 U	-	0.0089 U	-
Ignitability (ºF)	-	-	-	< 140	-	>200	-	-	-	-	-	>200	-	>200	-
Reactivity (mg/l)															
Cyanide, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfide, Reactive	-	-	-	-	-	6.2 U	-	-	-	-	-	6.2 U	-	6.2 U	-
Cyanide, Reactive	-	-	-	-	-	10 U	-	-	-	-	-	10 U	-	10 U	-
Corrosivity (S.U.)															
pH	-	-	-	≤ 2 or ≥12.5	-	7.33	-	-	-	-	-	8.11	-	8.4	-
Total Solids (%)	-	-	-	-	90.6	85.7	85.3	96	82.6	88.6	92.8	89.5	91.2	92.5	90.8
Moisture (%)	-	-	-	-	9.4	14.3	14.7	4	17.4	11.4	7.2	10.5	8.8	7.5	9.2

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Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 2				
					Sample ID:					
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	CELL3-16-21	CELL4-16-23	CELL4-CLAY	OVER-A1-C12	OVER-CELL3	OVER-CELL3-4
				Sample Date:	12/19/13	12/19/13	12/19/13	1/13/14	12/12/13	12/19/13
Volatile Organic Compounds (µg/kg)										
Acetone	7,000,000	92,000,000	22,000	-	-	7.4 J	9.2 U	32.1	9.9 U	16.3 U
Benzene	12,000	52,000	1.9	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Bromochloromethane	-	-	-	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Bromodichloromethane	10,000	46,000	1.1	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Bromoform	81,000	360,000	67	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Bromomethane	11,000	140,000	41	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
2-Butanone	4,700,000	61,000,000	29,000	-	-	8.2 U	9.2 U	8.8 U	9.9 U	16.3 U
Carbon Disulfide	780,000	10,000,000	19,000	-	-	0.59 J	1.8 U	1.8 U	2 U	3.3 U
Carbon Tetrachloride	4,900	22,000	2.1	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Chlorobenzene	160,000	2,000,000	680	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Chloroethane	220,000	990,000	19	-	-	1.2 J	4.6 U	4.4 U	4.9 U	8.2 U
Chloroform	78,000	1,000,000	0.91	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Chloromethane	-	-	930	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Cyclohexane	-	-	-	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Dibromochloromethane	7,600	34,000	0.83	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,2-Dibromo-3-chloropropane	200	3,600	0.0037	-	-	4.1 U	4.6 U	4.4 U	4.9 U	8.2 U
1,2-Dibromoethane	320	1,400	0.06	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,2-Dichlorobenzene	700,000	9,200,000	4,600	-	-	1.6 U	1.8 U	3	2 U	3.3 U
1,3-Dichlorobenzene	23,000	310,000	290	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,4-Dichlorobenzene	27,000	120,000	4.2	-	-	1.6 U	1.8 U	0.65 J	2 U	3.3 U
Dichlorodifluoromethane	-	-	-	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,1-Dichloroethane	1,600,000	20,000,000	5,100	-	-	318	1.8 U	1.5 J	2 U	3.3 U
1,2-Dichloroethane	7,000	31,000	1	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,1-Dichloroethene	390,000	5,100,000	2,900	-	-	2,510	1.8 U	2	2 U	14.5 J
cis-1,2-Dichloroethene	78,000	1,000,000	-	-	-	3.5	1.8 U	1.8 U	2 U	3.3 U
trans-1,2-Dichloroethene	160,000	2,000,000	720	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,2-Dichloropropane	9,400	42,000	3.4	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
