Appendix M
2-Chlorobenzalmalononitrile Corrective Action Plan, Revision 1, Solid Waste Management Unit 8 – Drum Removal Area

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1. Introduction

Jacobs Engineering Group Inc (Jacobs) was retained by Union Carbide Corporation (UCC) to provide a Corrective Action Plan (CAP) that addresses potential risks associated with 2-chlorobenzalmalononitrile (CS), commonly referred to as CS or tear gas, near the Drum Removal Area that falls within the boundaries of Solid Waste Management Unit (SWMU) 8 (2015 Munitions and Explosives of Concern [MEC] / Munitions Constituents Disposal Area 1) and SWMU 3 (Buried CS Trench and Surface Debris Area, Aldicarb Disposal Area) at the UCC Woodbine facility in Camden County, Georgia (site). The corrective action alternatives presented in this CAP are based on findings from the site investigation activities completed between October 2020 and October 2022 which are detailed in the *SWMU 8 Drum Removal Area Soil Investigation Report* (Jacobs 2023a). The CAP was originally submitted to the Georgia Environmental Protection Division (EPD) on June 30,2023. UCC received comments from EPD via email on August 22, 2023 and October 17, 2023, and agreed to make changes to the screening levels and proposed corrective action. This revised CAP incorporates the comments from EPD, as well as the November 2023 updates to the U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs).

1.1 Background

The site (Facility Identification Number: GAD 981235294) is currently regulated under Hazardous Waste Facility Permit HW-063(D), which provides detailed information regarding post-closure care and corrective action for the closed hazardous waste landfill and the Resource Conservation and Recovery Act (RCRA) SWMUs at the facility (Georgia Department of Natural Resources 2017). This CAP addresses CS impacts in the Drum Removal Area (Figure 1). Polychlorinated biphenyl (PCB) contamination is known to be colocated with CS in the Drum Removal Area. The CS CAP has been developed in conjunction with a separate PCB Cleanup Plan that has been submitted to EPA for approval (Jacobs 2023b). These plans collectively address both PCB and CS contamination associated with the Drum Removal Area in a single corrective action. The preferred corrective action will be implemented once EPD approves this CS CAP and EPA approves the PCB Cleanup Plan.

1.2 Corrective Action Plan Purpose and Scope

The purpose of this CAP is to:

- Briefly summarize the history and discovery of buried drums in SWMU 8.
- Briefly summarize the investigation activities completed in the Drum Removal Area and extent of CS impacts.
- Identify the potential risks and exposure pathways.
- Evaluate corrective action alternatives that address CS-related risk and discuss the preferred corrective action that would minimize the potential exposure to CS to support current and predicted future land use.
- Take into consideration PCB-related risks and ensure the proposed remedy is consistent with the remedy proposed in the PCB Cleanup Plan.
- Identify corrective action alternatives and propose selected corrective actions for CS that are protective of human health and the environment for approval by Georgia EPD.

1.3 Facility Description and Area of Corrective Action

The site is an approximately 4,045-acre parcel located roughly 11.5 miles due east of the town of Woodbine in Georgia Militia District Number 31, Camden County, Georgia (Figure 1). In 1962, Thiokol Corporation purchased the property, and from 1967 to circa 1975, the facility manufactured and tested "deterrent containing" munitions items including a 40-millimeter (mm) CS round, the XM-15 (CS canister cluster), 40-mm high explosive grenades, M49 trip flares, 81-mm mortar illuminating cartridges, and M84A1 fuses. The Drum Removal Area is located within the boundaries of SWMU 3 and SWMU 8 at the facility.

SWMU 3 contained three separate disposal areas: the Buried CS Trench, Buried Nuchar Trench, and Surface Debris Area; the Burn Area; and the Aldicarb Disposal Area (Figure 1). Multiple RCRA facility investigations (RFIs) were completed consisting of geophysical surveys and soil and groundwater sampling. A No Further Action determination was obtained following completion of the RFIs and remedial activities (Jacobs 2023c). SWMU 8 generally encompasses the 40-mm Test Range fan, the 81-mm Mortar Test Range fan, and surrounding areas based on MEC investigations and removal actions. SWMU 8 is approximately 259 acres in size and located in the north-central portion of the facility bounded by Todd Creek to the north and SWMU 1 (former landfill) to the west (Figure 1). Similar to SWMU 3, there were multiple RFIs completed at SWMU 8 consisting of geophysical investigations and visual inspections. Corrective actions consisting of removal of surface and near surface MEC were completed in 2021 (Jacobs 2021).

This CAP was prepared to address CS impacts in the Drum Removal Area. The Drum Removal Area comprises an area less than 1 acre located in the north-central portion of SWMU 8, east of the main access road (Figure 1). The Drum Removal Area currently consists of relatively flat terrain around an open excavation (the drum excavation) which is surrounded by temporary fencing and a soil stockpile which is covered and lined with plastic sheeting.

1.4 Report Organization

This CAP is organized into the following sections:

- Section 1, Introduction – Presents the purpose, scope, and organization of this document, as well as a brief description of the facility.

- Section 2, Site Description – Provides detail regarding the facility use, site characteristics, investigation information, nature and extent of CS, current and reasonably anticipated future use, and a summary of facility and CS-related risks.
- Section 3, Corrective Action Alternatives – Provides a description, comparison, and estimated cost of corrective action alternatives, as well as analysis of the proposed corrective action alternative.
- Section 4, References – Presents a list of works cited in this document.

2. Site Description

This section describes the Drum Removal Area history and site characteristics.

2.1 Drum Removal Area History

Buried drums were identified during investigation and removal operations for potential MEC or materials potentially presenting an explosive hazard in SWMU 8 at the facility (Figure 1). Initial discovery of the buried drums within SWMU 8 occurred on August 7, 2019, with the discovery of a single, partially buried, 55-gallon metallic drum. The drum was in a deteriorated condition and subsequently was excavated and placed in an overpack for transportation and disposal at an offsite facility. The drum contained a white or gray solid material, which was sampled and found to consist primarily of CS, which historically was manufactured at the facility.

Because of this unexpected discovery, additional evaluations were conducted to determine if buried drums were present in other locations within the MEC investigation area within SWMU 8. As a result of the additional investigations, it was determined that buried drums were only present in the area proximal to where the original drum was uncovered. It was originally estimated that the area contained 24 additional buried drums. Because of the degraded condition of the drums, the exact number of drums could not be determined, but it was estimated to be approximately 50 degraded drums.

UCC submitted a drum removal work plan to Georgia EPD in May 2020 (Jacobs 2020a) and received an approval letter from Georgia EPD on May 22, 2020. Due to concerns regarding exposure to CS, the drum removal work was performed in level B personal protective equipment. From September 30 through October 5, 2020, all identified drums were excavated to the extent practical along with surrounding soil. The contents of the drums were segregated, placed in overpack containers and transported to a staging area. Remaining metal pieces of the drums were placed in a roll-off container located adjacent to the excavation and approximately 125 cubic yards of soil from the excavation area were stockpiled and covered in a secondary containment area along the western edge of the excavation.

From October 12 through October 14, 2020, characterization samples were collected from each overpack container, from the excavation area (soil from floor and sidewalls), and from the soil stockpile for analysis of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, herbicides, and explosives. Overpack container samples indicated that CS was present in all 33 overpack samples. Continued analysis of the overpack samples for analytes other than SVOCs was stopped out of concern that laboratory analytical procedures could generate high concentrations of CS gas and pose a health and safety concern for staff at the analytical laboratory. Aside from CS and CS degradation products, no other SVOC detections were reported above residential RSLs.

2.2 Site Characteristics and Description

This section describes the land use, ecological setting, cultural resources, climate, topography, and geology and hydrogeology.

2.2.1 Land Use

Currently, the former UCC Woodbine facility is not being used for industrial, recreational, or residential purposes. It is primarily uninhabited, inaccessible woodlands. The Drum Removal Area is on private land owned by UCC. The UCC property is accessible by water and land, although no residential or industrial

neighbors (aside from the former Bayer CropScience facility) are in close proximity, and general public access by motor vehicle is restricted by locked gates.

The UCC Woodbine property currently has an existing environmental covenant, which restricts land use to nonresidential and prohibits the extraction or use of groundwater for nonremedial purposes. The proposed future land use for the UCC Woodbine property may include conservation land and timber harvest.

2.2.2 Ecological Setting

UCC Woodbine is primarily wooded with scattered wetlands located approximately 3,000 feet south and southwest of the Drum Removal Area. Todd Creek, a tributary to the Satilla River, is located approximately 1,000 feet to the north. The area around the Drum Removal Area is mostly heavily forested, consisting of either hardwoods or pines. The majority of the pines are planted in rows. Undergrowth in these forests is moderate to thick brush which was cleared around the Drum Removal Area to allow for investigation activities to be completed.

A review of historical records indicates the presence of federal- or state-listed animal species may potentially occur within the UCC Woodbine site (Jacobs 2018). Gopher tortoise (*Gopherus polyphemus*) have been observed in the general area and burrows have been discovered within the Drum Removal Area. Though not observed during previous work in the Drum Removal Area, the eastern indigo snake (*Drymarchon couperi*) could appear in this area as it frequently is a commensal with the gopher tortoise (Jacobs 2021).

