CONTOUR ENGINEERING

August 21, 2018

Mr. David Hayes
Georgia Department of Natural Resources
Hazardous Sites Voluntary Remediation Program
2 Martin Luther King Jr. Drive SE
Suite 1410, East Tower
Atlanta, Georgia 30334

RE: **Voluntary Remediation Program Application and Remediation Plan**
Former Lucky Cleaners
Hazardous Site Inventory #10845
2801 Washington Road
Augusta, Richmond County, GA 30909
Contour Project Number: E18KRO:07

Dear Mr. Hayes,

Contour Engineering, LLC (Contour), on behalf of The Kroger Co. (Kroger), is pleased to submit the enclosed Voluntary Remediation Program Application and the Voluntary Investigation and Remediation Plan (VIRP) for the above-referenced site. The Voluntary Remediation Program Application fee is included with this submittal.

If you have any questions regarding this plan or if we may be of further service, please call our office at (770) 794-0266.

Sincerely,

CONTOUR ENGINEERING, LLC

Kevin McGowan
Vice President-Environmental Services Manager

Greg Rowell, P.G.
Senior Project Manager

c: Mr. Scott Siebert / The Kroger Co.

Enclosures: Voluntary Remediation Program Application
Voluntary Investigation and Remediation Plan

VOLUNTARY INVESTIGATION AND REMEDIATION PLAN

Former Lucky Cleaners
Hazardous Site Inventory #10845
2801 Washington Road
Augusta, Richmond County, GA 30909
Contour Project Number: E18KRO:07

Prepared For:

The Kroger Co.
2175 Parklake Drive NE
Atlanta, Georgia 30345

Submitted To:

Georgia Department of Natural Resources
Hazardous Sites Voluntary Remediation Program
Suite 1410, East Tower
2 Martin Luther King Jr. Drive SE
Atlanta, Georgia 30334

Prepared By:

Contour Engineering, LLC
1955 Vaughn Road
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Kennesaw Georgia 30144

AUGUST 21, 2018

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Acronyms and Abbreviations

AES	Analytical Environmental Services, Inc.
bgs	below ground surface
BRL	below reporting limits
CAP	corrective action plan
CSM	Conceptual Site Model
DCE	dichloroethene
DO	dissolved oxygen
DNR	Department of Natural Resources
DPT	Direct Push Technology
EPA	U.S. Environmental Protection Agency
ESA	environmental site assessment
FID	flame ionization-detector
ft/day	feet per day
ft/ft	feet per foot
ft/year	feet per year
GA EPD	Georgia Environmental Protection Division
HDPE	high density polyethylene
HQ	Hazard Quotient
HSI	Hazardous Sites Inventory
HSRA	Hazardous Site Response Act
HSRP	Hazardous Site Response Program
HWMA	Hazardous Waste Management Act
ID	internal diameter
ISCO	in-situ chemical oxidation
IWQS	In-stream Water Quality Standard
$KMnO_4$	potassium permanganate
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MCL	Maximum Contaminant Level
MNA	monitored natural attenuation
NC	notification concentration
NOV	notice of violation

O.C.G.A.	Official Code of Georgia Annotated
ORP	oxidation/reduction potential
PCE	tetrachloroethene
PID	photoionization detector
POD	Point of Demonstration
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RRS	risk reduction standard
TCE	trichloroethene
TOC	total organic carbon
UEC	Uniform Environmental Covenant
VOC	volatile organic compound
VIRP	Voluntary Investigation and Remediation Plan
VISL	Vapor Intrusion Screening Level
VRP	Voluntary Remediation Program

SECTION 1.0

Introduction

Contour Engineering, LLC (Contour), on behalf of The Kroger Co. (Kroger), is pleased to present this Voluntary Investigation and Remediation Plan (VIRP) and the included Voluntary Remediation Program (VRP) Application and Checklist for the former Lucky Cleaners located in Augusta, Richmond County, Georgia. It is the intent of Kroger to enroll the former Lucky Cleaners facility in the Georgia Environmental Protection Division's (GA EPD) VRP. The facility is currently listed as Site No. 10845 on the Georgia Hazardous Site Inventory (HSI) and is currently undergoing corrective action under the Georgia Hazardous Site Response Act (HSRA). The VRP Application and Checklist are included in Appendix A.

1.1 Site Location and Description

The former Lucky Cleaners facility is located at 2801 Washington Road, Augusta, Richmond County, Georgia, which is near the northwest corner of the intersection of Washington Road and Alexander Drive. The subject property is described as a 20.05-acre parcel of land (tax parcel #013-0-013-00-0) currently owned by Kroger and is referred to hereinafter as "Site". The Site is currently developed with several retail tenants and an anchor store occupied by Kroger, which were constructed on the Site in 2008 and collectively known as the Washington Walk Shopping Center. Figure 1 presents the Site Location Map.

The Site was previously improved as a shopping center with a 22-year old, 64,300 square feet one story block structure with several individual tenant spaces from 1986 to 2007. The former shopping center consisted of seven retail tenant spaces and an anchor store occupied by Kroger. The retail tenant spaces were demolished in August 2007 and the old Kroger store was demolished shortly thereafter. The former Lucky Cleaners was a tenant at the former shopping center. In 2008, the new Kroger store was constructed over the footprint of the former Lucky Cleaners tenant space. Figure 2 presents the Site Map and location of the former Lucky Cleaners tenant space building footprint.

The former Lucky Cleaners facility occupied approximately 1,000 square feet of tenant space of the former shopping center. Dry cleaning operations reportedly began in 1986 by an unknown dry cleaner business when the tenant space was first occupied. In 1992, the former Lucky Cleaners reportedly began dry cleaning operations until 2006. According to the *Groundwater Corrective Action Plan* dated December 2008 that was prepared by Enercon Services, Inc. (ENERCON), a single dry cleaning machine was operated onsite. Tetrachloroethylene (PCE) was reportedly stored in 5-gallon containers inside the storage building at the rear of the facility and spent solvent and filters were reportedly stored in 5-gallon containers near the service entrance at the northwest corner of the space.

1.2 Qualifying Property and Participant Eligibility

Contour, on behalf of Kroger, is submitting this VIRP under the Georgia Voluntary Remediation Act (the Act) for the former Lucky Cleaners facility (HSI No. 10845). According to Official Code of Georgia Annotated (O.C.G.A.) 12-8-105, in order to be considered a qualifying property, the Property must be listed on the HSI or meet the criteria of the Georgia Brownfields Act (O.C.G.A. 12-8-205), or have a release of regulated substances to the environment. Under O.C.G.A. 12-8-105 the property shall also not:

1. Be listed on the federal National Priorities List;
2. Be currently undergoing response activities required by an Order of the Regional Administration of the United States Environmental Protection Agency (EPA);
3. Be a facility required to have a permit under the Georgia Hazardous Waste Management Act (HWMA);

4. Violate the terms and conditions under which the GA EPD operates and administers remedial programs by delegation or similar authorization from the EPA; and
5. Have any unsatisfied or unsettled lien filed under subsection (e) of the HWMA or subsection (b) of the Georgia Underground Storage Tank Management Act.

The Site is listed as HSI No. 10845. None of the other criteria listed in items 1 - 5 apply. Therefore, the Site is a qualifying property under the Act. A copy of the Legal Description containing the Warranty Deed and Tax Plat for the Qualifying Property is included in Appendix B.

In order for the Participant to meet the qualifications of the VRP according to O.C.G.A. 12-8-106, the following additional criteria must be met:

1. The Applicant must be the owner of the VRP property or have express permission to enter another's property to perform corrective action including, to the extent applicable, implementing controls for the Site pursuant to written lease, license, order or indenture;
2. Not be in violation of any order, judgement, statute, rule or regulation subject to the enforcement authority of the Director; and
3. Meet other such criteria as may be established by the Department of Natural Resources (DNR) Board pursuant to O.C.G.A. 12-8-103.

As the Participant meets all the criteria stated above, the Participant is qualified for admission into the VRP.

The contact for the Applicant is as follows:

The Kroger Co.
Mr. Scott Siebert
2175 Parklake Drive NE
Atlanta, Georgia 30345
(770) 496-7489

SECTION 2.0

Summary of Previous Investigations and Corrective Actions

The following sections present a summary of the previous investigations and corrective actions performed at the Site.

2.1 Phase II ESA

In June 2006, Epic Consulting, Inc. (Epic) performed a Phase II Environmental Site Assessment (ESA) at the Site. Soil and groundwater samples were collected from two soil borings advanced into shallow groundwater and were analyzed for volatile organic compounds (VOCs) by EPA Method 8260B. The two borings were located near the northeast and northwest (outside) corners of the former tenant space. Analytical results for the two soil samples collected were below laboratory reporting limits (BRL); however, the analytical results for the groundwater samples collected from the two borings indicated PCE at concentrations of 5.2 micrograms per liter (µg/L) and 5.5 µg/L. Trichloroethene (TCE) was detected at concentrations of 12 µg/L and 13 µg/L and cis-1,2-dichloroethene (DCE) was also detected at concentrations ranging from 180 µg/L to 200 µg/L. Based on the presence of PCE, TCE, cis-1,2-DCE in groundwater, the release was reported to the GA EPD. Due to the release of chlorinated solvents from the former drycleaners and the Site location hydraulically downgradient of a private drinking water supply well located approximately 1,600 feet south, the Site was listed in on the Georgia HSI on October 13, 2006.