cis-1,3-Dichloropropene	6,400	29,000	3.1	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
trans-1,3-Dichloropropene	6,400	29,000	3.1	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,4-Dioxane	-	-	-	-	-	61.2 U	69.3 U	5,460	74.1 U	123 U
Ethylbenzene	780,000	10,000,000	15,000	-	-	18.5	1.8 U	0.91 J	2 U	3.3 U
2-Hexanone	-	-	-	-	-	8.2 U	9.2 U	8.8 U	9.9 U	16.3 U
Isopropylbenzene	780,000	10,000,000	64,000	-	-	10.4	1.8 U	1.8 U	2 U	3.3 U
4-Methyl-2-Pentanone	-	-	59,000	-	-	8.2 U	9.2 U	8.8 U	9.9 U	16.3 U
Methyl-t-Butyl Ether	160,000	720,000	12	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Methyl Acetate	-	-	-	-	-	-	-	-	-	-
Methylcyclohexane	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	85,000	380,000	19	-	-	3.9	1.8 U	12.8	2.1	1.5 J
Naphthalene	160,000	2,000,000	150	-	-	-	-	-	-	-
Styrene	1,600,000	20,000,000	57,000	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,1,2,2-Tetrachloroethane	3,200	14,000	0.68	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Tetrachloroethene	1,200	5,300	4.7	-	-	***141***	1.8 U	2.3	2 U	3.3 U
Toluene	630,000	8,200,000	27,000	-	-	13.5	1.8 U	3.7	2 U	1.3 J
1,2,3-Trichlorobenzene	-	-	-	-	-	4.1 U	4.6 U	4.4 U	4.9 U	8.2 U
1,2,4-Trichlorobenzene	78,000	1,000,000	2,400	-	-	4.1 U	4.6 U	4.4 U	4.9 U	8.2 U
1,1,1-Trichloroethane	16,000,000	200,000,000	32,000	-	-	***164,000***	4 J	967	4.5	28 J
1,1,2-Trichloroethane	11,000	50,000	0.78	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Trichloroethene	1,600	7,200	0.26	-	-	***374***	1.8 U	***5.2***	2 U	3.3 U
Trichlorofluoromethane	-	-	-	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
1,1,2-Trichlorotrifluoroethane	-	-	-	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
Vinyl Chloride	90	4,000	0.12	-	-	1.6 U	1.8 U	1.8 U	2 U	3.3 U
m&p-Xylene	-	-	-	-	-	60.2	3.7 U	3.7	3.9 U	6.5 U
o-Xylene	-	-	-	-	-	34.7	1.8 U	1.7 J	2 U	3.3 U
Total Xylenes	1,600,000	20,000,000	3,000	-	-	94.9	5.5	5.4	5.9	9.8
Total VOCs	-	-	-	-	-	167,640	202	6,593	220	392
Semivolatile Organic Compounds (µg/kg)										
Naphthalene	160,000	2,000,000	150	-	54.4 U	53.9 U	57.6 U	-	-	-
Acenaphthene	470,000	6,100,000	100,000	-	54.4 U	35.9 J	57.6 U	-	-	-
Acenaphthylene	470,000	6,100,000	100,000	-	54.4 U	53.9 U	57.6 U	-	-	-
Acetophenone	-	-	-	-	109 U	108 U	115 U	-	-	-
Anthracene	2,300,000	31,000,000	470,000	-	54.4 U	53.9 U	57.6 U	-	-	-
Atrazine	2,900	13,000	8.8	-	109 U	108 U	115 U	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)									
				Area of Concern:	AOC 2					
				Sample ID:	**CELL3-16-21**	**CELL4-16-23**	**CELL4-CLAY**	**OVER-A1-C12**	**OVER-CELL3**	**OVER-CELL3-4**
				Sample Date:	12/19/13	12/19/13	12/19/13	1/13/14	12/12/13	12/19/13
	Residential	**Non-Residential**	**Protection of Groundwater**	**Waste Characteristics (c)**						
Benzo(a)anthracene	220	3,900	480	-	54.4 U	53.9 U	20.2 J	-	-	-
Benzo(a)pyrene	22	390	120	-	54.4 U	53.9 U	57.6 U	-	-	-
Benzo(b)fluoranthene	220	3,900	1,500	-	54.4 U	53.9 U	57.6 U	-	-	-
Benzo(g,h,i)perylene	230,000	3,100,000	680,000	-	54.4 U	16.8 J	57.6 U	-	-	-
Benzo(k)fluoranthene	2,200	39,000	15,000	-	54.4 U	53.9 U	57.6 U	-	-	-
Biphenyl	-	-	-	-	109 U	108 U	115 U	-	-	-
bis(2-chloroethoxy) methane	-	-	-	-	109 U	108 U	115 U	-	-	-