2.2.3 Cultural Resources

There are no cultural resources in the vicinity of the Drum Removal Area, but there are cultural resources on other portions of the property. UCC Woodbine is located within the property of the historic homestead of Charles Floyd and his son, General John Floyd. Remnants of the former plantation home, Anchor House, still stand on the UCC Woodbine property approximately 0.5 miles southeast from the Drum Removal Area. The Floyd Family Cemetery is visited occasionally by family and visitors through a separate access via the former Bayer CropScience property under permission from and full-time escort by representatives of UCC. The cemetery is located approximately 1.5 miles east of the Drum Removal Area. From 1927 to 1942, the facility was part of a tract known as the Sea Island Game Preserve at Cabin Bluff and was used as a hunting preserve (CH2M 2018). The property offers habitat to a wide variety of wildlife, including a large population of wild boar.

2.2.4 Climate

The climate at UCC Woodbine is characterized by hot humid summers and mild winters. Data collected by the Southeast Regional Climate Center (SERCC) for the state of Georgia for the period 1895 to 2023 indicate average annual maximum and minimum temperatures are 66.2 and 61.4 degrees Fahrenheit, respectively (SERCC 2023). The average annual precipitation is 50.04 inches with summer being the wettest season, followed by winter, spring, and fall (SERCC 2023).

2.2.5 Topography

The topography in the vicinity of the Drum Removal Area is generally flat with slight variations in elevation around the excavation where drums were removed, which is approximately 3 feet in depth. The main access road is located approximately 300 feet west of the Drum Removal Area.

2.2.6 Geology and Hydrogeology

The UCC Woodbine facility is located in the Barrier Island District of the Atlantic Coastal Plain Physiographic Province (Clark and Zisa 1976). Pleistocene sea levels advanced and retreated several times over the Barrier Island Sequence District, forming a stepped progression of decreasing elevations toward the sea. These former, higher sea levels formed barrier island/salt marsh environments generally similar to the present coast. The former sea levels deposited shoreline complexes parallel to the present shoreline. There has been slight to moderate dissection of these former terraces by streams, leading to the development of marshes in poorly drained low areas.

The UCC Woodbine facility resides on undifferentiated surficial sands (Holocene and Pleistocene), the Satilla Formation (Holocene and Pleistocene), and the Cypresshead Formation (Pliocene). The undifferentiated surficial sands and Satilla Formation cannot be separated due to lithologic similarities and lack of paleontological control likely found at the site (Leeth 1999). These Quaternary sediments are well sorted, fine to very fine quartz sand, with some laterally extensive but discontinuous organic-rich layers that occur at approximately 5 to 10 feet below ground surface (bgs). Pelecypod shells are present but not abundant. There is no distinct marker at the base of the Quaternary sediments but a partially cemented, reddish brown, iron-stained sand does occur that is typical of the Satilla Formation. Quaternary sediments are generally 35 to 45 feet thick across Camden County, Georgia, including the UCC Woodbine facility (Leeth 1999).

The Cypresshead Formation consists of fine-to-medium sand that grades downward in section to a sandy, clayey silt that is characterized at its base by thin clay and silt interbeds that become calcareous and shelly with depth. Pliocene sediments are differentiated primarily on lithology, specifically an increase in coarse grain size, an increase in clay content, and a decrease in cementation and iron staining. These sediments range from approximately 35 to 45 feet thick (Leeth 1999).

Humate-cemented sandstone is locally prominent, with large boulders of humate sandstone littering the bases of bluffs. Humate is produced by the percolation of naturally occurring weak acids from the organic topsoil above the sands.

Site hydrogeology is influenced primarily by the presence and proximity of water sources (rainfall) and sinks (Todd Creek and ponds) and by the hydraulic conductivity of the unconsolidated sediments (sand) that comprise the surficial aquifer beneath the facility (Jacobs 2020b). The surficial aquifer system, consisting of the Satilla/Cypresshead (unconfined water table zone) and Ebenezer (confined upper water-bearing zone and confined lower water-bearing zone) is estimated to be 265 feet thick. Based on literature reviews and investigation activities, the unconfined water table unit of the surficial aquifer system is greater than 100 feet thick.

Seven shallow soil borings (up to 21 feet bgs) were completed in the Drum Removal Area using direct push and rotosonic drilling technologies. Continuous soil cores were collected and logged using Unified Soil Classification System descriptions. Boring logs are included in Attachment 1. The stratigraphy consists primarily of fine, loose, well sorted sand and silty sand, consistent with the upper sands observed in borings completed in other parts of the UCC Woodbine facility.

There are four shallow monitoring wells located near the Drum Removal Area (Figure 2). Groundwater is encountered at approximately 12 feet bgs in the Drum Removal Area (Table 1). Groundwater elevation data collected in October 2022 (Table 1) indicate that groundwater flow direction in the shallow groundwater zone is north-northeast toward Todd Creek, consistent with the groundwater flow direction observed at other parts of the site (CH2M 2008).

3. Site Characterization

3.1 Investigation Activities and Results

Several phases of site investigation activities were completed from 2020 through 2022. Investigation locations are shown on Figure 3. The following investigation activities and results are described in detail in the *SWMU 8 Drum Removal Area Soil Investigation Report* (Jacobs 2023a). Tables summarizing soil data are included as Tables 2 through 5.

In October 2020, characterization samples were collected from each overpack container, from the excavation area (soil from floor and sidewalls), and from the soil stockpile for analysis of VOCs, SVOCs, metals, polychlorinated biphenyls (PCBs), pesticides, herbicides, and explosives (Table 2). Although it was intended that the overpacks would be sampled for a full suite of compounds, they were only analyzed for CS and SVOCs because of a concern that the laboratory analytical procedures could pose a health and safety concern for staff at the analytical laboratory for samples with elevated CS. Aside from CS and CS degradation products, no other SVOC detections were reported above residential RSLs in the overpack samples (Jacobs 2022). Due to elevated concentrations of CS in the soil samples collected within the excavation area (maximum concentration of 990 milligrams per kilogram [mg/kg]) and stockpile (maximum of 5,300 mg/kg), 5 of the 14 samples could not be analyzed for the full analytical suite. Soil characterization results for the excavation area indicated that arsenic (in one sample) and PCBs (Aroclors 1248, 1254, and 1260) (in eight samples) exceeded the residential RSL (Table 2). The constituents of concern (COCs) identified were PCBs, CS, and CS degradation products (Jacobs 2022).

On November 16, 2020, representatives from UCC and Jacobs met with Georgia EPD to discuss the preliminary sample results and proposed approach for additional sampling. Published literature for CS indicates the environmental half-life of CS is approximately 3.9 days and may be shorter under wet conditions because of the rapid degradation of CS by hydrolysis (Department of the Army 2018; U.S. Air Force 1986). Therefore, UCC proposed resampling the excavation area and soil stockpile to re-assess CS concentrations after the excavation work was completed in order to conduct an assessment of the rate at which the compounds have degraded in comparison to published literature.

In August 2021, the Drum Removal Area was resampled in accordance with the Georgia EPD-approved *SWMU 8 Drum Removal Area Sampling Work Plan* (Jacobs 2020b) to evaluate the horizontal extent of CS constituents outside the excavation and evaluate the vertical extent of CS within the excavation. Results are summarized in Table 3. Another objective of resampling was to determine if CS compounds in soil within the excavation had degraded after being exposed to the environment. Prior to the sampling effort, in July 2021, the soil stockpile was moved to facilitate the collection of the proposed soil samples. Samples were collected at eight locations (HE-1 through HE-8) outside the footprint of the excavation and analyzed for CS constituents and PCBs. Vertical extent sampling was conducted at three previously sampled locations within the excavation (FL3, FL5 and WA48-1) and analyzed for CS constituents and PCBs. Although several of the samples could not be analyzed for PCBs due to elevated concentrations of CS, PCBs were detected in samples collected within and outside of the excavation and exceeded the residential RSLs (maximum concentration of 5.3 mg/kg total PCBs; Jacobs 2022). CS had not decreased in the open excavation as anticipated based on the literature review of physical properties of CS (Department of the Army 2018; U.S. Air Force and Environmental Health Laboratory 1986). CS concentrations were found to be elevated within the excavation, stockpile, and former stockpile area.

Additional investigation activities were completed in 2022 in accordance with the *SWMU 8 Drum Removal Area Soil Investigation Work Plan* (Jacobs 2022) and addendum letter dated September 19, 2022, to

delineate CS, CS degradation products, and PCBs. Soil samples were collected from 7 soil borings and 74 hand auger locations for analysis of CS, CS degradation products, and PCBs (Table 3; Figure 3). The final sampling locations constitute a 3-meter horizontal grid designed to meet the PCB characterization requirements under a self-implementing cleanup per Code of Federal Regulations (CFR) Title 40, Chapter 761, Part 61(a) [40 CFR 761.61(a)]. The vertical extent of CS and CS degradation products was evaluated at three locations within the excavation (WA48-1, FL3, and FL5) and four locations outside the excavation (C4, E7, I5, and MW-306; Table 4). Soil sample results indicate that CS is present above the detection limit within the excavation area, from the former stockpile location to the existing stockpile, and east of the excavation (Figure 4). CS degradation products (2-chlorobenzaldehyde, 2-chlorobenzoic acid, and malononitrile) were detected at some of the locations where higher concentrations of CS were detected, though at lower concentrations than CS. Of the three CS degradation products, malononitrile is the only one with an RSL (0.63 mg/kg). Malononitrile exceeded the RSL at 17 of the hand auger sample locations and two of the soil boring locations (within the drum excavation) with a maximum concentration of 500 mg/kg at A7, which is the same location where the highest concentration of CS was detected (41,000 mg/kg). Overall, the detection of CS degradation products correlated to CS detections.