2.2 Corrective Action Plan (CAP) Assessments

2.2.1 Soil and Groundwater Assessment: December 2006 through January 2007

Between December 2006 and January 2007, Epic conducted additional assessment activities at the Site in an attempt to determine the source and extent of solvent impact at the Site. A total of 14 soil borings were advanced to groundwater using Direct Push Technology (DPT) at the locations illustrated on Figure 3. Borings B-1 through B-7 were completed on December 8 and 9, 2006, while borings B-8 through B-14 were completed on January 8, 2007. Four of the soil borings (B-1, B-3, B-4 and B-5) were advanced inside the former Lucky Cleaners tenant space in areas where the presence of dry cleaning equipment or solvent use was previously known or readily apparent. One boring, B-2, was advanced in the storage shed at the rear of the building where the boiler was located and where virgin solvents are known to have been stored. The remaining nine borings were advanced in the driveway area at the rear of the building in order to assess the nature and extent of the VOC plume associated with the dry cleaning solvent release.

The soil borings were extended to a depth of 28 feet below ground surface (bgs) that was several feet below the observed groundwater table. Soils were generally classified as sandy silts and silty sands, which are typical Fall Line and Coastal Plain materials. They were observed to be predominantly fine-grained, low plasticity, residual soils. It appeared that fill materials were imported to the Site during initial construction in 1986, as evidenced by a layer of organics encountered during soil boring completion. The elevation of the layer of organics was observed to increase with depth from the front of the property to the rear, and was generally located between 14 to 25 feet bgs.

Each soil sample was placed in a laboratory-prepared container, labeled, preserved and shipped under standard chain-of-custody procedures to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for analysis of VOCs by EPA Method 8260B.

Data collected in December 2006 and January 2007 indicated that the highest concentration of PCE in soil was present from 12 to 16 feet bgs. The PCE level increased with depth, from 0.0043 milligrams per kilogram (mg/kg) at four to eight feet bgs in B-7 to 2.8 mg/kg at 12 to 16 feet bgs in B-6. The PCE appeared to be undergoing natural biodegradation due to the presence of TCE and DCE at all three samples collected from boring B-6. Figure 4 presents the soil quality map from the Epic soil borings and Table 1 presents a summary of the soil boring analytical data.

Following soil sample collection, temporary monitoring wells were installed in each boring to facilitate well development and groundwater sample collection. The temporary wells were constructed so the well screens straddled the water table at the time of construction. The temporary monitoring wells were constructed with variable lengths of 1-inch internal-diameter (ID) Schedule 40 polyvinyl chloride (PVC) riser and 1-inch-ID PVC 0.010-inch machine-slotted well screen. Temporary wells installed in borings B-1 through B-7 were completed with 20 feet of well screen and riser to the surface and the temporary wells installed in borings B-8 through B-14 were completed with 15 feet of well screen and riser to the surface.

After temporary well installation, the wells were developed via hand-bailing with dedicated PVC bailers to remove fine-grained material and improve the hydraulic connection with the formation. Static groundwater measurements collected from each well after groundwater recharged into the monitoring wells following development and generally ranged between 20 and 25 feet bgs. Groundwater elevations were calculated and generally indicated that groundwater flow was in a predominantly west direction from the source area with flow components to the southwest and northwest.

A groundwater sample was collected from each well following purging using a dedicated polyethylene bailer. Each groundwater sample was placed in a laboratory-prepared container and shipped under standard chain-of-custody procedures to AES in Atlanta, Georgia for analysis of VOCs by EPA Method 8260B.

Groundwater results of the samples collected in January 2007 showed PCE to be present above laboratory reporting limits in groundwater collected from soil borings B-6, B-7, B-12 and B-13 at levels ranging from 30 µg/L in B-12 to 2,300 µg/L in B-6. TCE was found to be present above laboratory reporting limits in groundwater collected from soil borings B-6 at a concentration of 720 µg/L and in B-13 at a concentration of 100 µg/L. cis-1,2-DCE was found to be present above laboratory reporting limits in groundwater collected from soil borings B-6, B-13 and B-14 at levels ranging from 59 µg/L in B-14 to 250 µg/L in B-6.

Epic proposed to excavate the soil impacts from the vicinity of a sanitary sewer manhole prior to the redevelopment of the shopping center, as the proposed new Kroger store would be constructed over the contaminant source area. Therefore in a letter dated February 6, 2007, Epic submitted a Proposed Soil Excavation Plan to the GA EPD that outlined a plan for excavating impacted soils. The GA EPD issued their conditional approval for the soil removal activities in a letter dated March 9, 2007. Epic prepared a CAP dated March 29, 2007 that outlined Risk Reduction Standards (RRS) for remediating the impacted areas. In a letter dated July 17, 2007, the GA EPD noted several deficiencies with the CAP.

2.2.2 Corrective Action and Soil Delineation: August 2007

Soil Excavation

Between August 13 and August 22, 2007, Epic conducted soil excavation activities at the Site. Figure 5 presents the area where soils were excavated, which consists of an area of approximately 693 square feet around boring location B-6. The excavation extended to a depth of approximately 16 feet bgs resulting in approximately 411 cubic yards of excavated soil. Confirmatory soil samples were collected from the bottom and sidewalls of the excavation to document soils exceeding the non-residential Type 3 RRS were removed. Samples were collected approximately every 25 feet along the sidewalls of the excavation, with one sample collected just north of the sanitary sewer manhole. Additionally, samples were collected from these locations over several excavation lifts in order to characterize, segregate and dispose of the impacted soils. Soils were stockpiled at the surface by excavation lift pending receipt of confirmatory laboratory analytical data. While stockpiled, soils were placed on and fully covered by high-density polyethylene (HDPE) sheeting to ensure that impacted soils did not impact surface soils or erode due to wind or water. Upon completion of the excavation, soil samples were collected from the floor and walls of the excavation using a hand auger for laboratory analysis.

Soil samples were screened throughout the excavation for the presence of total VOCs with a calibrated flame ionization detector (FID). Each soil sample collected was placed in a laboratory-prepared container and shipped under standard chain-of-custody procedures to AES in Atlanta, Georgia for analysis of VOCs by EPA Method 8260B. The excavated soils were treated as hazardous wastes and transported to a hazardous waste landfill as indicated by analytical results. According to the manifests, a total of 471.4 tons of impacted soils were removed from the Site and disposed of as hazardous waste. Following excavation, the excavated area was backfilled and compacted to an appropriate density for ongoing construction activities.

The data collected during the excavation indicated that the most impacted unsaturated soils have been removed from the Site subsurface. Figure 5 presents the analytical data for the soil samples collected during the excavation activities. Analytical data collected from the corners of the excavation verify soils exceeding the non-residential Type 3 RRS have been removed from the source area. Table 2 summarizes the soil excavation sample analytical data.

The analytical data collected prior to and during the excavation activities indicated that only PCE was present in sufficient quantities to exceed the non-residential Type 3 RRS. The concentrations of PCE in soil observed from 16 and 16.5 feet bgs was likely attributable to the soils being saturated due to their proximity to the groundwater table. While only soils at the total excavation depth were found to exceed the non-residential Type 3 RRS, Epic found that due to the soils being saturated by impacted groundwater, further excavation would likely not have yielded meaningful reductions in PCE concentrations in the soil.

Soil Delineation

On August 14, 2007, Epic advanced five soil borings (B-15 through B-19) using DPT methodology following telephonic discussions with Ms. Carrie Williams of the Hazardous Site Response Program (HSRP). Ms. Williams directed Epic to collect soil samples at the depth of the invert elevation of the sanitary sewer line along its length and at its lowest elevation at the manhole located to the north in an effort to assess whether the soil impacts were due to leaching from the sewer line along its length and at the northern manhole. Additionally, soils collected from the southwestern corner of the excavation pit were adjacent to the sewer line and served to delineate soils along the sewer line to the west of the source area. The locations of the five soil borings, B-15 through B-19, are presented on Figure 3. The borings were placed in linear increments of approximately 20 feet along the along the sewer line to the north of the soil excavation pit.

Soil borings B-15 through B-18 were advanced to a depth of 12 feet bgs, the approximate invert elevation of the sanitary sewer line, and soil samples were screened for the presence of total VOCs with a calibrated FID. Soil boring B-19 was intended to be advanced to 35 feet bgs, which is the total depth of the sewer trunk line, but was terminated at 32 feet bgs due to refusal. The soil samples were placed in a laboratory-prepared containers and shipped under standard chain-of-custody procedures to AES in Atlanta, Georgia for analysis of VOCs by EPA Method 8260B.

Soil sample data collected in August 2007 along the sanitary sewer line indicated that PCE at a depth of 10 feet, which is the approximate sewer invert elevation, decreases to below laboratory reporting limits between 25 and 50 feet north of the of the sewer manhole directly behind the former dry cleaners. The soil samples collected along the sewer line to the north at a depth of 8 to 12 feet bgs including a sample collected at a depth of 28 to 32 feet bgs adjacent to the northern manhole were below reporting limits for all constituents. Soil impacts to the north along the sewer line pathway were delineated. Figure 4 presents the soil quality map from the Epic soil borings and Table 1 presents a summary of the soil boring analytical data.

Soils collected from the southwestern corner of the excavation, approximately 13 feet from the sewer manhole, were adjacent to the sewer line at varying depths. Analytical results indicated that minor concentrations of PCE were detected at depths of 6 and 10 feet bgs with PCE concentrations slightly increasing at a depth of 16 feet bgs, which was likely due to groundwater saturation of the soils. PCE was not detected at any other depth interval analyzed and TCE and cis-1,2-DCE were not detected in any of the samples.