bis(2-chloroethyl) ether	580	2,600	0.044	-	109 U	108 U	115 U	-	-	-
bis(2-chloroisopropyl) ether	-	-	-	-	109 U	108 U	115 U	-	-	-
bis(2-ethylhexyl) phthalate	46,000	200,000	2,900,000	-	77.7 J	1,190	115 U	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	109 U	108 U	115 U	-	-	-
Butyl benzyl phthalate	-	-	-	-	109 U	31.4 J	115 U	-	-	-
Caprolactam	-	-	-	-	294 U	291 U	311 U	-	-	-
Carbazole	32,000	140,000	470	-	109 U	108 U	115 U	-	-	-
4-Chloroaniline	31,000	410,000	970	-	294 U	291 U	311 U	-	-	-
4-Chloro-3-methyl phenol	-	-	-	-	294 U	291 U	311 U	-	-	-
2-Chloronaphthalene	630,000	8,200,000	32,000	-	109 U	108 U	115 U	-	-	-
2-Chlorophenol	39,000	510,000	-	-	294 U	291 U	311 U	-	-	-
4-Chlorophenyl phenyl ether	-	-	-	-	109 U	108 U	115 U	-	-	-
Chrysene	22,000	390,000	48,000	-	54.4 U	53.9 U	57.6 U	-	-	-
m&p-Cresol	39,000	510,000	-	-	294 U	291 U	311 U	-	-	-
o-Cresol	390,000	5,100,000	-	-	294 U	291 U	311 U	-	-	-
Dibenzo(a,h)anthracene	22	390	460	-	54.4 U	53.9 U	57.6 U	-	-	-
Dibenzofuran	7,800	100,000	-	-	109 U	35.9 J	115 U	-	-	-
3,3-Dichlorobenzidine	1,400	6,400	4.9	-	163 U	162 U	173 U	-	-	-
2,4-Dichlorophenol	23,000	310,000	1,200	-	109 U	108 U	115 U	-	-	-
Diethyl phthalate	6,300,000	82,000,000	450,000	-	109 U	108 U	115 U	-	-	-
Dimethyl phthalate	-	-	-	-	109 U	108 U	115 U	-	-	-
Di-n-butyl phthalate	780,000	10,000,000	5,000,000	-	109 U	108 U	115 U	-	-	-
Di-n-Octylphthalate	-	-	-	-	294 U	291 U	311 U	-	-	-
2,4-Dimethylphenol	160,000	2,000,000	6,700	-	294 U	291 U	311 U	-	-	-
4,6-Dinitro-2-methyl phenol	-	-	-	-	294 U	291 U	311 U	-	-	-
2,4-Dinitrophenol	16,000	200,000	-	-	218 U	215 U	230 U	-	-	-
2,4-Dinitrotoluene	16,000	200,000	570	-	109 U	108 U	115 U	-	-	-
2,6-Dinitrotoluene	7,800	100,000	250	-	109 U	108 U	115 U	-	-	-
Fluoranthene	310,000	4,100,000	6,300,000	-	54.4 U	47.5 J	26.5 J	-	-	-
Fluorene	310,000	4,100,000	140,000	-	54.4 U	37.4 J	57.6 U	-	-	-
Hexachlorobenzene	400	1,800	52	-	109 U	108 U	115 U	-	-	-
Hexachlorobutadiene	8,200	37,000	1,800	-	109 U	108 U	115 U	-	-	-
Hexachlorocyclopentadiene	47,000	610,000	1,800,000	-	294 U	291 U	311 U	-	-	-
Hexachloroethane	46,000	200,000	360	-	109 U	108 U	115 U	-	-	-
Indeno(1,2,3-cd)pyrene	220	3,900	4,200	-	54.4 U	19.5 J	57.6 U	-	-	-
Isophorone	670,000	3,000,000	410	-	109 U	108 U	115 U	-	-	-
2-Methylnaphthalene	31,000	410,000	4,400	-	54.4 U	19.3 J	57.6 U	-	-	-
2-Nitroaniline	-	-	-	-	294 U	291 U	311 U	-	-	-
3-Nitroaniline	-	-	-	-	294 U	291 U	311 U	-	-	-
4-Nitroaniline	-	-	-	-	294 U	291 U	311 U	-	-	-
Nitrobenzene	3,900	51,000	23	-	109 U	108 U	115 U	-	-	-
2-Nitrophenol	-	-	-	-	294 U	291 U	311 U	-	-	-
4-Nitrophenol	-	-	-	-	294 U	291 U	311 U	-	-	-
N-Nitrosodi-n-propyl amine	91	410	0.047	-	109 U	108 U	115 U	-	-	-
N-Nitrosodiphenylamine	130,000	580,000	760	-	109 U	108 U	115 U	-	-	-
Pentachlorophenol	5,300	24,000	-	-	109 U	108 U	115 U	-	-	-
Phenanthrene	2,300,000	31,000,000	470,000	-	54.4 U	146	57.6 U	-	-	-
Phenol	2,300,000	31,000,000	67,000	-	294 U	291 U	311 U	-	-	-
Pyrene	230,000	3,100,000	680,000	-	54.4 U	38.2 J	23.3 J	-	-	-
Pyridine	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	-	-	-	-	109 U	108 U	115 U	-	-	-