Samples were also collected from the stockpile for CS, CS degradation products, and PCB analysis in 2022. Results are summarized in Table 5. CS concentrations in the stockpile ranged from 18 mg/kg to 19,000 mg/kg. CS degradation products 2-chlorobenzaldehyde, 2-chlorobenzoic acid, and malononitrile were detected in each sample with malononitrile exceeding the RSL in all 10 samples.

Aggregates of the white-yellow product were observed in soil in and around the drum removal excavation and within the stockpile during the 2022 sampling activities. These product aggregates range in size from small flecks to approximately the size of a golf ball. The field geologist noted that the product aggregates are not readily friable (have a hard exterior that takes force to break apart). Samples of the product aggregates were collected in June 2022 and analyzed for CS. The laboratory data confirmed they contained elevated concentrations of CS and chlorobenzaldehyde (estimated to be around 250,000 and 22,000 mg/kg, respectively; Jacobs 2023a).

One monitoring well (MW-306) was installed and screened across the water table (Attachment 1). A groundwater sample was collected and analyzed for CS, CS degradation products, and PCBs (Table 6). None of the analytes were detected, indicating shallow groundwater is not impacted immediately downgradient of the drum excavation.

3.2 CS Treatability Study

A treatability study was completed in May of 2022 to assess ability to remediate CS-impacted soils via hydrolysis and biodegradation using a "landfarming" type of approach. A two-stage test was proposed to identify conditions for effective CS degradation by hydrolysis and the subsequent removal of daughter products (2-chlorobenzaldehyde, malononitrile, 2-chlorobenzoic acid) through biodegradation. Baseline samples were collected from the stockpile to ensure there were elevated concentrations of CS in the soil prior to starting the study. The intent of the hydrolysis stage of the study was to determine the optimal moisture and pH conditions for reducing CS concentrations. The hydrolysis step was completed by adjusting the soil moisture and/or pH level and analyzing the prepared samples for CS constituents in the days that followed sample preparation (2 days, 4 days, 7 days).

Based on published sources (Department of the Army 2018; U.S. Air Force 1986), CS concentrations were expected to decrease significantly with time (2 days, 4 days, 7 days). However, this was not observed, and instead, concentrations were variable and in some cases CS concentrations were higher in the 4- and 7-day samples than in the 2-day sample. CS degradation products like 2-chlorobenzaldehyde, 2-chlorobenzoic

acid, and malononitrile were detected but did not exhibit increasing concentrations with time, as would be indicative of degradation (Jacobs 2023d). It was determined that varying CS concentrations are likely due to the heterogeneity of product within the soil. Despite the removal of product aggregate prior to moisture and pH adjustments of soil, the uneven distribution of small flecks of product aggregate may have caused CS spikes in the sample results. Sieving out small flecks of this material from the soil was not feasible. Due to the heterogeneity of the soil and the lack of observed degradation in the hydrolysis sample results, it was decided not to proceed to Step 2, and the treatability study was discontinued.

In summary, trends were not observed that supported degradation of CS and generation of CS daughter products through hydrolysis following saturation and/or pH adjustment of soils in the hydrolysis stage of the study. The treatability study concluded that increasing the soil moisture and/or soil pH is not an effective means of reducing soil CS concentrations.

3.3 Nature and Extent of Constituents of Concern

Figure 4 depicts the lateral extent of CS in soil with the contours based on the maximum concentration observed at each soil sample location while Figures 5 through 7 show the vertical extent. The concentrations of CS were delineated horizontally and vertically in the Drum Removal Area to the method detection limit and these data are sufficient to evaluate remedial alternatives. Although several sample results at the limits of the sample grid (B2, D8, X8 and C9) were above the CS-detection limit, it is unlikely that the extent of CS-impacted soil extends much beyond these locations based on the conceptual site model.

The highest concentrations of CS in soil were located within the areas of the former stockpile and excavation, with the highest being between the former stockpile location and the existing stockpile (41,000 mg/kg). CS concentrations were generally higher in surface soil compared to the near surface soil samples. Of 84 locations where surface (0.0 to 0.5 feet bgs) and near surface (0.5 to 2.0 feet bgs) samples were collected, concentration of CS were greater in the near surface soil than in the surface soil at only eight locations (C5, D3, D4, E3, E4, F5, G4 and G5), located within the excavation and former stockpile area.

CS was detected in the top 2 feet of soil collected at vertical profile location C4 and was not detected in samples collected from the remaining vertical profile boring locations outside of the excavation (E7, I5, and MW-306). CS was detected in the samples collected from the soil borings completed within the excavation (FL3, FL5, and WA48-1) with concentrations of CS elevated above 0.5 mg/kg in soil collected from the top 4 feet at FL3 and FL5, ranging from 3.3 to 1,200 mg/kg. At WA48-1, CS was elevated above 0.5 mg/kg in soil samples collected from the ground surface to a depth of 8 feet bgs with a maximum concentration of 270 mg/kg in the 2.0 to 4.0 feet bgs sample.

The extent of the CS degradation products was also delineated both vertically and horizontally and correlates with the extent of CS impacts. Detections of 2-chlorobenzaldehyde and 2-chlorobenzoic acid were fully delineated except in the area of X8, C9, and C1 where 2-chlorobenzaldehyde was detected (maximum concentration of 0.11 mg/kg). 2-chlorobenzaldehyde and 2-chlorobenzoic acid do not have RSLs for comparison. Malononitrile was detected at concentrations exceeding the residential RSL of 0.63 mg/kg in several surface soil and near surface soil samples. The locations where malononitrile exceeded the RSL correlates to locations where CS is elevated (greater than 16 mg/kg).

3.4 Potential Exposure Pathways

Potential exposure to CS and CS degradation products in soil could occur through land disturbance activities (digging and construction activities). Based on the current and potential future land use (as conservation land) and the location of the Drum Removal Area the likelihood of exposure is limited but could include one or more of the following activities:

- Trespassers that may inadvertently access the Drum Removal Area
- Visitors and workers that may travel through the Drum Removal Area
- Construction of utilities, roadways, buildings, or other structures within the Drum Removal Area

The Drum Removal Area is located within SWMU 8 and within the Restricted Use Zone (RUZ) proposed in the *Solid Waste Management Units 8 and 9 Corrective Action Plan* (SWMU 8 and 9 CAP) submitted to Georgia EPD in March 2023 (Jacobs 2023e). Once the SWMU 8 and 9 CAP is approved by Georgia EPD, institutional controls will be executed including filing of an environmental covenant that restricts access and land use and requires installation of permanent MEC warning signage along the perimeter of the RUZ.

3.5 Analytical Methodology and Sample Handling

UCC was unable to identify any commercial laboratories that have an established analytical method that includes a sample preparation procedure for CS and CS degradation products (2-chlorobenzaldehyde, 2-chlorobenzoic acid, and malononitrile) in soil because they are rarely analyzed. These compounds can be analyzed by SW846 8270D, and the laboratory created calibration curves for CS and 2-chlorobenzaldehyde, while 2-chlorobenzoic acid and malononitrile were reported as tentatively identified compounds (TICs) as an adjunct to the definitive analytical results. The concentrations of the TICs were estimated and are referenced to the concentration of the closest internal standard to the TIC based on retention time. This allowed a determination of the presence or absence of these compounds along with the estimated concentration, and these data were sufficient for conducting a screening level assessment and determining whether additional evaluation was necessary.

The groundwater sample collected from MW-306 in October 2022 was analyzed for CS constituents using analytical method SW846 8270D and for PCBs using analytical method SW846 8082A. Soil samples collected were sent to Eurofins Lancaster Laboratories and were analyzed using the analytical methods listed in Table 7.

Several samples collected in 2020 and 2021 were not analyzed for constituents other than SVOCs due to concern that laboratory analytical procedures could generate high concentrations of CS gas and pose a health and safety concern for staff at the analytical laboratory. Following the August 2021 sampling event, an analytical approach was developed with the laboratory to process soil samples such that health and safety concerns caused by elevated CS concentrations can be addressed and samples can be processed for additional constituents. The laboratory's normal analytical procedure for PCB analysis via SW846 Method 8082A of potentially CS contaminated soils was followed to achieve the desired lower quantitation limits. The only exception to the analytical procedure was to discontinue the use of Microwave extraction via SW-846 Method 3546 and adopt the SW-846 Method 3550C, a sonication extraction technique used to avoid heating of the soil samples. High velocity fume hoods and other procedures were incorporated to maintain health and safety protocols for laboratory personnel. Sample analysis was completed in accordance with the Georgia EPD-reviewed work plan (Jacobs 2022).

Several soil samples collected from the excavation in October 2020 analyzed using Methods SW8318 and SW8330B were assigned the "R" qualifier during validation because the laboratory hold times were exceeded prior to analysis. These samples were collected as part of a broad screen of potential COCs at the site during initial characterization of the Drum Removal Area to determine what COCs were present and associated with wastes disposed in the buried drums. The laboratory qualified the affected results as "UH" indicating the analytes were not detected, but the hold time was exceeded. Method SW8318 pertains to carbamates and was run because of the previous manufacture of Aldicarb at the site. Method SW8330B pertains to explosives residues and was run because the Drum Removal Area is located within the boundary of a former firing range. The investigation determined the buried drums primarily contained CS and CS degradation

products, as well as PCBs, indicating waste in the drums was a product of the CS manufacturing process. It was determined resampling was not required for the following reasons:

- SW8318 – Carbamates were not detected in either the two samples that did not have any data qualifiers or the seven samples that exceeded the laboratory hold time. Carbamate production at the site was from a different plant than CS production. Therefore, the available data support the absence of carbamate impacts in soil in the Drum Removal Area, and further sampling was deemed unnecessary.
- SW8330B – Explosive residues were not detected in either the eight samples that did not have any data qualifiers or the one sample that exceeded laboratory hold times. These data verify the absence of explosives in the Drum Removal Area, and further sampling was deemed unnecessary.