Based on the results of the collected data, it appeared that the source of PCE was the result of surface dumping, spillage or leakage from storage containers and infiltration through to the soils via cracks in the overlying concrete around the sanitary sewer manhole. The highest soil concentrations of PCE, TCE and cis-1,2-DCE were found near the sanitary sewer manhole were also detected upgradient of the sewer manhole in the southeastern corner of the excavation area. The sewer line may have served as a preferential pathway for the spilled product, but ultimate leaching from the sewer line does not appear to have occurred. The soil investigation performed in support of CAP development was successful in delineating both vertical and horizontal soil impacts. Additionally, the source area has been removed in order to prevent further leaching to the groundwater.

Epic prepared a revised CAP dated December 13, 2007 that discussed the soil excavation completed onsite and also addressed the deficiencies in the initial CAP that were previously cited by the GA EPD in July 2007.

2.2.3 Groundwater Assessment: September 2008

ENERCON purchased Epic and took over remedial actions at the Site in August 2008. In September 2008, following construction of the present day structure, ENERCON installed three, 45 degree angle, directional monitoring wells (MW-1, MW-2, and MW-3) at the Site. The location for monitoring well MW-1 was placed using GPS data collected from the previous location of boring B-6, located near the former manhole and in the area of greatest PCE impact. Monitoring wells MW-2 and MW-3 were then located at a spacing of 15 to 20 feet on center to the north-northwest of monitoring well MW-1 in order to assess current groundwater conditions beneath the edge of the former excavation area (MW-2) and further north along the path of the former sanitary sewer line (MW-3). The locations of the monitoring well borings are presented on Figure 3.

Because the borings were completed at a 45 degree angle, sampling of the subsurface via split spoon or other method was not feasible. Therefore, soil samples were collected from auger cuttings from near the bottom of each auger flight as representative of the interval. Soil samples were screened for the presence of total VOCs with a calibrated FID. Soil borings were extended to a depth of 35 vertical feet bgs, for a total horizontal drilled length of 50 feet.

Soil samples were collected from the interval from each boring exhibiting the highest FID reading for laboratory analysis. Each soil sample was placed in a laboratory-prepared container and shipped under standard chain-of-custody procedures AES in Atlanta, Georgia for analysis of VOCs by EPA Method 8260B. Soil samples collected from borings MW-1 and MW-3 did not exhibit any VOC constituents above laboratory reporting limits. PCE was present at 0.041 mg/kg in the soil sample collected from boring MW-2, which was collected at a depth of 10.5 to 14 feet bgs. The PCE detected in MW-2 soils did not exceed the non-residential Type 3 RRS. Figure 6 presents the soil quality map from the monitoring well borings and Table 1 presents a summary of the monitoring well boring analytical data.

Following soil sample collection, monitoring wells were installed in each boring to facilitate well development and groundwater sample collection. The monitoring wells were constructed so the well screens straddled the water table at the time of construction. The monitoring wells were constructed with 20 feet of 2-inch ID Schedule 40 PVC riser and 30 feet of 2-inch-ID PVC 0.010-inch machine-slotted well screen.

After well installation, the wells were developed via hand-bailing with dedicated PVC bailers to remove fine-grained material and improve the hydraulic connection with the formation. Static groundwater measurements collected from each well after groundwater recharged into the monitoring wells following development and generally ranged between 15 and 18 feet bgs.

Groundwater samples were collected from each monitoring well (MW-1 through MW-3) following purging using a dedicated polyethylene bailer. Each groundwater sample was placed in a laboratory-prepared container and shipped under standard chain-of-custody procedures to AES in Atlanta, Georgia for analysis of VOCs by EPA Method 8260B.

The groundwater samples were analyzed for VOCs and showed dry cleaning constituents to be present. PCE was found to be present above laboratory reporting limits in groundwater collected from monitoring wells MW-1 and

MW-2 at concentrations of 14 µg/L and 11 µg/L, respectively. TCE and cis-1,2-DCE were not detected in the samples collected during September 2008. Table 3 presents a summary of the groundwater analytical data.

ENERCON prepared a Groundwater CAP dated December 16, 2008 that summarized the results of the directional monitoring well installation and the results of a vapor intrusion model. In the Groundwater CAP, ENERCON recommended monitored natural attenuation (MNA) as the corrective action technology for the Site. In a letter dated June 5, 2009, the GA EPD noted several deficiencies with the Groundwater CAP. ENERCON addressed the comments in a Comment Response Letter dated March 29, 2010. A Notice of Violation (NOV) letter was issued for the Site on January 26, 2011 for failure to submit an Updated Groundwater CAP. On January 26, 2011, ENERCON submitted a letter to the GA EPD requesting review and approval of the Groundwater CAP Comment Response Letter that was submitted by ENERCON in March 2010. Additionally, ENERCON also submitted a revised milestone schedule for the Site. In a letter dated May 19, 2011, the GA EPD responded to the March 2010 letter and approved the Revised Milestone Schedule.

2.2.4 Groundwater Assessment: August 2011

In August 2011, ENERCON installed six monitoring wells (MW-4 through MW-9) to delineate the groundwater impacts at the Site. During installation, soil samples were collected in 5 foot depth intervals and field screened with a photoionization detector (PID) and soil samples were collected from the well borings ranging in depth from 5 to 15 ft bgs and submitted to the laboratory for analysis of VOCs by EPA Method 8260B. No VOCs were detected in the soil samples above the laboratory reporting limits with the exception of acetone from the soil sample collected from MW-8 at 0.22 mg/kg. The locations of the monitoring well borings are presented on Figure 3 and Figure 6 presents the soil quality map from the monitoring well borings. Table 1 presents a summary of the monitoring well boring analytical data.

Following soil sample collection, monitoring wells were installed in each boring to facilitate well development and groundwater sample collection. The monitoring wells were constructed so the well screens straddled the water table at the time of construction. The monitoring wells were constructed with 10 feet of 2-inch ID Schedule 40 PVC riser and 20 feet of 2-inch-ID PVC 0.010-inch machine-slotted well screen. After well installation, the wells were developed using either a submersible pump and new polyethylene tubing or a dedicated polyethylene bailer to remove fine-grained material and improve the hydraulic connection with the formation.

On September 12, 2011, ENERCON conducted a comprehensive groundwater sampling event. Low-flow purging and sampling techniques were used to collect the groundwater samples with a peristaltic pump and tubing. Additionally, a flow-through cell was used to establish the stabilization time for several parameters (pH, oxidation reduction potential [ORP], temperature, dissolved oxygen [DO], specific conductance, and turbidity). Measurements were taken every 3 to 5 minutes and sampling was initiated upon parameter stabilization. Each groundwater sample was placed in a laboratory-prepared container and shipped under standard chain-of-custody procedures to AES in Atlanta, Georgia for analysis of VOCs by EPA Method 8260B.

The VOC results of the groundwater samples indicated:

- PCE was detected in wells MW-1, MW-2, and MW-5 at concentrations ranging from 45 µg/L to 1,900 µg/L;
- TCE was detected in wells MW-1, MW-2, and MW-3 at concentrations ranging from 5.9 µg/L to 500 µg/L;
- Cis-1,2-DCE was detected in wells MW-1 and MW-2 at 27 µg/L and 25 µg/L, respectively;
- Trans-1,2-DCE was detected in wells MW-1 and MW-2 at 8.8 µg/L and 15 µg/L, respectively;
- Monitoring wells MW-4, MW-6, MW-7, and MW-8 were below laboratory reporting limits for all VOC constituents;
- MW-9 was dry and therefore not sampled.

Table 3 presents a summary of the groundwater analytical data.

In December 2011, ENERCON submitted an Updated Groundwater CAP recommending the installation of additional delineation monitoring wells and MNA as a corrective action technology. The GA EPD conditionally approved the Updated Groundwater CAP in a letter dated November 30, 2012. ENERCON submitted a Milestone Schedule dated December 18, 2012 to the GA EPD that outlined the time period for the additional monitoring well installation as well as the quarterly groundwater sampling events, and the semi-annual reporting schedule.

2.2.5 Groundwater Assessment: February through May 2013

In February 2013, ENERCON installed five monitoring wells (MW-10 through MW-14) to further delineate the groundwater impacts at the Site. During installation, soil samples were collected in 5 foot depth intervals and field screened with a PID and soil samples were collected from the well borings ranging in depth from 15 to 30 ft bgs and submitted to AES in Atlanta, Georgia under standard chain-of-custody protocol for analysis of VOCs by EPA Method 8260B. No VOCs were detected in the soil samples above the laboratory reporting limits with the exception of acetone from the soil sample collected from MW-13 at 0.18 mg/kg. The locations of the monitoring well borings are presented on Figure 3, and Figure 6 presents the soil quality map from the monitoring well borings. Table 1 presents a summary of the monitoring well boring analytical data.

Following soil sample collection, monitoring wells were installed in each boring to facilitate well development and groundwater sample collection. The monitoring wells were constructed so the well screens straddled the water table at the time of construction. The monitoring wells were constructed with 2-inch ID Schedule 40 PVC riser and 2-inch-ID PVC 0.010-inch machine-slotted well screen. After well installation, the wells were developed using a polyethylene bailer to remove fine-grained material and improve the hydraulic connection with the formation.

ENERCON conducted two comprehensive groundwater sampling events in February 2013 and in May 2013. During the monitoring events, groundwater levels were measured and elevations were calculated to determine the groundwater flow direction. The groundwater flow direction during both events appeared to be toward the north and northwest. Table 4 presents the groundwater elevations.