2,3,4,6-Tetrachlorophenol	-	-	-	-	294 U	291 U	311 U	-	-	-
2,4,5-Trichlorophenol	780,000	10,000,000	-	-	294 U	291 U	311 U	-	-	-
2,4,6-Trichlorophenol	58,000	260,000	-	-	109 U	108 U	115 U	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)				Area of Concern:	AOC 2				
					Sample ID: CELL3-16-21	CELL4-16-23	CELL4-CLAY	OVER-A1-C12	OVER-CELL3	OVER-CELL3-4
	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	Sample Date: 12/19/13	12/19/13	12/19/13	1/13/14	12/12/13	12/19/13
Total Petroleum Hydrocarbons										
Diesel Range Organics (mg/kg)	230	620	-	-	-	-	-	-	-	-
Gasoline Range Organics (µg/kg)	230,000	620,000	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (mg/kg)										
Aroclor-1260	0.32	1.4	-	-	-	-	-	-	-	-
Aroclor-1254	0.32	1.4	1.1	-	-	-	-	-	-	-
Aroclor-1221	0.32	1.4	-	-	-	-	-	-	-	-
Aroclor-1232	0.32	1.4	-	-	-	-	-	-	-	-
Aroclor-1248	0.32	1.4	-	-	-	-	-	-	-	-
Aroclor-1016	0.55	41	4.2	-	-	-	-	-	-	-
Aroclor-1242	0.32	1.4	-	-	-	-	-	-	-	-
Metals (mg/kg)										
Aluminum	7,800	100,000	-	-	-	-	-	-	-	-
Antimony	3.1	41	13	-	-	-	-	-	-	-
Arsenic	0.43	1.9	0.026	-	-	-	-	-	-	-
Barium	1,600	20,000	6,000	-	-	-	-	-	-	-
Beryllium	16	200	1,200	-	-	-	-	-	-	-
Cadmium	3.9	51	27	-	-	-	-	-	-	-
Calcium	-	-	-	-	-	-	-	-	-	-
Chromium	23	310	42	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-
Copper	310	4,100	11,000	-	-	-	-	-	-	-
Iron	5,500	72,000	-	-	-	-	-	-	-	-
Lead	400	1,000	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-
Manganese	160	2,000	950	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-
Nickel	160	2,000	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-
Selenium	39	510	19	-	-	-	-	-	-	-
Silver	39	510	31	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-	-	-	-
Thallium	0.55	7.2	3.6	-	-	-	-	-	-	-
Tin	4,700	61,000	-	-	-	-	-	-	-	-
Vanadium	7.8	100	730	-	-	-	-	-	-	-
Zinc	2,300	31,000	14,000	-	-	-	-	-	-	-
Toxicity (mg/l)										
Benzene	-	-	-	0.5	0.02 U	0.02 U	0.02 U	-	-	-
2-Butanone	-	-	-	200	0.2 U	0.2 U	0.0607 J	-	-	-
Carbon Tetrachloride	-	-	-	0.5	0.02 U	0.02 U	0.02 U	-	-	-
Chlorobenzene	-	-	-	100	0.02 U	0.02 U	0.02 U	-	-	-
Chloroform	-	-	-	6	0.02 U	0.02 U	0.009 J	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	-	-	-	-	-	-
1,2-Dichloroethane	-	-	-	0.5	0.02 U	0.02 U	0.02 U	-	-	-
1,1-Dichloroethene	-	-	-	0.7	0.02 U	0.0277	0.02 U	-	-	-
Tetrachloroethene	-	-	-	0.7	0.02 U	0.02 U	0.02 U	-	-	-
Trichloroethene	-	-	-	0.5	0.02 U	0.0073 J	0.02 U	-	-	-
Vinyl Chloride	-	-	-	0.2	0.02 U	0.02 U	0.02 U	-	-	-
1,4-Dichlorobenzene	-	-	-	7.5	0.06 U	0.06 U	0.06 U	-	-	-
m&p-Cresol	-	-	-	200	0.16 U	0.16 U	0.16 U	-	-	-
o-Cresol	-	-	-	200	0.16 U	0.16 U	0.16 U	-	-	-
2,4-Dinitrotoluene	-	-	-	0.13	0.06 U	0.06 U	0.06 U	-	-	-
Hexachlorobenzene	-	-	-	0.13	0.06 U	0.06 U	0.06 U	-	-	-
Hexachlorobutadiene	-	-	-	0.5	0.06 U	0.06 U	0.06 U	-	-	-
Hexachloroethane	-	-	-	3	0.06 U	0.06 U	0.06 U	-	-	-
Nitrobenzene	-	-	-	2	0.06 U	0.06 U	0.06 U	-	-	-
Pentachlorophenol	-	-	-	100	0.32 U	0.32 U	0.32 U	-	-	-
Pyridine	-	-	-	5	0.16 U	0.16 U	0.16 U	-	-	-
2,4,5-Trichlorophenol	-	-	-	400	0.16 U	0.16 U	0.16 U	-	-	-
2,4,6-Trichlorophenol	-	-	-	2	0.16 U	0.16 U	0.16 U	-	-	-