The laboratory analytical data reports and Data Quality Evaluation memoranda were previously submitted in the *Drum Removal Area Soil Investigation Report* (Jacobs 2023a). Quality control samples were collected at the frequency specified in the *SWMU 8 Drum Removal Area Soil Investigation Work Plan* (Jacobs 2022). Samples were collected in laboratory-supplied bottle ware, packed on ice, and shipped in hard-plastic coolers overnight to Eurofins Lancaster Laboratories, Inc. A chain-of-custody was prepared for each cooler and placed within the cooler. The cooler was taped shut with chain-of-custody seals affixed. Each cooler included a temperature blank, and samples were preserved on ice during shipment to the laboratory.

3.6 Proposed Cleanup Criteria

Constituents of potential concern (COPCs) were screened against EPA RSLs for residential soil as published in November 2023. The following COPCs exceeded one or more RSLs and are considered COCs.

- Arsenic
- Malononitrile
- Polychlorinated biphenyls – Individual aroclors were compared to their respective RSLs; however, PCBs are managed by EPA under the Toxic Substances Control Act (TSCA) and total PCB concentrations were compared to TSCA values for low- and high-occupancy areas.

In addition, the following compounds that were detected above laboratory reporting limits without published RSLs and that were reasonably expected to be related to site activities were also considered COCs.

- CS
- 2-Chlorobenzaldehyde
- 2-Chlorobenzoic acid

Table 8 summarizes the proposed cleanup levels.

EPA RSLs for industrial soil are proposed as the cleanup levels for arsenic and malononitrile. The EPA RSL for industrial soil for p-chlorobenzoic acid is proposed as the cleanup level for 2-chlorobenzoic acid. The *Provisional Peer-Reviewed Toxicity Values for 2-Chlorobenzoic Acid* (EPA 2015) document indicates that 4-chlorobenzoic acid (p-chlorobenzoic acid) has a structural similarity greater than 60% to 2-chlorobenzoic acid based on EPA's DSSTox database. EPA's Comptox Chemical Dashboard indicates similar target organs (developmental and reproductive system) and point of departure for 4-chlorobenzoic acid (80 mg/kg-day based on the Lowest Observed Adverse Effect Level) and 2-chlorobenzoic acid (40 mg/kg-day based on the No Observed Effect Level). Therefore, the toxicities of the two isomers are similar. Although there is some uncertainty in the use of the surrogate isomer, it is the closest surrogate chemical available at this time. The cleanup levels are selected based on industrial soil because the site has an environmental covenant that

prohibits residential use of the property, and the industrial criteria conservatively reflect potential future land use scenarios for the site.

Because there is a lack of oral toxicity values from which to derive risk-based cleanup criteria for soil for both CS (CAS #2698-41-1) and 2-chlorobenzaldehyde (CAS #89-98-5), UCC is proposing to base the cleanup criteria for soil on the best available technology and establish the cleanup level based on the quantitation limit for these compounds.

The analytical method employed for the soil samples is SW846-8270D, gas chromatograph-mass spectrometer technology. The project laboratory, Eurofins Lancaster, developed a single point calibration from available standard reference material for both CS and 2-chlorobenzaldehyde along with additional detailed chromatographic information obtained from previous analyses reported as TICs. The calibration point represents the lowest concentration of the available reference standard that was practical and reproducible for the laboratory. Further, to assist in definitively identifying the target compounds during analysis the relative retention time and mass spectra information of each compound were used by Eurofins Lancaster.

Based on the soil data processed from the site, the laboratory has established an achievable reporting limit for future soil sampling of 0.5 mg/kg for CS and 0.17 mg/kg for 2-chlorobenaldehyde and therefore, these are the proposed cleanup criteria for these compounds.

PCB cleanup levels will meet the requirements of TSCA listed in 40 CFR 761.61 and a cleanup criterion for total PCBs of 1 mg/kg for high-occupancy sites is included in the PCB Cleanup Plan provided to EPA for review and approval (Jacobs 2023b).

None of the COPCs analyzed were detected in groundwater. Therefore, cleanup levels for groundwater are not proposed.

4. Corrective Action Alternatives

This section outlines the corrective action alternatives.

4.1 Objective

The primary objective of this CAP is to evaluate corrective action alternatives and provide a recommendation that is protective of human health and the environment based on the potential exposure pathways discussed in Section 3.4.

4.2 Corrective Action Alternatives

Three alternatives were selected for evaluation based on their ability to satisfy the project objective:

- Alternative 1: Removal and offsite disposal of CS-impacted soil
- Alternative 2: In situ management of CS-impacted surface soil with a soil cover
- Alternative 3: In situ management of CS-impacted soil with an engineered cap

Based on the results of the treatability study, alternatives for in situ or onsite treatment of CS were not considered technically feasible and were not carried forward for further evaluation.

4.2.1 Alternative 1 – Removal and Offsite Disposal of CS-Impacted Soil

This alternative generally consists of excavating CS-impacted soil with concentrations equal to or greater than 0.5 mg/kg of CS and 8.2 mg/kg of malononitrile, and soil with concentrations of PCBs exceeding 1 mg/kg. Excavated soil and the soil stockpile will be transported for offsite disposal. Confirmation sampling will be conducted to verify that impacted soil was removed. Cleanup is not required for arsenic and 2-chlorobenzoic acid because concentrations are less than the proposed cleanup level in site soil.

Prior to initiating the soil removal activities, the following preparatory activities will be completed:

- Conduct a land survey — Verify and mark the extent for soil removal based on previous investigation locations.
- Implement wildlife protection measures — Completing an assessment of the work area by a wildlife biologist before removal activities begin.
- Field staff working within SWMU 8 (where the Drum Removal Area is located) are required to complete Department of Defense 3R (Recognize, Retreat, and Report) training for MEC. A Qualified Unexploded Ordnance (UXO) Technician will be engaged to provide technical support prior to any land disturbance activities.

Soil removal activities will include the following:

- Transport the soil stockpile for offsite disposal in accordance with the applicable requirements of RCRA, TSCA, and U.S. Department of Transportation (DOT).
- Excavate soil with concentrations exceeding the proposed cleanup levels for CS and CS degradation products in Table 8 and the PCB cleanup level approved by EPA in the PCB Cleanup Plan and transport for offsite disposal in accordance with the applicable requirements of RCRA, TSCA, and DOT.
- Complete verification sampling for PCBs in accordance with the PCB Cleanup Plan (Jacobs 2023b).

- Collect confirmation samples to verify that all CS-impacted soil has been removed to less than the cleanup levels in Table 8. Samples will be collected at a minimum frequency of 1 per every 25 linear feet along the perimeter of the sidewalls of the excavation and 1 per every 625 square feet of floor area in accordance with Georgia EPD's *Guidance for Demonstrating Completion of Soil Removal Actions at Corrective Sites in Georgia* (Georgia Department of Natural Resources 2017).
- Backfill excavations with clean fill.

The existing environmental covenant will be maintained to ensure future land use remains consistent with the assumptions used to derive the proposed cleanup levels.

4.2.2 Alternative 2 – In situ Management of CS-Impacted Surface Soil with Soil Cover

This corrective action alternative generally consists of removing the soil stockpile and soils with PCB concentrations of 25 mg/kg or greater and disposing of them offsite, excavating the top 1 foot of CS-impacted soil outside of the drum area excavation, consolidating of the excavated soil in the existing drum excavation and covering the area with clean fill. The preparatory activities listed in Alternative 1 would be completed prior to initiating soil excavation activities. Cleanup is not required for arsenic because concentrations are less than the proposed cleanup level.

Soil excavation and restoration activities will include the following:

- Transport the soil stockpile offsite for disposal in accordance with the applicable requirements of RCRA, TSCA, and DOT.
- Excavate soils with PCB concentrations of 25 mg/kg or greater and transport them offsite for disposal in accordance with the applicable requirements of RCRA, TSCA, and DOT.
- Complete verification sampling for PCBs in accordance with the PCB Cleanup Plan.
- In areas outside of the existing drum excavation where surface soil concentrations of CS and CS degradation products are equal to or exceed the cleanup levels in Table 8, excavate soil to 1-foot below grade and consolidate it in the drum excavation.
- Complete confirmation sampling to verify the remaining lateral extent of the CS-impacted area. Samples will be collected at a minimum frequency of 1 per every 25 linear feet along the perimeter of the sidewalls of the excavation in accordance with Georgia EPD's *Guidance for Demonstrating Completion of Soil Removal Actions at Corrective Sites in Georgia* (Georgia Department of Natural Resources 2017).
- Place a minimum of 18 inches of clean fill over the remaining CS-impacted soil area.
- Plant native vegetation to establish a vegetated surface on the soil cover.
- Survey and install permanent perimeter markers around the CS-impacted area.