Prior to collection of groundwater samples during the monitoring events, the wells were purged using either a peristaltic pump or a submersible micro-flow bladder pump until the pH, specific conductance, DO, ORP, and turbidity stabilized. Following stabilization, groundwater samples were collected and submitted to AES in Atlanta, Georgia under standard chain-of-custody procedures. Groundwater samples were collected during February 2013 and May 2013 monitoring events and analyzed for VOCs, total organic carbon (TOC), and sulfide by EPA Methods 8260B, 9060A, 9030B/9034, respectively, and chloride, nitrate, and sulfate by EPA Method 9056A, ethane and methane by EPA Method SOP-RSK175, and ferrous iron by EPA Method 3500-Fe-B.

The VOC results of the groundwater samples indicated:

- PCE was detected in wells MW-1, MW-2, and MW-5. During February 2013, PCE was detected at concentrations ranging from 53 µg/L to 820 µg/L while in May 2013, PCE was detected at concentrations ranging from 50 µg/L to 560 µg/L;
- TCE was detected in wells MW-1, MW-2, MW-3, and MW-5. During February 2013, TCE was detected at concentrations ranging from 9.1 µg/L to 260 µg/L while in May 2013, TCE was detected at concentrations ranging from 6.4 µg/L to 180 µg/L;
- Cis-1,2-DCE was detected in wells MW-1, MW-2, and MW-5 during February 2013 and in wells MW-1, MW-2, and MW-3 in May 2013. During February 2013, cis-1,2-DCE was detected at concentrations ranging from 5.1 µg/L to 27 µg/L while in May 2013, cis-1,2-DCE was detected at concentrations ranging from 5.5 µg/L to 13 µg/L;
- Trans-1,2-DCE was detected in wells MW-1 and MW-2 in February 2013 at 8.5 µg/L and 11 µg/L, respectively, and in May 2013 at 8.0 µg/L and 13 µg/L, respectively;

- Monitoring wells MW-4, MW-6, MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, and MW-14 were below laboratory reporting limits for all VOC constituents during the February and May 2013 monitoring events;
- MW-9 was dry during the February and May 2013 monitoring events and therefore not sampled.

Table 3 presents a summary of the groundwater analytical data.

2.2.6 Groundwater Assessment: August through November 2013

ENERCON conducted two comprehensive groundwater sampling events in August 2013 and November 2013. During the monitoring events, groundwater levels were measured and elevations were calculated to determine the groundwater flow direction. The groundwater flow direction during both events appeared to be toward the north and northwest. Table 4 presents the groundwater elevations.

Prior to collection of groundwater samples during the monitoring events, the wells were purged using either a peristaltic pump or a submersible micro-flow bladder pump until the pH, specific conductance, DO, ORP, and turbidity stabilized. Following stabilization, groundwater samples were collected and submitted to AES in Atlanta, Georgia under standard chain-of-custody procedures. Groundwater samples were collected during August 2013 and November 2013 monitoring events and analyzed for VOCs, TOC, and sulfide by EPA Methods 8260B, 9060A, 9030B/9034, respectively, and chloride, nitrate, and sulfate by EPA Method 9056A, ethane and methane by EPA Method SOP-RSK175, and ferrous iron by EPA Method 3500-Fe-B.

The VOC results of the groundwater samples indicated:

- PCE was detected in wells MW-1, MW-2, MW-3, and MW-5 during August 2013 and in wells MW-1, MW-2, and MW-5 in November 2013. During August 2013, PCE was detected at concentrations ranging from 7.8 µg/L to 450 µg/L while in November 2013, PCE was detected at concentrations ranging from 42 µg/L to 890 µg/L;
- TCE was detected in wells MW-1, MW-2, MW-3 in August 2013 and in wells MW-1, MW-2, MW-3, and MW-5 in November 2013. During August 2013, TCE was detected at concentrations ranging from 12 µg/L to 300 µg/L while in November 2013, TCE was detected at concentrations ranging from 7.6 µg/L to 320 µg/L;
- Cis-1,2-DCE was detected in wells MW-1 and MW-2 in August 2013 at 8.3 µg/L and 25 µg/L, respectively, and in November 2013 at 29 µg/L and 22 µg/L, respectively;
- Trans-1,2-DCE was detected in well MW-2 in August 2013 at 16 µg/L and in wells MW-1 and MW-2 in November 2013 at 30 µg/L and 17 µg/L, respectively;
- Monitoring wells MW-4, MW-6, MW-7, MW-8, MW-10, MW-11, MW- 12, MW-13, and MW-14 were below laboratory reporting limits for all VOC constituents during the August and November 2013 monitoring events;
- MW-9 was dry during the August and November 2013 monitoring events and therefore not sampled.

Table 3 presents a summary of the groundwater analytical data.

Hydraulic conductivity tests were performed in monitoring wells MW-4, MW-5, and MW-6 using the rising head slug test method. Due to the slow groundwater recharge rate observed on the Site, slug test data was recorded with a data logger device. The hydraulic conductivity of the aquifer was calculated based on the method developed by Bouwer and Rice in 1976. The measured hydraulic conductivities for wells MW-4, MW-5, and MW-6, were 1.03×10^{-2} feet per day (ft/day), 2.346×10^{-2} ft/day, and 6.377×10^{-2} ft/day, respectively. The geometric average of the three wells produced an average hydraulic conductivity of 3.251×10^{-2} ft/day.

Based on the potentiometric surface at the Site, an approximate hydraulic gradient of 0.045 feet per foot (ft/ft) was calculated between MW-4 and MW-5.

Using the average hydraulic conductivity and approximate hydraulic gradient and an assumed effective porosity of 16 percent, the groundwater velocity across the Site was calculated to be 0.914 x 10^{-2} ft/day or approximately 3.34 feet per year (ft/year).

2.2.7 Groundwater Assessment: October 2014

ENERCON conducted a comprehensive groundwater sampling event in October 2014. During the monitoring event, groundwater levels were measured and elevations were calculated to determine the groundwater flow direction. The groundwater flow direction appeared to be toward the north and northwest. Table 4 presents the groundwater elevations.

Prior to collection of groundwater samples during the monitoring event, the wells were purged using either a peristaltic pump or a submersible micro-flow bladder pump until the pH, specific conductance, DO, ORP, and turbidity stabilized. Following stabilization, groundwater samples were collected and submitted to AES in Atlanta, Georgia under standard chain-of-custody procedures. Groundwater samples were collected during October 2014 monitoring event and analyzed for VOCs, TOC, and sulfide by EPA Methods 8260B, 9060A, 9030B/9034, respectively, and chloride, nitrate, and sulfate by EPA Method 9056A, ethane and methane by EPA Method SOP-RSK175, and ferrous iron by EPA Method 3500-Fe-B.

The VOC results of the groundwater samples indicated:

- PCE was detected in wells MW-1, MW-2, and MW-5 during October 2014 at concentrations ranging from 110 µg/L to 760 µg/L;
- TCE was detected in wells MW-1, MW-2, MW-3, and MW-5 in October 2014 at concentrations ranging from 15 µg/L to 300 µg/L;
- Cis-1,2-DCE was detected in wells MW-1, MW-2, MW-3, and MW-5 in October 2014 at concentrations ranging from 5.4 µg/L to 31 µg/L;
- Trans-1,2-DCE was detected in wells MW-1 and MW-2 in October 2014 at 25 µg/L and 17 µg/L, respectively;
- Monitoring wells MW-4, MW-6, MW-7, MW-8, MW-10, MW-11, MW- 12, MW-13, and MW-14 were below laboratory reporting limits for all VOC constituents during the October 2014 monitoring event;
- MW-9 was dry during the October 2014 monitoring event and therefore not sampled.

Table 3 presents a summary of the groundwater analytical data.

ENERCON recommended performing a pilot study by injecting potassium permanganate ($KMnO_4$) to accelerate the degradation of the chlorinated solvents that remain in the subsurface at Site. ENERCON proposed injecting a 6-12 percent potassium permanganate solution into wells MW-1, MW-2, MW-3 and MW-5. In addition, ENERCON proposed to install well PMW-15 near the location of MW-9 because well MW-9 has been dry since being installed in 2011. Furthermore, PMW-15 and remaining Site monitoring wells were recommended for monitoring on a semi-annual basis.

2.2.8 Groundwater Assessment: September 2015

In September 2015, ENERCON installed one monitoring well (MW-15) to replace well MW-9 that had been observed to be dry since it was installed in 2011. During installation, soil samples were collected in 5 foot depth intervals and field screened with a PID and soil samples were collected from the well boring from 25 to 27 feet bgs and submitted to AES in Atlanta, Georgia under standard chain-of-custody protocol for analysis of VOCs by EPA Method 8260B. No VOCs were detected in the soil sample above the laboratory reporting limits. The locations of the monitoring well borings are presented on Figure 3, and Figure 6 presents the soil quality map from the monitoring well borings. Table 1 presents a summary of the monitoring well boring analytical data.

Following soil sample collection, monitoring well MW-15 was installed in the boring to facilitate well development and groundwater sample collection. The monitoring well was constructed so the well screen straddled the water table at the time of construction. The monitoring well was constructed with 2-inch ID Schedule 40 PVC riser and 2-inch-ID PVC 0.010-inch machine-slotted well screen. After well installation, the well was developed using a polyethylene bailer to remove fine-grained material and improve the hydraulic connection with the formation.