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 2

Soil Characterization Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Residential	Non-Residential	Protection of Groundwater	Waste Characteristics (c)	CELL3-16-21	CELL4-16-23	CELL4-CLAY	OVER-A1-C12	OVER-CELL3	OVER-CELL3-4
Area of Concern:					AOC 2					
Sample Date:					12/19/13	12/19/13	12/19/13	1/13/14	12/12/13	12/19/13
	Maryland Generic Cleanup Standards (b)									
Arsenic	-	-	-	500	0.056 U	0.056 U	0.056 U	-	-	-
Barium	-	-	-	1,000	1.1 U	1.1 U	1.1 U	-	-	-
Cadmium	-	-	-	100	0.0044 U	0.0044 U	0.0044 U	-	-	-
Chromium	-	-	-	500	0.011 U	0.011 U	0.011 U	-	-	-
Lead	-	-	-	500	0.043	0.058	0.1	-	-	-
Mercury	-	-	-	20	0.002 U	0.002 U	0.002 U	-	-	-
Selenium	-	-	-	100	0.044 U	0.044 U	0.044 U	-	-	-
Silver	-	-	-	500	0.0089 U	0.0089 U	0.0089 U	-	-	-
Ignitability (ºF)	-	-	-	< 140	>200	>200	>200	-	-	-
Reactivity (mg/l)										
Cyanide, Reactive	-	-	-	-	-	-	-	-	-	-
Sulfide, Reactive	-	-	-	-	6.2 U	6.2 U	4.8 J	-	-	-
Cyanide, Reactive	-	-	-	-	10 U	10 U	10 U	-	-	-
Corrosivity (S.U.)										
pH	-	-	-	≤ 2 or ≥12.5	8.06	7.86	5.59	-	-	-
Total Solids (%)	-	-	-	-	89.8	86.9	78.3	96.3	94.1	93.3
Moisture (%)	-	-	-	-	10.2	9	21.7	3.7	5.9	6.7

a/ ID = identification; μg/kg = micrograms per kilogram; mg/kg = micrograms per kilogram; mg/l = milligrams per liter;
°F = degrees Farenheit; ">" = greater than; "≥" = greater than or equal to; "<" = less than; "≤" = less than or equal to; % = percent;
S = split sample; "-" = not analyzed or not available.
b/ State of Maryland Department of the Enviroment Cleanup Standards for Soils and Groundwater. June 2008.
c/ Characteristic Wastes 40 CFR Part 261 Subpart C.
d/ Data Qualifiers:
U = Result not detected above reporting limit.
J = Result is less than the reporting limit; approximate value.
B = Compounds was found in the blank and sample.

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold italic values > Protection of Groundwater or Waste Standards