Following completion of soil excavation and restoration activities, an environmental covenant will be executed detailing the location of the CS-impacted soil management area and prohibiting land disturbance activities within its boundaries. A plan for maintenance and monitoring will be developed detailing the following:

- Inspection criteria and frequency of the vegetated cover and permanent markers;
- Triggers for maintenance activities;

- Frequency and groundwater sampling methodology for the analysis of CS constituents (CS, 2-chlorobenzaldehyde, 2-chlorobenzoic acid, and malononitrile) and PCBs at downgradient monitoring well MW-306.

The existing environmental covenant will be maintained to ensure future land use remains consistent with the assumptions used to derive the proposed cleanup levels.

4.2.3 Alternative 3 – In Situ Management of CS-Impacted Soil with Engineered Cap

This alternative generally consists of consolidating CS-impacted soil at any concentration, PCB-impacted soil with concentrations less than or equal to 100 mg/kg, and the soil stockpile into the drum excavation and covering with an engineered cap that meets the requirements of 40 CFR 761.61(a)(7), 761.75(b)(ii) through (b)(v), and 264.310(a). Cleanup is not required for arsenic because concentrations are less than the proposed cleanup level. The preparatory activities listed in Alternative 1 would be completed prior to initiating soil excavation and capping activities with the addition of:

- Design an engineered cap consisting of a compacted, low permeability soil layer covered with a geosynthetic clay layer and a vegetated cover. A conceptual design is included as Figure 8.

Soil excavation and capping activities will include the following:

- Move the stockpile soil into the drum excavation.
- Consolidate soil with CS concentrations greater than or equal to 0.5 mg/kg and PCB concentrations less than or equal to 100 mg/kg within in the drum excavation.
- Complete verification sampling in accordance with the PCB Cleanup Plan.
- Complete confirmation sampling to verify the remaining lateral extent of the CS-impacted area. Samples will be collected at a minimum frequency of 1 per every 25 linear feet along the perimeter of the sidewalls of the excavation and 1 per every 625 square feet of floor area in accordance with Georgia EPD's *Guidance for Demonstrating Completion of Soil Removal Actions at Corrective Sites in Georgia* (Georgia Department of Natural Resources 2017).
- Install the engineered cap.
- Establish a vegetated surface.
- Survey and install fencing and permanent perimeter markers.
- Execute an environmental covenant detailing the location of the capped area prohibiting land disturbance activities within its boundaries. A plan for maintenance and monitoring will be developed detailing the following:
  - Perform routine inspections and maintenance of the cap, fence, and permanent markers.
  - Perform routine groundwater sampling for the analysis of CS constituents (CS, 2-chlorobenzaldehyde, 2-chlorobenzoic acid, and malononitrile) at downgradient monitoring well MW-306.

The existing environmental covenant will be maintained to ensure future land use remains consistent with the assumptions used to derive the proposed cleanup levels.

4.3 Comparison of Corrective Action Alternatives

This section presents a detailed evaluation of the three corrective action alternatives based on the following comparison criteria:

- Effectiveness
- Implementability
- Cost

4.3.1 Effectiveness

Effectiveness is measured by an alternative's ability to achieve the following goals:

- Protect human health, including the health of workers during implementation – includes likelihood of exposure to CS and CS degradation products, potential exposure pathways, and potential for future exposure.
- Provide short-term effectiveness – Includes considerations of the time necessary to complete the corrective action.
- Provide long-term effectiveness and permanence – includes consideration of the residual risk and adequacy and reliability of post-corrective action site controls.

Alternative 1 would remove the CS-impacted soils entirely while Alternatives 2 and 3 would prevent the completion of exposure pathways by construction of exposures barriers as described in Section 4.2.

All three alternatives are protective of human health and are effective. Alternatives 2 and 3 require long-term maintenance and monitoring while Alternative 1 provides permanence by removal of the CS-impacted soil from the site.

4.3.2 Implementability

Implementability describes whether an alternative could be physically and administratively implemented. Categories used for this criterion are:

- Technical Feasibility – includes consideration of reliability of the corrective action with regard to implementation, ease of field implementation, ease of undertaking future actions related to the initial corrective action, and the ability to monitor the effectiveness of the action.
- Administrative Feasibility – includes consideration of the ease in which a corrective action could be implemented in terms of acquiring installation permits and coordinating services to support the corrective action.
- Availability of Services and Materials – includes consideration of availability of goods and services needed to support the implementation of the corrective action alternatives.
- State and Community Acceptance – includes consideration of the likelihood of state and community acceptance of the corrective action alternative.

All three alternatives are implementable with varying complexity in terms of technical and administrative coordination. Alternative 1 requires the least technical and administrative coordination due to straight forward preparations for field implementation and offsite disposal. Alternative 1 is likely the most acceptable alternative to stakeholders and the community because it eliminates the exposure pathway.

Alternatives 2 and 3 are likely to be less acceptable to stakeholders and the community than Alternative 1 due to onsite management, additional deed restrictions, and long-term monitoring and maintenance.

Alternative 3 requires the most technical and administrative coordination due to design and planning for cap installation. Also, this alternative is more dependent on the availability of goods and services needed to construct the cap. Post-closure care is similar to that of Alternative 2 but requires more monitoring and maintenance than Alternative 1.

4.3.3 Cost

Cost estimates were developed for each of the alternatives and include removal, transport, and disposal. Table 9 summarizes costs and assumptions associated with each alternative.

4.4 Proposed Corrective Action Alternative

The proposed cleanup objective is to protect human health and the environment by eliminating or limiting potential exposure pathways as detailed in Section 3.4. Alternative 1, removal and offsite disposal of CS-impacted soil, was selected because it achieves this objective and eliminates the risk of exposure to humans and the environment. Though this alternative is estimated to be more costly than Alternative 2, it is likely to be the most technically and administratively feasible. This alternative is also expected to be the most acceptable alternative to stakeholders.

Alternative 3 was not selected because it is the highest cost, requires the longest timeframe for planning and regulatory approvals, and requires long-term monitoring and maintenance. Alternative 2 was not selected because of the need for long-term monitoring and maintenance, despite having the lowest estimated cost.

5. References

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6. Certification

Groundwater Scientist Certification

"I certify that I am a qualified groundwater scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgements regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by myself or by a subordinate working under my direction."

Mark A. Sherrill

License No. PG000689
Expires 12/31/2023

Date 10/24/23

Tables

Table 1. Groundwater Elevation – October 2022

2-chlorobenzalmalononitrile Corrective Action Plan

Solid Waste Management Unit 8 - Drum Removal Area

Union Carbide Corporation

UCC-Woodbine, Camden County, Georgia

Well ID	Northing	Easting	Top of Casing Elevation	Top of Ground Elevation	October 2022		
					DTW (feet bgs)	Depth to Bottom Measurement (feet bgs)	GW Elevation
MW-301	346342.03	854900.19	21.96	20.2	11.14	16.70	9.06
MW-302	346411.367	855021.715	23.25	21.6	13.10	18.80	8.50
MW-303	346310.79	855069.3	22.68	20.9	NM*	NM*	--
MW-306	346345.95	855167.3	24.00	20.8	12.32	16.87	8.48

* Could not collect water level or depth to bottom measurements due to obstruction in the well

Notes:

Elevations shown are in North American Vertical Datum of 1988

Coordinates are referenced to the Georgia State Plane Coordinate System, East Zone (1001) and are expressed in United States Survey Feet.

Depth to water measurements were collected following well development and recovery.

bgs = below ground surface

GW = groundwater

ID = identifier

NM = not measured due to obstruction in well

Table 2. Soil Sample Results - 2020 Excavation
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