ENERCON conducted a comprehensive groundwater sampling event in September 2015. During the monitoring event, groundwater levels were measured and elevations were calculated to determine the groundwater flow direction. The groundwater flow direction appeared to be toward the north. Table 4 presents the groundwater elevations.

Prior to collection of groundwater samples during the monitoring event, the wells were purged using either a peristaltic pump or a submersible micro-flow bladder pump until the pH, specific conductance, DO, ORP, and turbidity stabilized. Following stabilization, groundwater samples were collected and submitted to AES in Atlanta, Georgia under standard chain-of-custody procedures. Groundwater samples were collected during September 2015 monitoring event and analyzed for VOCs, TOC, and sulfide by EPA Methods 8260B, 9060A, 9030B/9034, respectively, and chloride, nitrate, and sulfate by EPA Method 9056A, ethane and methane by EPA Method SOP-RSK175, and ferrous iron by EPA Method 3500-Fe-B.

The VOC results of the groundwater samples indicated:

- PCE was detected in wells MW-1, MW-2, and MW-5 during September 2015 at concentrations ranging from 55 µg/L to 710 µg/L;
- TCE was detected in wells MW-1, MW-2, MW-3, and MW-5 in September 2015 at concentrations ranging from 9.7 µg/L to 330 µg/L;
- Cis-1,2-DCE was detected in wells MW-1, MW-2, and MW-3 in September 2015 at concentrations ranging from 8.4 µg/L to 40 µg/L;
- Trans-1,2-DCE was detected in wells MW-1 and MW-2 in September 2015 at 31 µg/L and 22 µg/L, respectively;
- Monitoring wells MW-4, MW-6, MW-7, MW-8, MW- 10, MW-11, MW-12, MW-13, MW-14 and MW-15 were below laboratory reporting limits for all VOC constituents during the September 2015 monitoring event;
- MW-9 was dry during the September 2015 monitoring event and therefore not sampled.

Table 3 presents a summary of the groundwater analytical data.

ENERCON revised their previous pilot study recommendation of injecting $KMnO_4$ to a pilot study using sodium persulfate to accelerate the degradation of the chlorinated solvents that remain in the subsurface at Site. ENERCON proposed injecting a 25 percent sodium persulfate solution with chelated iron into wells MW-1, MW-2, MW-3 and MW-5.

2.2.9 Pilot Study and Groundwater Assessment: November 2015 and March 2016

ENERCON performed an in-situ chemical oxidation (ISCO) injection pilot study at the Site in November 2015. The pilot study utilized an approximate 20 percent sodium persulfate solution activated by chelated iron that was injected under low pressure into wells MW-1, MW-2, MW-3 and MW-5.

Approximately four months after the ISCO pilot study was conducted at the Site, ENERCON conducted a comprehensive groundwater sampling event in March 2016. During the monitoring event, groundwater levels were measured and elevations were calculated to determine the groundwater flow direction. The groundwater flow direction appeared to be toward the north. Table 4 presents the groundwater elevations.

Prior to collection of groundwater samples during the monitoring event, the wells were purged using either a peristaltic pump or a submersible micro-flow bladder pump until the pH, specific conductance, DO, ORP, and turbidity stabilized. Following stabilization, groundwater samples were collected and submitted to Pace Analytical in Huntersville, North Carolina under standard chain-of-custody procedures. Groundwater samples were collected during September 2015 monitoring event and analyzed for VOCs, TOC, and sulfide by EPA Methods 8260B, 9060A, 9030B/9034, respectively, and chloride, nitrate, and sulfate by EPA Method 9056A, ethane and methane by EPA Method SOP-RSK175, and ferrous iron by EPA Method 3500-Fe-B.

The VOC results of the groundwater samples indicated:

- PCE was detected in wells MW-1, MW-2, and MW-5 during March 2016 at concentrations ranging from 4.9 µg/L to 87.4 µg/L;
- TCE was detected in wells MW-1, MW-2, MW-3, and MW-5 in March 2016 at concentrations ranging from 2.6 µg/L to 42 µg/L;
- Cis-1,2-DCE was detected in wells MW-1 and MW-2 in March 2016 at concentrations of 9.2 µg/L and 1.3 µg/L, respectively;
- Trans-1,2-DCE was detected in well MW-1 in March 2016 at 2.6 µg/L;
- Vinyl chloride was detected in well MW-1 in March 2016 at 3.6 µg/L;
- Monitoring wells MW-4, MW-6, MW-7, MW-8, MW- 10, MW-11, MW-12, MW-13, MW-14 and MW-15 were below laboratory reporting limits for all VOC constituents during the March 2016 monitoring event;
- MW-9 was dry during the March 2016 monitoring event and therefore not sampled.

Table 3 presents a summary of the groundwater analytical data.

2.2.10 Groundwater Assessment: October 2016 and June 2017

ENERCON conducted two comprehensive groundwater sampling events in October 2016 and June 2017. During the monitoring events, groundwater levels were measured and elevations were calculated to determine the groundwater flow direction. The groundwater flow direction during both events appeared to be toward the north. Figure 7 presents the potentiometric surface map for the June 2017 groundwater sampling event and Table 4 presents the groundwater elevations.

Prior to collection of groundwater samples during the monitoring events, the wells were purged using either a peristaltic pump or a submersible micro-flow bladder pump until the pH, specific conductance, DO, ORP, and turbidity stabilized. Following stabilization, groundwater samples were collected and submitted to Pace Analytical in Huntersville, North Carolina under standard chain-of-custody procedures. Groundwater samples were collected during October 2016 and June 2017 monitoring events and analyzed for VOCs, TOC, sulfide and chloride by EPA Methods 8260B, 5310B, and SM 4500 S2D/Cl-E, respectively, and nitrate and sulfate by EPA Methods 353.2 and 300.0, respectively, ethane, ethane and methane by EPA Method SOP-RSK175, ferrous iron by EPA Method 3500-Fe-B, and Resource Conservation and Recovery Act (RCRA) Metals by EPA Method 6010/7470.

The VOC results of the groundwater samples indicated:

- PCE was detected in wells MW-1, MW-2, MW-3, MW-5, and MW-14 in October 2016 and in wells MW-1, MW-2, MW-3, and MW-5 in June 2017. During October 2016, PCE was detected at concentrations ranging from 3.4 µg/L to 168 µg/L while in June 2017, PCE was detected at concentrations ranging from 4.2 µg/L to 283 µg/L;
- TCE was detected in wells MW-1, MW-2, MW-3, and MW-5. During October 2016, TCE was detected at concentrations ranging from 10.4µg/L to 71.8 µg/L while in June 2017, TCE was detected at concentrations ranging from 9.9 µg/L to 144 µg/L;

- Cis-1,2-DCE was detected in wells MW-1, MW-2, and MW-3 in October 2016 and in wells MW-1, MW-2, MW-3, and MW-5 in June 2017. During October 2016, cis-1,2-DCE was detected at concentrations ranging from 7.3 µg/L to 13.4 µg/L while in June 2017, cis-1,2-DCE was detected at concentrations ranging from 1.0 µg/L to 24 µg/L;
- Trans-1,2-DCE was detected in wells MW-1, MW-2, MW-3, and MW-5 in October 2016 at concentrations ranging from 1.0 µg/L to 5.6 µg/L while in June 2017, trans-1,2-DCE was detected in wells MW-1 and MW-2 at concentrations of 12.0 µg/L and 11.7 µg/L, respectively;
- 1,1-DCE was detected in well MW-3 in October 2016 1.0 µg/L.
- Monitoring wells MW-4, MW-6, MW-7, MW-8, MW- 10, MW-11, MW-12, MW-13, and MW-15 were below laboratory reporting limits for all VOC constituents during the October 2016 monitoring event while monitoring wells MW-4, MW-6, MW-7, MW-8, MW- 10, MW-11, MW-12, MW-13, MW-14, and MW-15 were below laboratory reporting limits for all VOC constituents during the June 2017 monitoring event;
- MW-9 was dry during the October 2016 and June 2017 monitoring events and therefore not sampled.

Figure 8 presents the groundwater quality map for the June 2017 groundwater monitoring event, and Table 3 summarizes the historical groundwater sample results through June 2017. Table 5 presents the summary of the analytical data for RCRA metals in groundwater. The laboratory report for the June 2017 groundwater sampling event is presented in Appendix C.

ENERCON recommended a second ISCO injection event consisting of 450 gallons of a 20 percent sodium persulfate solution with chelated iron into wells MW-1, MW-2, MW-3 and MW-5.

2.2.11 Assessment of Vapor Intrusion Potential: October 2017

Contour installed five soil vapor implants (SVI-1 through SVI-5) through the concrete slab inside the Kroger building using a rotary impact hammer drill on October 25, 2017 and collected sub-slab soil vapor samples on October 26, 2017. The vapor implant locations are shown on Figure 9. The soil vapor implants were placed approximately two feet below the base of the concrete slab. One soil vapor sample was collected from each location in summa canisters and submitted to AES in Atlanta, Georgia under standard chain-of-custody procedures for laboratory analysis of VOCs using EPA Method TO-15. The results of the soil vapor samples are summarized in Table 6 and a copy of soil vapor laboratory report is presented in Appendix D.

Low level concentrations of VOCs were detected in each soil vapor sample location. Contour performed a vapor intrusion evaluation for the Site using the EPA's vapor intrusion screening level (VISL) calculator to evaluate whether the VOC concentrations in the soil vapor samples posed a risk to indoor air via the soil gas to indoor air pathway. The VISL evaluation was a comparison of the VOC concentrations detected in sub-slab soil vapor samples during the October 2017 soil vapor sampling effort to target risk levels (1E-5 target risk for carcinogenic compounds and a 1.0 target hazard quotient [HQ] for non-carcinogenic compounds, under a commercial exposure scenario) using the VISL calculator.