Table 3

Import Fill Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)			Sample ID:	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
	Residential	Non-Residential	Protection of Groundwater	Sample Date:	11/15/13	11/22/13	12/3/13	1/14/14	1/24/14	1/27/14	1/30/14	2/11/14
Volatile Organic Compounds (µg/kg)												
Acetone	7,000,000	92,000,000	22,000		17 U (c)	18 U	16 U	16 U	17 U	19 U	9 J	21 U
Benzene	12,000	52,000	1.9		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Bromochloromethane	-	-	-		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Bromodichloromethane	10,000	46,000	1.1		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Bromoform	81,000	360,000	67		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Bromomethane	11,000	140,000	41		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
2-Butanone	4,700,000	61,000,000	29,000		17 U	18 U	16 U	16 U	17 U	19 U	17 U	21 U
Carbon Disulfide	780,000	10,000,000	19,000		8.3 U	9.1 U	8.2 U	8.1 U	8.7 U	9.6 U	8.3 U	11 U
Carbon Tetrachloride	4,900	22,000	2.1		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Chlorobenzene	160,000	2,000,000	680		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Chloroethane	220,000	990,000	19		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Chloroform	78,000	1,000,000	0.91		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Chloromethane	-	-	930		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Cyclohexane	-	-	-		17 U	18 U	16 U	16 U	17 U	19 U	17 U	21 U
Dibromochloromethane	7,600	34,000	0.83		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,2-Dibromo-3-chloropropane	200	3,600	0.0037		33 U	36 U	33 U	32 U	35 U	39 U	33 U	42 U
1,2-Dibromoethane	320	1,400	0.06		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,2-Dichlorobenzene	700,000	9,200,000	4,600		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,3-Dichlorobenzene	23,000	310,000	290		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,4-Dichlorobenzene	27,000	120,000	4.2		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Dichlorodifluoromethane	-	-	-		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,1-Dichloroethane	1,600,000	20,000,000	5,100		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,2-Dichloroethane	7,000	31,000	1		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,1-Dichloroethene	390,000	5,100,000	2,900		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
cis-1,2-Dichloroethene	78,000	1,000,000	-		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
trans-1,2-Dichloroethene	160,000	2,000,000	720		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,2-Dichloropropane	9,400	42,000	3.4		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
cis-1,3-Dichloropropene	6,400	29,000	3.1		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
trans-1,3-Dichloropropene	6,400	29,000	3.1		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,4-Dioxane	-	-	-		83 U	91 U	82 U	81 U	87 U	96 U	83 U	110 U
Ethylbenzene	780,000	10,000,000	15,000		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
2-Hexanone	-	-	-		17 U	18 U	16 U	16 U	17 U	19 U	17 U	21 U
Isopropylbenzene	780,000	10,000,000	64,000		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	4 J
4-Methyl-2-Pentanone	-	-	59,000		17 U	18 U	16 U	16 U	17 U	19 U	17 U	21 U
Methyl-t-Butyl Ether	160,000	720,000	12		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Methyl Acetate	-	-	-		17 U	18 U	16 U	16 U	17 U	19 U	17 U	21 U
Methylcyclohexane	-	-	-		17 U	18 U	16 U	16 U	17 U	19 U	17 U	21 U
Methylene Chloride	85,000	380,000	19		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Naphthalene	160,000	2,000,000	150		4.2 U	4.6 U	4.1 U	2 J	4.3 U	4.8 U	4.1 U	5.3 U
Styrene	1,600,000	20,000,000	57,000		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,1,2,2-Tetrachloroethane	3,200	14,000	0.68		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Tetrachloroethene	1,200	5,300	4.7		4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold Italic values > Protection of Groundwater Standards

Table 3

Import Fill Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)										
Sample ID:				**SS-1**	**SS-2**	**SS-3**	**SS-4**	**SS-5**	**SS-6**	**SS-7**	**SS-8**
Sample Date:				**11/15/13**	**11/22/13**	**12/3/13**	**1/14/14**	**1/24/14**	**1/27/14**	**1/30/14**	**2/11/14**
	Residential	**Non-Residential**	**Protection of Groundwater**								
Toluene	630,000	8,200,000	27,000	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,2,3-Trichlorobenzene	-	-	-	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,2,4-Trichlorobenzene	78,000	1,000,000	2,400	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,1,1-Trichloroethane	16,000,000	200,000,000	32,000	4.2 U	4.6 U	4.1 U	7	4.3 U	4.8 U	4.1 U	5.3 U
1,1,2-Trichloroethane	11,000	50,000	0.78	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Trichloroethene	1,600	7,200	0.26	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Trichlorofluoromethane	-	-	-	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
1,1,2-Trichlorotrifluoroethane	-	-	-	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
Vinyl Chloride	90	4,000	0.12	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
o-Xylene	-	-	-	4.2 U	4.6 U	4.1 U	4.1 U	4.3 U	4.8 U	4.1 U	5.3 U
m&p-Xylene	-	-	-	8.3 U	9.1 U	8.2 U	8.1 U	8.7 U	9.6 U	8.3 U	11 U
Total Xylenes	1,600,000	20,000,000	3,000	-	-	-	-	-	-	-	-
Total VOCs (c)	-	-	-	-	-	-	18	-	-	9	4
Semivolatile Organic Compounds (µg/kg)											
Naphthalene	160,000	2,000,000	150	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Acenaphthene	470,000	6,100,000	100,000	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Acenaphthylene	470,000	6,100,000	100,000	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Acetophenone	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Anthracene	2,300,000	31,000,000	470,000	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Atrazine	2,900	13,000	8.8	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Benzo(a)anthracene	220	3,900	480	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Benzo(a)pyrene	22	390	120	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Benzo(b)fluoranthene	220	3,900	1,500	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Benzo(g,h,i)perylene	230,000	3,100,000	680,000	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Benzo(k)fluoranthene	2,200	39,000	15,000	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Biphenyl	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
bis(2-chloroethoxy) methane	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
bis(2-chloroethyl) ether	580	2,600	0.044	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
bis(2-chloroisopropyl) ether	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
bis(2-ethylhexyl) phthalate	46,000	200,000	2,900,000	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
4-Bromophenyl phenyl ether	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Butyl benzyl phthalate	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Caprolactam	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Carbazole	32,000	140,000	470	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
4-Chloroaniline	31,000	410,000	970	340 U	350 U	340 U	340 U	340 U	350 U	360 U	340 U
4-Chloro-3-methyl phenol	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2-Chloronaphthalene	630,000	8,200,000	32,000	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2-Chlorophenol	39,000	510,000	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
4-Chlorophenyl phenyl ether	-	-	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Chrysene	22,000	390,000	48,000	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
m&p-Cresol	39,000	510,000	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
o-Cresol	390,000	5,100,000	-	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Dibenzo(a,h)anthracene	22	390	460	170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold Italic values > Protection of Groundwater Standards