					Location ID:	FL1	FL2	FL3	FL4	FL5	FL6	WA31-1	WA31-2	WA48-1	WA48-2	WA48-3	WA48-4
					Date:	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
					Depth (feet bgs):	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
					Sample ID:	FLOOR 1_ 20201012_N_SO	FLOOR 2_ 20201012_N_SO	FLOOR 3_ 20201012_N_SO	FLOOR 4_ 20201012_N_SO	FLOOR 5_ 20201012_N_SO	FLOOR 6_ 20201012_N_SO	WA31-1_ 20201012_N_SO	WA31-2_ 20201012_N_SO	WA48-1_ 20201012_N_SO	WA48-2_ 20201012_N_SO	WA48-3_ 20201012_N_SO	WA48-4_ 20201012_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	Result Unit													
40CFR261 - 261.21	IGNITABLE TO AIR	IGNITB-AIR	--	none	--	No	--	--	--	--	--	--	--	--	--	No	--
40CFR261 - 261.21	IGNITABLE TO FLAME	IGNITB-FLAME	--	none	--	No	--	--	--	--	--	--	--	--	--	No	--
40CFR261 - 261.21	IGNITABLE TO FRICTION	IGNITB-FRICTION	--	none	--	No	--	--	--	--	--	--	--	--	--	No	--
40CFR261 - 261.21	IGNITABLE TO WATER	IGNITB-WATER	--	none	--	No	--	--	--	--	--	--	--	--	--	No	--
SW6020A	Antimony	7440-36-0	3.1	mg/kg	0.21 U	0.23 U	--	0.2 U	0.18 U	--	0.19 U	--	0.21 U	0.2 U	0.27 U	0.23 U
SW6020A	Arsenic	7440-38-2	0.68	mg/kg	**0.45 J**	**0.43 J**	--	**0.36 J**	0.95	--	**0.43 J**	--	**0.32 J**	**0.38 J**	**0.46 J**	**0.39 J**
SW6020A	Barium	7440-39-3	1500	mg/kg	**6.9**	**7.4**	--	**6.7**	**7.6**	--	**6.7**	--	**6.3**	**7.8**	**7.4**	**7.1**
SW6020A	Beryllium	7440-41-7	16	mg/kg	0.039 U	0.044 U	--	0.037 U	0.034 U	--	0.037 U	--	0.039 U	0.037 U	0.05 U	0.043 U
SW6020A	Cadmium	7440-43-9	0.71	mg/kg	0.083 U	0.093 U	--	0.079 U	0.071 U	--	0.078 U	--	0.083 U	0.078 U	0.11 U	0.092 U
SW6020A	Chromium	7440-47-3		mg/kg	**3.2**	**3.7 J**	--	**3.3**	**5.8**	--	**2.9**	--	**2.9**	**3**	**3.8**	**3.4**
SW6020A	Cobalt	7440-48-4	2.3	mg/kg	**0.21 J**	**0.19 J**	--	**0.19 J**	**0.39**	--	**0.31**	--	**0.17 J**	**0.18 J**	**0.14 J**	**0.2 J**
SW6020A	Copper	7440-50-8	310	mg/kg	**0.67**	**0.73 J**	--	**0.54 J**	**2.1**	--	**1.3**	--	**0.5 J**	**0.71**	**0.62 J**	**0.58 J**
SW6020A	Lead	7439-92-1	400	mg/kg	**4.3**	**5.9**	--	**5.2**	**4.7**	--	**4.3**	--	**3.3**	**3.7**	**4.6**	**4.2**
SW6020A	Nickel	7440-02-0	140	mg/kg	**1.3**	**1.3**	--	**1.2**	**2.3**	--	**1.5**	--	**1.1**	**1.3**	**1.2**	**1.3**
SW6020A	Selenium	7782-49-2	39	mg/kg	0.22 U	0.24 U	--	0.21 U	0.18 U	--	0.2 U	--	0.21 U	0.2 U	0.28 U	0.24 U
SW6020A	Silver	7440-22-4	39	mg/kg	0.067 U	0.075 U	--	0.064 U	0.058 U	--	0.062 U	--	0.067 U	0.063 U	0.086 U	0.074 U
SW6020A	Thallium	7440-28-0	0.078	mg/kg	0.065 U	0.072 U	--	0.062 U	0.056 U	--	0.06 U	--	0.064 U	0.061 U	0.083 U	0.071 U
SW6020A	Tin	7440-31-5	4700	mg/kg	1.6 U	1.2 U	--	1.5 U	1.6 U	--	1.7 U	--	1.7 U	1.4 U	1.5 U	1.8 U
SW6020A	Vanadium	7440-62-2	39	mg/kg	**3.2 J**	**3.3 J**	--	**3.2**	**3.4**	--	**2.9**	--	**2.9**	**3.1**	**3.5**	**3.5**
SW6020A	Zinc	7440-66-6	2300	mg/kg	**9.3 J**	**4 J**	--	**4.3 J**	**6.4 J**	--	**13 J**	--	**3.4 J**	**3 J**	**2.9 J**	**3.4 J**
SW6850	PERCHLORATE	14797-73-0	5500	µg/kg	2.3 U	2.5 U	--	2.3 U	2.3 U	--	2.3 U	--	2.3 U	2.3 U	2.5 U	2.3 U
SW7471B	Mercury	7439-97-6	1.1	mg/kg	**0.026 J**	**0.034 J**	--	**0.03 J**	**0.049 J**	--	**0.029 J**	--	0.025 U	**0.032 J**	**0.041 J**	**0.031 J**
SW8081B	Aldrin	309-00-2	39	µg/kg	6.5 U	2.6 U	--	16 U	16 U	--	**10 J**	--	3.3 U	16 U	0.54 U	16 U
SW8081B	alpha-BHC (alpha hexachlorocyclohexane)	319-84-6	86	µg/kg	3.4 U	1.4 U	--	8.4 U	8.4 U	--	3.4 U	--	1.7 U	8.5 U	0.28 U	8.4 U
SW8081B	alpha-Chlordane	5103-71-9	3600	µg/kg	4.6 U	1.8 U	--	11 U	11 U	--	4.6 U	--	2.3 U	11 U	0.37 U	11 U
SW8081B	beta-BHC (beta hexachlorocyclohexane)	319-85-7	300	µg/kg	6 U	2.4 U	--	**17 J**	15 U	--	6 U	--	3 U	15 U	0.49 U	15 U
SW8081B	delta-BHC	319-86-8	--	µg/kg	3.6 U	1.4 U	--	8.9 U	8.9 U	--	3.6 U	--	8.4 U	8.9 U	0.29 U	8.9 U
SW8081B	Dieldrin	60-57-1	34	µg/kg	**31 J**	23 U	--	16 U	**16 J**	--	**8 J**	--	3.3 U	**16 J**	0.54 U	16 U
SW8081B	Endosulfan I	959-98-8	47000	µg/kg	4.4 U	**1.9 J**	--	**18 J**	**19 J**	--	4.4 U	--	**4.5 J**	11 U	0.36 U	11 U
SW8081B	Endosulfan II	33213-65-9	47000	µg/kg	**27 J**	2.6 U	--	16 U	16 U	--	6.6 U	--	3.3 U	16 U	0.54 U	16 U
SW8081B	Endosulfan sulfate	1031-07-8	38000	µg/kg	6.5 U	2.6 U	--	16 U	16 U	--	6.6 U	--	3.3 U	16 U	0.54 U	16 U
SW8081B	Endrin	72-20-8	1900	µg/kg	6.5 U	2.6 U	--	16 U	16 U	--	6.6 U	--	**3.3 J**	16 U	0.54 U	16 U
SW8081B	Endrin aldehyde	7421-93-4	--	µg/kg	**50**	2.6 U	--	16 U	**29 J**	--	**11 J**	--	**5.5 J**	16 U	0.54 U	16 U
SW8081B	Endrin ketone	53494-70-5	--	µg/kg	6.5 U	2.6 U	--	16 U	16 U	--	6.6 U	--	**9.6 J**	16 U	0.54 U	16 U
SW8081B	gamma-BHC (lindane)	58-89-9	570	µg/kg	3.4 U	1.4 U	--	8.4 U	**12 J**	--	3.4 U	--	1.7 U	8.5 U	0.28 U	8.4 U
SW8081B	gamma-Chlordane	5103-74-2	3600	µg/kg	**9.9 J**	12 U	--	12 U	**160**	--	**7.2 J**	--	29 U	12 U	0.41 U	12 U
SW8081B	Heptaclor	76-44-8	130	µg/kg	6 U	2.4 U	--	15 U	15 U	--	6 U	--	3 U	15 U	0.49 U	15 U
SW8081B	Heptaclor epoxide	1024-57-3	70	µg/kg	3.8 U	1.5 U	--	9.4 U	**13 J**	--	**18**	--	34 U	9.4 U	0.31 U	**22 J**
SW8081B	Methoxychlor	72-43-5	32000	µg/kg	34 U	14 U	--	84 U	84 U	--	34 U	--	17 U	85 U	2.8 U	84 U
SW8081B	p,p'-DDD	72-54-8	2300	µg/kg	6.5 U	2.6 U	--	16 U	16 U	--	6.6 U	--	3.3 U	16 U	0.54 U	16 U
SW8081B	p,p'-DDE	72-55-9	2000	µg/kg	6.5 U	2.6 U	--	16 U	16 U	--	6.6 U	--	3.3 U	16 U	0.54 U	16 U
SW8081B	p,p'-DDT	50-29-3	1900	µg/kg	**18 J**	**13 J**	--	16 U	**160**	--	**12 J**	--	**44**	16 U	0.54 U	16 U
SW8081B	Toxaphene	8001-35-2	490	µg/kg	220 U	88 U	--	540 U	550 U	--	220 U	--	110 U	550 U	18 U	540 U
SW8082A	Aroclor 1016	12674-11-2	410	µg/kg	16 U	18 U	--	16 U	160 U	--	3.3 U	--	160 U	16 U	18 U	16 U
SW8082A	Aroclor 1221	11104-28-2	200	µg/kg	25 U	28 U	--	25 U	250 U	--	5.1 U	--	250 U	25 U	28 U	25 U
SW8082A	Aroclor 1232	11141-16-5	170	µg/kg	20 U	22 U	--	20 U	200 U	--	4.1 U	--	200 U	20 U	22 U	20 U
SW8082A	Aroclor 1242	53469-21-9	230	µg/kg	20 U	22 U	--	20 U	200 U	--	4.1 U	--	200 U	20 U	22 U	20 U
SW8082A	Aroclor 1248	12672-29-6	230	µg/kg	**590**	**480**	--	**620**	**8200**	--	**20**	--	**2300**	**290**	18 U	**630**
SW8082A	Aroclor 1254	11097-69-1	120	µg/kg	**400 J**	**270**	--	**310**	220 U	--	**17**	--	220 U	**220**	24 U	**350**
SW8082A	Aroclor 1260	11096-82-5	240	µg/kg	19 U	**330**	--	**200**	190 U	--	3.9 U	--	190 U	19 U	**400**	19 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	µg/kg	**990**	**1080**	--	**1130**	**8200**	--	**37**	--	**2300**	**510**	**400**	**980**
SW8141	Disulfoton	298-04-4	250	µg/kg	22 U	24 U	--	22 U	22 U	--	22 U	--	22 U	22 U	24 U	22 U
SW8141	FAMPHUR	52-85-7	--	µg/kg	18 U	19 U	--	18 U	17 U	--	18 U	--	18 U	18 U	19 U	18 U
SW8141	PARATHION, ETHYL	56-38-2	38000	µg/kg	18 U	20 U	--	18 U	18 U	--	18 U	--	18 U	18 U	20 U	18 U
SW8141	PARATHION, METHYL	298-00-0	1600	µg/kg	19 U	21 U	--	19 U	19 U	--	19 U	--	19 U	19 U	21 U	19 U
SW8141	PHORATE	298-02-2	1300	µg/kg	11 U	12 U	--	11 U	11 U	--	11 U	--	11 U	11 U	12 U	11 U