The cumulative carcinogenic risk, as calculated with the VISL calculator, ranged from 1.27E-7 (1.27 in 10,000,000) in SVI-3 to 1.72E-6 (1.72 in 1,000,000) in SVI-2. The HQ ranged from 3.43E-2 in SVI-3 to 4.65E-1 in SVI-2. The results of the VISL calculation indicates the VOC concentrations in the sub-slab soil vapor samples do not pose a vapor intrusion risk above the accepted carcinogen risk factor under a commercial scenario (1E-5 or 1 in 100,000) or the target HQ for non-carcinogens of 1.0. A copy of the VISL screening results are presented in Appendix E.

Based on the sub-slab soil vapor data collected during the October 2017 soil vapor sampling effort and the results of the VISL evaluation, there does not appear to be a potential for vapor intrusion into the Kroger building that would exceed regulatory established risk factors under a commercial exposure scenario.

SECTION 3.0

Conceptual Site Model

A Conceptual Site Model (CSM) has been developed for this Site using the data obtained during previous investigative activities at the Site and from the previous reports. The preliminary CSM will be updated and refined, as additional information is collected. The preliminary CSM details the Site's surface and subsurface conditions, known or suspected sources of contamination, potential contamination transport mechanisms, the known extent of contamination, and exposure pathways for potential receptors. Figures 4 through 10 illustrate the CSM components discussed in the following sections.

3.1 Geology and Hydrogeology

The Site is located in the Fall Line region, which separates the Upper Coastal Plain Physiographic Province of coastal Georgia from the Piedmont Physiographic Province of northern Georgia. The fall line is a geologic boundary about twenty miles wide that runs across Georgia northeastward from Columbus to Augusta. As the Mesozoic shoreline of the Atlantic Ocean, it separates Upper Coastal Plain sedimentary rocks to the south from Piedmont crystalline rocks to the north. Study area bedrock is mapped as meta-argillite-phyllite (*Geologic Map of Georgia*, Georgia Geologic Survey, 1977).

Based on soil sampling and lithology descriptions by others, observed soils consist of a mix of residual and imported fill materials that are predominantly fine- grained with low plasticity, which have been generally classified as typical Fall Line and Coastal Plain materials consisting of sandy silts and silty sands. In addition, a layer of organics has been encountered during soil borings and the elevation of the organic layer typically increases with depth from the south toward the north (i.e., front of the property to the rear), and was generally located between 14 to 25 feet bgs. Soil boring logs are presented in Appendix F. Figure 10 presents a north/south cross-sections of the Site based on the soil boring logs.

Shallow groundwater at the Site occurs between approximately 14 feet bgs in the upgradient (southern) direction to approximately 37 feet bgs in the downgradient (northern) direction of the Site. Seasonal groundwater fluctuations range from approximately 4 feet on the southern portion to approximately 3 feet on the northern portion of the Site. Using depth to groundwater measurements, groundwater elevations have been calculated to determine the groundwater flow direction. Table 4 presents the historical groundwater measurements and elevations. The groundwater flow direction across the Site has been consistently determined to be toward the north to northwest. Figure 7 presents the most recent potentiometric surface map for the Site based on groundwater measurements from June 2017.

Previous aquifer testing, consisting of rising head slug tests, has been conducted to determine the hydraulic conductivity and to assess the groundwater seepage velocity across the Site. By using the average hydraulic conductivity of 3.251×10^{-2} ft/day, a gradient of 0.045, and an assumed effective porosity of 16 percent, the groundwater seepage velocity across the Site has been calculated to be 0.914×10^{-2} ft/day or approximately 3.34 feet/year.

3.2 Residual Contaminants of Concern

3.2.1 Soil

Between June 2006 and August 2007, numerous soil borings were advanced for collection of soil samples to identify the source of the PCE release and to evaluate the extent of PCE and its degradation by-products TCE and cis-1,2-DCE. During the soil assessments, results of the soil sampling activities indicated the source of PCE was a result of surface dumping, spillage and/or leakage from storage containers. It appeared that the PCE infiltrated to the soils via cracks in the overlying concrete around a sanitary sewer manhole, as the highest soil concentrations of PCE, TCE, and cis-1,2-DCE were found near the sewer manhole, with lower concentrations found in other areas near a sanitary sewer line. Figure 4 presents the soil quality map from the 2006 and 2007 soil borings and Table 1 presents a summary of the soil boring analytical data.

In August 2007, corrective action consisting of soil excavation was conducted to remove PCE, TCE, and cis-1,2-DCE impacted soils that exceeded the non-residential Type 3 RRS. The area where soils were excavated consisted of approximately 693 square feet around boring location B-6, which exhibited the highest concentration of PCE (2.8 mg/kg) detected during the soil assessments. The excavation extended to a depth of approximately 16 feet bgs, which represents the approximate depth to the water table, resulting in approximately 411 cubic yards of excavated soil. Confirmatory soil samples were collected from the bottom and sidewalls of the excavation to document soils exceeding the non-residential Type 3 RRS were removed. Samples were collected approximately every 25 feet along the sidewalls of the excavation, with one sample collected just north of the sanitary sewer manhole. Additionally, samples were collected from these locations over several excavation lifts in order to characterize, segregate and dispose of the impacted soils. Upon completion of the excavation, soil samples were collected from the floor and walls of the excavation using a hand auger for laboratory analysis.

The data collected during the excavation indicated that the most impacted unsaturated soils have been removed from the Site subsurface and that remaining impacts were below the non-residential Type 3 RRS. Figure 5 presents the analytical data for the soil samples collected during the excavation activities. Analytical data collected from the corners of the excavation verify soils exceeding the non-residential Type 3 RRS have been removed from the source area. Table 2 summarizes the soil excavation sample analytical data.

The analytical data collected prior to a during the excavation activities indicated that only PCE was present in sufficient quantities to exceed the non-residential Type 3 RRS. The concentrations of PCE in soil observed from 16 and 16.5 feet bgs is likely attributable to the soils being saturated due to their proximity to the groundwater table. This depth is within the water table smear zone and the concentrations are likely attributable to the soils being saturated due to their proximity to the groundwater table. Further excavation would have extended into the water table and into the groundwater plume and would not have likely yielded meaningful reductions in PCE concentrations in the soil samples.

Following the excavation activities, the GA EPD requested five additional soil borings for collection of soil samples at the depth of the invert elevation of the sanitary sewer line along its length and at its lowest elevation at the manhole located downgradient to the north in an effort to assess whether the soil impacts were due to leaching from the sewer line along its length and at the northern manhole. The locations of the five soil borings, B-15 through B-19, are presented on Figure 4. The borings were placed in linear increments of approximately 20 feet along the along the sewer line to the north of the soil excavation pit. Table 1 presents a summary of the soil boring analytical data.

Soil sample data collected in August 2007 along the sanitary sewer line indicated that PCE at a depth of 10 feet, which is the approximate sewer invert elevation, decreases to below laboratory reporting limits between 25 and 50 feet north of the of the sewer manhole directly behind the former dry cleaners. The soil samples collected along the sewer line to the north at a depth of 8 to 12 feet bgs including a sample collected at a depth of 28 to 32 feet bgs adjacent to the northern manhole were below reporting limits for all constituents. Soil impacts to the north along the sewer line pathway was completely delineated.

The soils located on the Site were sampled and analyzed for VOCs and the laboratory reporting limits for those analytes tested were established at levels less than the applicable non-residential Type 3 RRS. Based on the extensive soil sampling efforts, removal of impacted soils exceeding the applicable RRS above the water table/vadose zone interface (i.e., smear zone), and confirmation sampling, the soil impacts at the Site have been horizontally and vertically delineated and/or remediated. Below is a listing of the highest concentration of each analyte remaining in soil at the Site. Where possible, the concentrations of each analyte were compared to the residential Type 1 RRS; however, compounds exceeding the Type 1 RRS were compared to their respective non-residential Type 3 RRS below:

Compound	Location	Depth	Highest Concentration	RRS	RRS Type
Acetone	MW-8	5 feet	0.22 mg/kg	400 mg/kg	Type 1/Type 3[1]
Tetrachloroethene[2]	MW-2	14 feet	0.041 mg/kg	0.50 mg/kg	Type 1/Type 3[1]
Tetrachloroethene[3]	W2	16 feet	1.17 mg/kg	0.50 mg/kg	Type 1/Type 3[1]
Trichloroethene[3, 4]	W1 L8 S36	16 feet 16.5 feet	0.057 mg/kg	0.50 mg/kg	Type 1/Type 3[1]
cis-1,2-dichloroethene[3, 4]	L8 S36	16.5 feet	0.039 mg/kg	7.00 mg/kg	Type 1/Type 3[1]

Notes:

[1] = Type 1 and Type 3 RRS are the same value for this compound.

[2] = The highest concentration of tetrachloroethene in unsaturated soils above the water table/vadose zone interface (i.e., smear zone).

[3] = The highest concentrations of tetrachloroethene, trichloroethene, and cis-1,2-dichloroethene remaining in soils on the Site were collected within the water table/vadose zone interface (i.e., smear zone) and therefore these concentrations are likely influenced by the presence of the constituents present in the groundwater. Concentrations of these constituents above the water table/vadose zone interface (i.e., smear zone) are below the Type 1/Type 3 RRS.