Table 3

Import Fill Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b)											
				Sample ID:	**SS-1**	**SS-2**	**SS-3**	**SS-4**	**SS-5**	**SS-6**	**SS-7**	**SS-8**
				Sample Date:	**11/15/13**	**11/22/13**	**12/3/13**	**1/14/14**	**1/24/14**	**1/27/14**	**1/30/14**	**2/11/14**
	Residential	**Non-Residential**	**Protection of Groundwater**									
Dibenzofuran	7,800	100,000	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
3,3-Dichlorobenzidine	1,400	6,400	4.9		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2,4-Dichlorophenol	23,000	310,000	1,200		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Diethyl phthalate	6,300,000	82,000,000	450,000		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Dimethyl phthalate	-	-	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Di-n-butyl phthalate	780,000	10,000,000	5,000,000		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Di-n-Octylphthalate	-	-	-		340 U	350 U	340 U	340 U	340 U	350 U	360 U	340 U
2,4-Dimethylphenol	160,000	2,000,000	6,700		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
4,6-Dinitro-2-methyl phenol	-	-	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2,4-Dinitrophenol	16,000	200,000	-		340 U	350 U	340 U	340 U	340 U	350 U	360 U	340 U
2,4-Dinitrotoluene	16,000	200,000	570		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2,6-Dinitrotoluene	7,800	100,000	250		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Fluoranthene	310,000	4,100,000	6,300,000		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Fluorene	310,000	4,100,000	140,000		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Hexachlorobenzene	400	1,800	52		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Hexachlorobutadiene	8,200	37,000	1,800		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Hexachlorocyclopentadiene	47,000	610,000	1,800,000		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Hexachloroethane	46,000	200,000	360		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Indeno(1,2,3-cd)pyrene	220	3,900	4,200		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Isophorone	670,000	3,000,000	410		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2-Methylnaphthalene	31,000	410,000	4,400		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2-Nitroaniline	-	-	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
3-Nitroaniline	-	-	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
4-Nitroaniline	-	-	-		340 U	350 U	340 U	340 U	340 U	350 U	360 U	340 U
Nitrobenzene	3,900	51,000	23		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2-Nitrophenol	-	-	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
4-Nitrophenol	-	-	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
N-Nitrosodi-n-propyl amine	91	410	0.047		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
N-Nitrosodiphenylamine	130,000	580,000	760		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Pentachlorophenol	5,300	24,000	-		340 U	350 U	340 U	340 U	340 U	350 U	360 U	340 U
Phenanthrene	2,300,000	31,000,000	470,000		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Phenol	2,300,000	31,000,000	67,000		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Pyrene	230,000	3,100,000	680,000		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Pyridine	-	-	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
1,2,4,5-Tetrachlorobenzene	-	-	-		-	-	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	-	-	-		-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	780,000	10,000,000	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
2,4,6-Trichlorophenol	58,000	260,000	-		170 U	180 U	170 U	170 U	170 U	170 U	180 U	170 U
Total Petroleum Hydrocarbons												
Diesel Range Organics (mg/kg)	230	620	-		4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.4	4.8	6.1
Gasoline Range Organics (µg/kg)	230,000	620,000	-		79 U	93 U	85 U	79 U	78 U	98 U	80 U	100 U

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold Italic values > Protection of Groundwater Standards

Table 3

Import Fill Sample Results
Kop-Flex Facility
Hanover, Maryland (a)