Table 2. Soil Sample Results - 2020 Excavation
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

				Location ID:	FL1	FL2	FL3	FL4	FL5	FL6	WA31-1	WA31-2	WA48-1	WA48-2	WA48-3	WA48-4
				Date:	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
				Depth (feet bgs):	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
				Sample ID:	FLOOR 1_ 20201012_N_SO	FLOOR 2_ 20201012_N_SO	FLOOR 3_ 20201012_N_SO	FLOOR 4_ 20201012_N_SO	FLOOR 5_ 20201012_N_SO	FLOOR 6_ 20201012_N_SO	WA31-1_ 20201012_N_SO	WA31-2_ 20201012_N_SO	WA48-1_ 20201012_N_SO	WA48-2_ 20201012_N_SO	WA48-3_ 20201012_N_SO	WA48-4_ 20201012_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	Result Unit												
SW8151A	2,4,5-T (Trichlorophenoxyacetic acid)	93-76-5	63000	µg/kg	0.82 U	0.89 U	--	0.81 R	0.82 U	--	0.81 U	--	0.81 U	0.82 U	0.89 U	0.82 U
SW8151A	2,4-D (Dichlorophenoxyacetic acid)	94-75-7	70000	µg/kg	12 U	13 U	--	12 U	12 U	--	12 U	--	12 U	12 U	13 U	12 U
SW8151A	Silvex (2,4,5-TP)	93-72-1	51000	µg/kg	0.75 U	0.81 U	--	0.74 U	0.75 U	--	0.74 U	--	0.74 U	0.75 U	0.82 U	0.75 U
SW8260C	1,1,1-Trichloroethane	71-55-6	810000	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	1,1,2,2-Tetrachloroethane	79-34-5	600	µg/kg	0.38 U	0.43 U	--	0.37 U	0.39 U	--	0.37 U	--	0.38 U	0.39 U	0.43 U	0.39 U
SW8260C	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	670000	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	1,1,2-Trichloroethane	79-00-5	150	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	1,1-Dichloroethane	75-34-3	3600	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	1,1-Dichloroethene	75-35-4	23000	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	1,2,4-Trichlorobenzene	120-82-1	5800	µg/kg	4.8 UJ	5.3 U	--	4.6 U	4.9 U	--	4.6 U	--	4.8 U	4.8 U	5.4 U	4.9 U
SW8260C	1,2-Dibromo-3-chloropropane	96-12-8	5.3	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	1,2-Dibromoethane (Ethylene dibromide)	106-93-4	36	µg/kg	0.38 U	0.43 U	--	0.37 U	0.39 U	--	0.37 U	--	0.38 U	0.39 U	0.43 U	0.39 U
SW8260C	1,2-Dichlorobenzene	95-50-1	180000	µg/kg	0.48 UJ	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	1,2-Dichloroethane	107-06-2	460	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	1,2-Dichloropropane	78-87-5	1600	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	1,3-Dichlorobenzene	541-73-1	--	µg/kg	0.48 UJ	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	1,4-Dichlorobenzene	106-46-7	2600	µg/kg	0.38 UJ	0.43 U	--	0.37 U	0.39 U	--	0.37 U	--	0.38 U	0.39 U	0.43 U	0.39 U
SW8260C	2-Hexanone	591-78-6	20000	µg/kg	0.96 U	1.1 U	--	0.93 U	0.98 U	--	0.93 U	--	0.96 U	0.96 U	1.1 U	0.98 U
SW8260C	Acetone	67-64-1	7000000	µg/kg	**27**	**17 J**	--	**14 J**	**27**	--	**88**	--	5.8 U	**7.3 J**	**10 J**	**10 J**
SW8260C	Benzene	71-43-2	1200	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Bromodichloromethane	75-27-4	290	µg/kg	0.38 U	0.43 U	--	0.37 U	0.39 U	--	0.37 U	--	0.38 U	0.39 U	0.43 U	0.39 U
SW8260C	Bromoform	75-25-2	19000	µg/kg	4.8 U	5.3 U	--	4.6 U	4.9 U	--	4.6 U	--	4.8 U	4.8 U	5.4 U	4.9 U
SW8260C	Bromomethane	74-83-9	680	µg/kg	0.67 U	0.75 U	--	0.65 U	0.68 U	--	0.65 U	--	0.67 U	0.67 U	0.76 U	0.69 U
SW8260C	Carbon Disulfide	75-15-0	77000	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	Carbon tetrachloride	56-23-5	650	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Chlorobenzene	108-90-7	28000	µg/kg	0.48 UJ	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Chloroethane	75-00-3	540000	µg/kg	0.96 U	1.1 U	--	0.93 U	0.98 U	--	0.93 U	--	0.96 U	0.96 U	1.1 U	0.98 U
SW8260C	Chloroform	67-66-3	320	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	Chloromethane	74-87-3	11000	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	cis-1,2-Dichloroethylene	156-59-2	6300	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	cis-1,3-Dichloropropene	10061-01-5	1800	µg/kg	0.38 U	0.43 U	--	0.37 U	0.39 U	--	0.37 U	--	0.38 U	0.39 U	0.43 U	0.39 U
SW8260C	Cyclohexane	110-82-7	650000	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Dibromochloromethane	124-48-1	8300	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Dichlorodifluoromethane	75-71-8	8700	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	Ethylbenzene	100-41-4	5800	µg/kg	0.38 UJ	0.43 U	--	0.37 U	0.39 U	--	0.37 U	--	0.38 U	0.39 U	0.43 U	0.39 U
SW8260C	Isopropylbenzene (cumene)	98-82-8	190000	µg/kg	0.38 UJ	0.43 U	--	0.37 U	0.39 U	--	0.37 U	--	0.38 U	0.39 U	0.43 U	0.39 U
SW8260C	Methyl acetate	79-20-9	7800000	µg/kg	0.96 U	1.1 U	--	0.93 U	0.98 U	--	0.93 U	--	0.96 U	0.96 U	1.1 U	0.98 U
SW8260C	Methyl ethyl ketone (2-Butanone)	78-93-3	2700000	µg/kg	1.9 U	2.1 U	--	1.9 U	2 U	--	1.9 U	--	1.9 U	1.9 U	2.2 U	2 U
SW8260C	Methyl isobutyl ketone (4-Methyl-2-pentanone)	108-10-1	3300000	µg/kg	0.96 U	1.1 U	--	0.93 U	0.98 U	--	0.93 U	--	0.96 U	0.96 U	1.1 U	0.98 U
SW8260C	Methylcyclohexane	108-87-2	9800	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	Methylene chloride	75-09-2	35000	µg/kg	1.9 U	2.1 U	--	1.9 U	2 U	--	1.9 U	--	1.9 U	1.9 U	2.2 U	2 U
SW8260C	Styrene	100-42-5	600000	µg/kg	0.38 UJ	0.43 U	--	0.37 U	0.39 U	--	0.37 U	--	0.38 U	0.39 U	0.43 U	0.39 U
SW8260C	tert-Butyl methyl ether	1634-04-4	47000	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Tetrachloroethylene (PCE)	127-18-4	8100	µg/kg	0.48 UJ	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Toluene	108-88-3	490000	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	trans-1,2-Dichloroethylene	156-60-5	7000	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	trans-1,3-Dichloropropene	10061-02-6	1800	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Trichloroethylene (TCE)	79-01-6	410	µg/kg	0.48 U	0.53 U	--	0.46 U	0.49 U	--	0.46 U	--	0.48 U	0.48 U	0.54 U	0.49 U
SW8260C	Trichlorofluoromethane	75-69-4	2300000	µg/kg	0.67 U	0.75 U	--	0.65 U	0.68 U	--	0.65 U	--	0.67 U	0.67 U	0.76 U	0.69 U
SW8260C	Vinyl chloride	75-01-4	59	µg/kg	0.58 U	0.64 U	--	0.56 U	0.59 U	--	0.56 U	--	0.58 U	0.58 U	0.65 U	0.59 U
SW8260C	Xylenes, Total	XYLENES	58000	µg/kg	1.3 UJ	1.5 U	--	1.3 U	1.4 U	--	1.3 U	--	1.3 U	1.3 U	1.5 U	1.4 U
SW8270D	2,4,5-Trichlorophenol	95-95-4	630000	µg/kg	16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	2,4,6-Trichlorophenol	88-06-2	6300	µg/kg	16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	2,4-Dichlorophenol	120-83-2	19000	µg/kg	16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	2,4-Dimethylphenol	105-67-9	130000	µg/kg	43 U	47 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	47 U	43 U
SW8270D	2,4-Dinitrophenol	51-28-5	13000	µg/kg	400 U	430 U	400 U	400 U	390 U	400 U	400 U	400 U	400 U	390 U	440 U	390 U

Table 2. Soil Sample Results - 2020 Excavation
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