[4] = No residual trichloroethene or cis-1,2-dichloroethene were detected above the laboratory reporting limit in unsaturated soils above the water table/vadose zone interface (i.e., smear zone).

3.2.2 Groundwater

As discussed in Section 2, groundwater samples have been collected from the Site since June 2006. Most recently, groundwater samples were collected from 14 of the 15 existing shallow groundwater monitoring wells between June 7 and 8, 2017. MW-1 through MW-8 and MW-10 through MW-15. Well MW-9 was dry during the monitoring period.

During the June 2017 monitoring event, the average groundwater elevation increased 1.06 feet across the Site since the previous monitoring event conducted in October 2016. The measured groundwater levels were used to create a potentiometric map for the June 2017 monitoring event. The groundwater flow direction for this event was toward the north, which is similar to the previous sampling events. The potentiometric map for June 2017 is presented on Figure 7. Table 4 presents the historical groundwater level measurements at the Site.

Groundwater samples were collected during the June 2017 monitoring event and analyzed for ethane, ethene, and methane by Method RSK 175, mercury by EPA Method 7470, VOCs by US EPA Method 8260B, ferrous iron (Fe+2) by Method SM 3500, sulfide and chloride by Method SM 4500 S2D/Cl-E, sulfate by EPA Method 300.0, Nitrate by EPA Method 353.2, and TOC by EPA Method 5310B. Groundwater Wells MW-1, MW-2, MW-3, and MW-5 were also analyzed for RCRA metals by EPA Method 6010.

During the monitoring event, a peristaltic pump using dedicated Teflon-lined tubing was used to purge groundwater in monitoring wells MW-1 through MW-8, MW-10, MW-11, and MW-15. A submersible micro-flow bladder pump using Teflon-lined tubing was used to purge groundwater in monitoring wells MW-12, MW-13, and MW-15. The Teflon-lined tubing was placed at the mid-way point of the groundwater/screen interval in each of the monitoring wells. All monitoring wells were purged using low-flow techniques and a groundwater sample was collected following stabilization of pH, specific conductance, DO, ORP, and turbidity. All reusable sampling equipment was decontaminated following the sampling of each well.

The groundwater samples collected during the June 2017 sampling event were placed directly into laboratory provided and preserved containers, labeled, placed on ice, and couriered to Pace Analytical in Huntersville, North Carolina under standard COC procedures. The sample containers for each monitoring well were handled using new disposable nitrile gloves. Additionally, the sampling equipment that came into contact with the groundwater was decontaminated using a mixture of alconox soap and distilled water, followed by rinsing with distilled water.

Ten of the 14 groundwater samples collected at the Site (MW-4, MW-6, MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, and MW-15) did not have any detection of VOCs during the June 2017 monitoring event. The groundwater sample collected from monitoring well MW-1 was observed to have the highest PCE concentration during the June 2017 groundwater sampling event at 283 µg/L. A copy of the June 2017 groundwater laboratory report in provided in Appendix C.

During the June 2017 monitoring event, the groundwater sample collected from monitoring well MW-1 contained PCE at 283 µg/L, TCE at 144 µg/L, cis-1,2-DCE at 24.0 µg/L, and trans-1,2-DCE at 12.0 µg/L. The groundwater sample collected from monitoring well MW-2 contained PCE at 73.5 µg/L, TCE at 64.3 µg/L, cis-1,2-DCE at 11.6 µg/L, and trans-1-,2-DCE at 11.7 µg/L. The groundwater sample collected from monitoring well MW-3 contained PCE at 4.2 µg/L, TCE at 16.7 µg/L, and cis-1,2-DCE at 5.4 µg/L. The groundwater sample collected from monitoring well MW-5 contained PCE at 48.7 µg/L, TCE at 9.9 µg/L, and cis-1,2-DCE at 1.0 µg/L. Table 3 presents the summary of VOC analytical data and Figure 8 presents the groundwater quality map for the June 2017 groundwater sampling event.

The concentrations of PCE and TCE exceeded the non-residential Type 3 RRS for the Site in the samples collected from monitoring wells MW-1, MW-2, MW-3 (TCE only), and MW-5 during the June 2017 sampling event. Overall VOC concentrations following the November 2015 ISCO injection event show a significant decrease in monitoring wells MW-1, MW-2, and MW-3, but a slight rebound from the March 2016 and October 2016 sampling events. Monitoring wells MW-1, MW-2, and MW-3 are located in the former source area where soils were excavated in August 2007. A slight decrease in PCE and TCE concentrations was observed in the sample collected from monitoring well MW-5 from the October 2016 sampling event to the June 2017 sampling event. The highest PCE concentration observed onsite remains in a sample collected from monitoring well MW-1 at 283 µg/L. Also, the highest TCE concentration observed onsite was in the sample collected from monitoring well MW-1 at 144 µg/L.

Following the ISCO injection event conducted in November, 2015 during the both the March and October 2016 sampling events, additional VOC's (acetone, bromochloromethane, bromomethane, 2-butanone, chloroform, chloromethane, 1,1-DCE, methylene chloride, 1,1,2,2-trichloroethane, and vinyl chloride) not associated with the initial release were observed in the samples collected from monitoring wells MW-1, MW-2, MW-3 and MW-5. During the June 2017 sampling event, only chloromethane was observed in the sample collected from monitoring well MW-2 at 2.5 µg/L.

During the June 2017 monitoring event, groundwater samples that were collected from the ISCO injection wells (MW-1, MW-2, MW-3, and MW-5) were analyzed for RCRA metals. Arsenic, barium, cadmium, and chromium were detected above laboratory reporting limits in samples collected from wells MW-1 and MW-2. MW-3 and MW-5 contained barium at concentrations above the laboratory reporting limits. MW-3 also contained chromium at a concentration above the laboratory reporting limit. None of the samples collected for RCRA metals exhibited concentrations exceeding the non-residential Type 3 RRS. Table 5 presents the summary of RCRA metal analytical data.

In June 2017, the groundwater at the Site was sampled and analyzed for VOCs and RCRA metals and the laboratory reporting limits for those analytes tested were established at levels less than the applicable non-residential Type 3 RRS. Based on the June 2017 sampling effort, the groundwater impacts at the Site have been horizontally delineated with the shallow monitoring well network. However, vertical delineation of groundwater impacts has not been conducted. Below is a listing of the highest concentration of each analyte remaining in groundwater at the Site based on the June 2017 groundwater sample data. Where possible, the concentrations of each analyte were compared to the residential Type 1 RRS; however, compounds exceeding the Type 1 RRS were compared to their respective non-residential Type 3 RRS below:

Compound	Location	Highest Concentration	RRS	RRS Type
Tetrachloroethene	MW-1	283 µg/L	5 µg/L	Type 1/Type 3[1]
Trichloroethene	MW-1	144 µg/L	5 µg/L	Type 1/Type 3[1]
cis-1,2-dichloroethene	MW-1	24 µg/L	70 µg/L	Type 1/Type 3[1]
trans-1,2-dichloroethene	MW-1	12 µg/L	100 µg/L	Type 1/Type 3[1]
Chloromethane	MW-2	2.5 µg/L	3 µg/L	Type 1/Type 3[1]
Barium	MW-3	24.8 µg/L	2,000 µg/L	Type 1/Type 3[1]
Cadmium	MW-2	2.2 µg/L	5 µg/L	Type 1/Type 3[1]
Chromium	MW-3	11.9 µg/L	100 µg/L	Type 1/Type 3[1]
Lead	MW-2	9.2 µg/L	15 µg/L	Type 1/Type 3[1]

Notes:
[1] = Type 1 and Type 3 RRS are the same value for this compound.

3.3 Potential Receptors and Exposure Pathways

Based on the nature and extent of impacts at the Site, the following describes the receptors and potential exposure pathways.

3.3.1 Soil Direct Contact and Ingestion - Human Health Risk

The location of historical impacted soil is beneath the current Kroger building of the Site. As previously discussed, soil sampling efforts have both horizontally and vertically delineated soil impacts and corrective actions were performed where impacts exceeded the non-residential Type 3 RRS. The results of the corrective action and soil sampling data collected during previous investigations demonstrate that residual contaminant impacts in vadose zone/unsaturated soils meet both residential Type 1 RRS and non-residential Type 3 RRS. Therefore, human exposure to residual contaminants in soil that exceed a residential scenario does not exist and therefore, direct soil contact and/or ingestion is not a complete exposure pathway.

3.3.2 Groundwater Exposure – Human Health Risk

The Site and surrounding area are served by a municipal water supply system operated by the City of Augusta Water Department. As such, groundwater in this area is not used a drinking water source. The nearest drinking water intake, per discussions with the City of Augusta Water Department, is approximately 1.5-miles from the Site and is owned by the City of Augusta. The nearest domestic drinking water well is located at 1112 Stanley Drive, which is approximately 1,600-feet south (upgradient) of the Site.

Groundwater at the Site remains impacted by PCE and TCE at concentrations exceeding the residential Type 1 RRS, which is the Federal Maximum Contaminant Level (MCL), also known as the Federal Drinking Water Standard. However, the impacted groundwater plume is delineated to a localized area and has not migrated offsite.

Due to the upgradient location of the nearest domestic drinking water well and the delineation of the groundwater plume within the Site boundary, human exposure to impacted groundwater is not currently a complete exposure pathway. However, a groundwater use restriction is not currently present on the Site and therefore, human exposure to impacted groundwater could be complete if a potable well were constructed.