	Maryland Generic Cleanup Standards (b) Residential	Non-Residential	Protection of Groundwater	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
Sample Date:				11/15/13	11/22/13	12/3/13	1/14/14	1/24/14	1/27/14	1/30/14	2/11/14
Polychlorinated Biphenyls											
Aroclor-1260	0.32	1.4	-	0.11 U	0.1 U	0.096 U	0.11 U	0.094 U	0.098 U	0.1 U	0.11 U
Aroclor-1254	0.32	1.4	1.1	0.11 U	0.1 U	0.096 U	0.11 U	0.094 U	0.098 U	0.1 U	0.11 U
Aroclor-1221	0.32	1.4	-	0.11 U	0.1 U	0.096 U	0.11 U	0.094 U	0.098 U	0.1 U	0.11 U
Aroclor-1232	0.32	1.4	-	0.11 U	0.1 U	0.096 U	0.11 U	0.094 U	0.098 U	0.1 U	0.11 U
Aroclor-1248	0.32	1.4	-	0.11 U	0.1 U	0.096 U	0.11 U	0.094 U	0.098 U	0.1 U	0.11 U
Aroclor-1016	0.55	41	4.2	0.11 U	0.1 U	0.096 U	0.11 U	0.094 U	0.098 U	0.1 U	0.11 U
Aroclor-1242	0.32	1.4	-	0.11 U	0.1 U	0.096 U	0.11 U	0.094 U	0.098 U	0.1 U	0.11 U
Metals (mg/kg)											
Aluminum	7,800	100,000	-	18,000	19,000	20,000	16,000	21,000	16,000	17,000	16,000
Antimony	3.1	41	13	1.8 U	2.5 U	1.9 U	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U
Arsenic	0.43	1.9	0.026	***0.2 J***	***0.44 J***	***0.22 J***	0.46 U	***0.28 J***	***0.26 J***	0.48 U	0.45 U
Barium	1,600	20,000	6,000	12	160	32	18	64	13	27	19
Beryllium	16	200	1,200	1.8 U	2.5 U	1.9 U	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U
Cadmium	3.9	51	27	1.8 U	2.5 U	1.9 U	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U
Calcium	-	-	-	16,000	15,000	14,000	12,000	13,000	13,000	14,000	12,000
Chromium	23	310	42	12	12	14	8.7	10	9.1	11	10
Cobalt	-	-	-	10	10	10	11	12	9.4	10	9.2
Copper	310	4,100	11,000	54	50	56	62	53	52	65	52
Iron	5,500	72,000	-	17,000	12,000	15,000	9,800	16,000	12,000	12,000	12,000
Lead	400	1,000	-	1.8 U	2.5 U	1.9 U	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U
Magnesium	-	-	-	7,200	5,500	6,800	4,000	8,200	6,600	5,800	5,600
Manganese	160	2,000	950	260	180	280	140	280	190	270	250
Mercury	-	-	-	0.07 U	0.1 U	0.077 U	0.092 U	0.099 U	0.1 U	0.097 U	0.09 U
Nickel	160	2,000	-	12	11	10	12	12	11	11	11
Potassium	-	-	-	650	1,100	830	380	1,300	500	400	380
Selenium	39	510	19	1.8 U	2.5 U	1.9 U	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U
Silver	39	510	31	1.8 U	2.5 U	1.9 U	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U
Sodium	-	-	-	2,800	2,100	2,500	2,300	2,700	2,800	2,000	2,000
Thallium	0.55	7.2	3.6	1.4 U	2 U	1.5 U	1.8 U	2 U	2.1 U	1.9 U	1.8 U
Tin	4,700	61,000	-	3.5 U	5 U	3.9 U	4.6 U	5 U	5.1 U	4.8 U	4.5 U
Vanadium	7.8	100	730	35	31	38	26	40	41	29	29
Zinc	2,300	31,000	14,000	12	15	18	10	16	21	10	10
General Chemistry											
pH	-	-	-	8.3	8	7.7	8.5	7.8	7.6	8.1	7.5
Total Solids (%)	-	-	-	-	-	-	-	-	-	-	-
Moisture (%)	-	-	-	3	4	3	4	2	4	6	4

a/ ID = identification; µg/kg = micrograms per kilogram; mg/kg = micrograms per kilogram; "-" = not analyzed or not available; "%" = percent; ">" = greater than; "<" = less than.
b/ State of Maryland Department of the Enviroment Cleanup Standards for Soils and Groundwater. June 2008.
c/ Data Qualifiers:
U = Result not detected above reporting limit. J = Result is less than the reporting limit; approximate value. B = Compounds was found in the blank and sample.

Shaded values > Residential Standards
Boxed values > Non-Residential Standards
Bold Italic values > Protection of Groundwater Standards