3.3.3 Surface Water Exposure - Human Health Risk and Ecological Risk

As presented in the CSM, groundwater from the Site flows generally toward the north. An intermittent tributary to Rock Creek is located approximately 800 feet northwest (downgradient) of the Site. The tributary receives groundwater discharge during periods of higher water table elevations.

The most recent groundwater sampling data from June 2017 demonstrates that the impacted groundwater plume is delineated to within the Site boundary and offsite migration toward the downgradient surface water body (intermittent tributary to Rock Creek) has not been observed. Based on the age of the release, the known extent of groundwater impact to date, and the limited residual impacts, the groundwater to surface water exposure pathway is not complete and is not likely to be considered complete in the future. Ongoing monitoring of the Point of Demonstration (POD) well will serve to provide validation.

3.3.4 Vapor Intrusion Exposure - Human Health Risk

Five sub-slab soil vapor samples were collected from soil vapor implants installed beneath the Kroger building and from within the footprint of the groundwater contaminant plume. The soil vapor implants were placed approximately two feet below the base of the Kroger building slab.

Low level concentrations of VOCs were detected in each soil vapor sample location and the concentrations were screened for potential indoor air risk by using the EPA's VISL calculator. The VISL screening was a comparison of the VOC concentrations detected in sub-slab soil vapor samples during the October 2017 soil vapor sampling effort to target risk levels (1E-5 target risk for carcinogenic compounds and a 1.0 target HQ for non-carcinogenic compounds, under a commercial exposure scenario) using the VISL calculator.

The cumulative carcinogenic risk, as calculated with the VISL calculator, ranged from 1.27E-7 (1.27 in 10,000,000) to 1.72E-6 (1.72 in 1,000,000). The HQ ranged from 0.0343 to 0.465. The results of the VISL screening indicates the VOC concentrations in the sub-slab soil vapor samples do not pose a vapor intrusion risk above the accepted carcinogen risk factor under a commercial scenario (1E-5 or 1 in 100,000) or the target HQ for non-carcinogens of 1.0.

The results of the sub-slab vapor sampling data and the VISL screening demonstrate that residual contaminant impacts in vadose zone/unsaturated soils and the groundwater plume are not contributing sub-slab vapor concentrations that could pose a risk to indoor air quality above the accepted carcinogen risk factor under a commercial scenario or the target HQ for non-carcinogens. Therefore, the soil vapor to indoor air pathway is not complete and is not likely to be considered complete in the future due to the previous removal of the source material (i.e., impacted soils) and likely degradation and attenuation of the groundwater plume.

3.4 Environmental Remediation Standards

The selected remediation standards available under the VRP for the impacted environmental media are discussed below.

3.4.1 Soil Criteria

The Site is a non-residential property currently developed with several retail tenants and an anchor store occupied by Kroger that were constructed on the Site in 2008 and are collectively known as the Washington Walk Shopping Center. The applicable compliance criteria for soils based on property use are non-residential Type 3 RRS. However, soils exceeding the non-residential Type 3 RRS have been remediated and residual soil impacts are below the residential Type 1 RRS.

3.4.2 Groundwater Criteria

It is currently Kroger's intent to demonstrate that groundwater will comply with the higher of the non-residential Type 3 or 4 RRS that will be calculated that are protective of the closest downgradient receptor, which is the intermittent tributary to Rock Creek located approximately 800 feet northwest (downgradient) of the Site .

VOCs detected in groundwater at concentrations above residential RRS include PCE and TCE. Because the property usage will be restricted to non-residential, the higher of the non-residential Type 3 or 4 RRS applies. Furthermore, an environmental covenant will be used to restrict the use of groundwater wells on the Site until such time that the control can be eliminated for unrestricted use.

3.4.3 Surface Water Criteria

The remediation criteria for surface water are Georgia In-stream Water Quality Standards (IWQS). The current the groundwater plume is delineated to within the Site boundary and offsite migration toward the downgradient surface water body (intermittent tributary to Rock Creek) has not been observed.

SECTION 4.0

Proposed Voluntary Investigation and Remediation Plan

It is Kroger's objective to remove the Site from the HSI through implementation of an efficient voluntary investigation and remediation plan that is protective of human health and the environment. This section outlines the proposed actions anticipated to satisfy the requirements set forth in the Georgia Voluntary Remediation Act.

4.1 Restrictive Covenant

In the VRP, the Uniform Environmental Covenant (UEC) and various controls (e.g., engineering, institutional) can play a role in controlling future use of the property and use of the soil and water resources. For example, groundwater use controls will affect the potential for future exposure to groundwater beneath the Site.

Therefore, institutional controls will be used to eliminate possible groundwater exposure pathways. Kroger will execute a covenant that restricts the use of surficial groundwater to non-potable uses only for the 20.05-acre Site (tax parcel #013-0-013-00-0) currently owned by Kroger. The covenant will be executed in conformance with Georgia's Uniform Environmental Covenants Act (O.C.G.A. § 44-16-1).

4.2 Soil Investigation and Remediation

The extent of soil impacts has been delineated to the residential Type 1 RRS and soil impacts exceeding the non-residential Type 3 RRS have been remediated through a soil removal corrective action in August 2007. As a result, no further soil investigation, sampling, or corrective action is necessary.

4.3 Groundwater Investigation and Remediation

4.3.1 Deep Well Installation

Once the Site is accepted into the Georgia EPD VRP, Contour will oversee a qualified drilling contractor to install one deep, 2-inch diameter monitoring well to obtain vertical delineation of the dissolved groundwater plume. The deep well will be a double-cased well. The initial well boring will be advanced near the source area and advanced to 40-feet bgs and a 6-inch diameter PVC surface casing will be grouted into place. Following sufficient curing time for the grout, the inner cased well will be advanced to 50-feet bgs through the 6-inch surface casing. The inner cased well will be installed with a 2-inch diameter slotted PVC screen placed from 45 to 50-feet bgs with solid PVC riser extending to ground surface. The location of the proposed deep groundwater monitoring well is shown on Figure 11.

4.3.2 Well Plugging and Abandonment

During the deep well installation event, Contour will properly plug and abandon monitoring well MW-9. Monitoring well MW-9 was installed in August of 2011 and has been historically dry since installation. In September 2015, monitoring well MW-15 was installed near well MW-9 as a replacement well to facilitate groundwater sampling in the vicinity of monitoring well MW-9.

4.3.3 Groundwater Sampling

Following installation of the deep well, one round of groundwater sample collection will be conducted from monitoring wells MW-1 through MW-15 plus the deep well. Groundwater level measurements will be collected from each monitoring well onsite followed by well purging and groundwater sample collection. Groundwater samples collected from each onsite monitoring well will be submitted for analysis of VOCs by EPA Method 8260B.

4.4 Fate and Transport Modeling

Using the updated groundwater sampling data, Contour will utilize the BIOCHLOR model to simulate remediation by natural attenuation of the dissolved groundwater plume. The objective will be to evaluate the levels of contaminant concentrations that can be left in place such that groundwater discharge to surface water will not result in surface water concentrations that exceed Georgia IWQS under low stream flow conditions. The BIOCHLOR model will predict the maximum extent of dissolved-phase plume migration, which may then be compared to the distance to potential points of exposure (e.g., drinking water wells or surface water bodies). The modeling would also be used to establish POD wells upgradient of the stream that would be used to verify the model predictions.

The BIOCHLOR model results will be presented in a Fate & Transport Model report describing the groundwater sampling data, the model input parameters, and the modeling results that are predicted over time.

SECTION 5.0

Milestone Schedule

The VRP specifically identifies four milestones (task and schedule for completion) that are required in each VIRP. These milestones are identified on the conceptual milestone schedule included in Appendix G. The conceptual milestone schedule will be regularly updated throughout implementation of the VIRP. A proposed schedule for the investigation and remedial activities detailed in this VIRP, assuming an approval date of October 19, 2018, is included in the table below:

Task	Start	Completion
Notice of VIRP Approval	October 19, 2018	October 19, 2018
Deep Well Installation	November 12, 2018	November 19, 2018
Site Wide Groundwater Monitoring Event	December 3, 2018	December 12, 2018
BIOCHLOR Modeling	December 17, 2018	January 28, 2019
Semi-Annual Status Report	April 16, 2019	April 19, 2019
Compliance Status Report	February 11, 2018	May 13, 2019

Upon acceptance into the VRP, Kroger will proceed with the activities presented in this VIRP. A progress report, including an updated CSM, will be submitted within 6 months of acceptance into the VRP. Subsequent semi-annual progress reports will be submitted routinely for the duration of the investigation and remediation activities under the VRP.

SECTION 6.0

References

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Enercon. 2011. *Updated Groundwater Corrective Action Plan.* Former Lucky Cleaners, 2801 Washington Road, Augusta, Richmond County, Georgia, HSI# 10845. December.

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Enercon. 2017. *Semi-Annual Groundwater Monitoring Report #7.* Former Lucky Cleaners HSI# 10845, 2801 Washington Road, Augusta, Richmond County, Georgia 30909. July.

Georgia Geologic Survey. 1977. *Geologic Map of Georgia.*

Figures

Tables

Appendix A
VRP Application and Checklist

Appendix B
Legal Description, Warranty Deed, and Tax Plat

Appendix C
June 2017 Groundwater Analytical Report

Appendix D
Soil Vapor Laboratory Report

Appendix E
VISL Screening Results

Appendix F
Soil Boring Logs

Appendix G
Conceptual Milestone Schedule