					Location ID:	FL1	FL2	FL3	FL4	FL5	FL6	WA31-1	WA31-2	WA48-1	WA48-2	WA48-3	WA48-4
					Date:	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
					Depth (feet bgs):	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
					Sample ID:	FLOOR 1_ 20201012_N_SO	FLOOR 2_ 20201012_N_SO	FLOOR 3_ 20201012_N_SO	FLOOR 4_ 20201012_N_SO	FLOOR 5_ 20201012_N_SO	FLOOR 6_ 20201012_N_SO	WA31-1_ 20201012_N_SO	WA31-2_ 20201012_N_SO	WA48-1_ 20201012_N_SO	WA48-2_ 20201012_N_SO	WA48-3_ 20201012_N_SO	WA48-4_ 20201012_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	Result Unit													
SW8270D	2,4-Dinitrotoluene	121-14-2	1700	µg/kg		66 U	72 U	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	2,6-Dinitrotoluene	606-20-2	360	µg/kg		16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	2-CHLOROBENZALDEHYDE	89-98-5	--	µg/kg		**130 J**	36 U	**2300**	**21000**	**400**	**500**	**960**	**820**	**68 J**	**350**	36 U	**700**
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	µg/kg		**5000**	180 U	**990000**	**16000**	**38000**	**220000**	**7300**	**260000**	**2100**	**12000**	180 U	**92000**
SW8270D	2-Chloronaphthalene	91-58-7	480000	µg/kg		6.6 U	7.2 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.7 U	6.6 U	6.6 U	7.3 U	6.6 U
SW8270D	2-Chlorophenol	95-57-8	39000	µg/kg		16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	2-Methylnaphthalene	91-57-6	24000	µg/kg		6.6 UJ	7.2 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.7 UJ	6.6 UJ	6.6 UJ	7.3 UJ	6.6 UJ
SW8270D	2-Methylphenol(O-Cresol)	95-48-7	320000	µg/kg		20 U	22 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	22 U	20 U
SW8270D	2-Nitroaniline	88-74-4	63000	µg/kg		16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	2-Nitrophenol	88-75-5	--	µg/kg		20 U	22 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	22 U	20 U
SW8270D	3,3'-Dichlorobenzidine	91-94-1	1200	µg/kg		99 U	110 U	99 U	99 U	99 U	99 U	100 U	100 U	99 U	99 U	110 U	99 U
SW8270D	3-Nitroaniline	99-09-2	--	µg/kg		66 U	72 U	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	4,6-Dinitro-2-Methylphenol	534-52-1	510	µg/kg		160 U	180 U	170 U	170 U	160 U	170 U	170 U	170 U	170 U	160 U	180 U	160 U
SW8270D	4-Bromophenyl phenyl ether	101-55-3	--	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	4-Chloro-3-Methylphenol	59-50-7	630000	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	4-Chloroaniline	106-47-8	2700	µg/kg		33 U	36 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	36 U	33 U
SW8270D	4-Chlorophenyl phenyl ether	7005-72-3	--	µg/kg		16 UJ	18 U	17 U	17 U	16 U	17 U	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	4-Methylphenol (P-Cresol)	106-44-5	130000	µg/kg		16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	4-Nitroaniline	100-01-6	25000	µg/kg		66 U	72 U	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	4-Nitrophenol	100-02-7	--	µg/kg		160 UJ	180 UJ	170 UJ	170 UJ	160 UJ	170 UJ	170 UJ	170 UJ	170 UJ	160 UJ	180 UJ	160 UJ
SW8270D	Acenaphthene	83-32-9	360000	µg/kg		6.6 UJ	7.2 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.7 UJ	6.6 UJ	6.6 UJ	7.3 UJ	6.6 UJ
SW8270D	Acenaphthylene	208-96-8	--	µg/kg		6.6 U	7.2 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.7 U	6.6 U	6.6 U	7.3 U	6.6 U
SW8270D	Acetophenone	98-86-2	780000	µg/kg		16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	Anthracene	120-12-7	1800000	µg/kg		3.3 UJ	3.6 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.6 UJ	3.3 UJ
SW8270D	Atrazine	1912-24-9	2400	µg/kg		33 U	36 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	36 U	33 U
SW8270D	Benzaldehyde	100-52-7	170000	µg/kg		66 U	**79 J**	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	Benzo (a) anthracene	56-55-3	1100	µg/kg		3.3 U	3.6 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.6 U	3.3 U
SW8270D	Benzo (a) pyrene	50-32-8	110	µg/kg		3.3 UJ	3.6 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.6 UJ	3.3 UJ
SW8270D	Benzo (b) fluoranthene	205-99-2	1100	µg/kg		3.3 U	3.6 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.6 U	3.3 U
SW8270D	Benzo (g,h,i) perylene	191-24-2	--	µg/kg		3.3 U	3.6 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.6 U	3.3 U
SW8270D	Benzo (k) fluoranthene	207-08-9	11000	µg/kg		3.3 UJ	3.6 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.6 UJ	3.3 UJ
SW8270D	Benzyl butyl phthalate	85-68-7	290000	µg/kg		66 U	72 U	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	Biphenyl (diphenyl)	92-52-4	4700	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	Bis(2-Chloroethoxy) methane	111-91-1	19000	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	Bis(2-Chloroethyl) ether	111-44-4	230	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	Bis(2-Chloroisopropyl) ether	108-60-1	310000	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	Bis(2-Ethylhexyl) phthalate	117-81-7	39000	µg/kg		66 U	72 U	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	Caprolactam	105-60-2	3100000	µg/kg		33 U	36 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	36 U	33 U
SW8270D	Carbazole	86-74-8	--	µg/kg		16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	Chrysene	218-01-9	110000	µg/kg		3.3 UJ	3.6 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.6 UJ	3.3 UJ
SW8270D	Dibenz (a,h) anthracene	53-70-3	110	µg/kg		6.6 U	7.2 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.7 U	6.6 U	6.6 U	7.3 U	6.6 U
SW8270D	Dibenzofuran	132-64-9	7800	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	Diethyl phthalate	84-66-2	5100000	µg/kg		66 UJ	72 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	67 UJ	66 UJ	66 UJ	73 UJ	66 UJ
SW8270D	Dimethyl phthalate	131-11-3	--	µg/kg		66 U	72 U	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	Di-n-Butyl phthalate	84-74-2	630000	µg/kg		66 U	72 U	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	Di-n-Octyl phthalate	117-84-0	63000	µg/kg		66 U	72 U	66 U	66 U	66 U	66 U	66 U	67 U	66 U	66 U	73 U	66 U
SW8270D	Fluoranthene	206-44-0	240000	µg/kg		3.3 U	**3.6 J**	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.6 U	3.3 U
SW8270D	Fluorene	86-73-7	240000	µg/kg		6.6 UJ	7.2 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.7 UJ	6.6 UJ	6.6 UJ	7.3 UJ	6.6 UJ
SW8270D	Hexachlorobenzene	118-74-1	78	µg/kg		3.3 UJ	3.6 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.6 UJ	3.3 UJ
SW8270D	Hexachlorobutadiene	87-68-3	1200	µg/kg		20 UJ	22 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	22 UJ	20 UJ
SW8270D	Hexachlorocyclopentadiene	77-47-4	180	µg/kg		160 UJ	180 UJ	170 UJ	170 UJ	160 UJ	170 UJ	170 UJ	170 UJ	170 UJ	160 UJ	180 UJ	160 UJ
SW8270D	Hexachloroethane	67-72-1	1800	µg/kg		33 UJ	36 UJ	33 UJ	33 UJ	33 UJ	33 UJ	33 UJ	33 UJ	33 UJ	33 UJ	36 UJ	33 UJ
SW8270D	Indeno (1,2,3-c,d) pyrene	193-39-5	1100	µg/kg		3.3 U	3.6 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.6 U	3.3 U
SW8270D	Isophorone	78-59-1	570000	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	Naphthalene	91-20-3	2000	µg/kg		9.9 UJ	11 UJ	9.9 UJ	9.9 UJ	9.9 UJ	9.9 UJ	10 UJ	10 UJ	9.9 UJ	9.9 UJ	11 UJ	9.9 UJ
SW8270D	Nitrobenzene	98-95-3	5100	µg/kg		20 U	22 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	22 U	20 U

Table 2. Soil Sample Results - 2020 Excavation
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

					Location ID:	FL1	FL2	FL3	FL4	FL5	FL6	WA31-1	WA31-2	WA48-1	WA48-2	WA48-3	WA48-4
					Date:	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
					Depth (feet bgs):	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
					Sample ID:	FLOOR 1_ 20201012_N_SO	FLOOR 2_ 20201012_N_SO	FLOOR 3_ 20201012_N_SO	FLOOR 4_ 20201012_N_SO	FLOOR 5_ 20201012_N_SO	FLOOR 6_ 20201012_N_SO	WA31-1_ 20201012_N_SO	WA31-2_ 20201012_N_SO	WA48-1_ 20201012_N_SO	WA48-2_ 20201012_N_SO	WA48-3_ 20201012_N_SO	WA48-4_ 20201012_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	Result Unit													
SW8270D	N-Nitrosodi-N-propylamine	621-64-7	78	µg/kg		16 UJ	18 UJ	17 UJ	17 UJ	16 UJ	17 UJ	17 UJ	17 UJ	17 UJ	16 UJ	18 UJ	16 UJ
SW8270D	N-Nitrosodiphenylamine	86-30-6	110000	µg/kg		16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	Pentachlorophenol	87-86-5	1000	µg/kg		40 U	43 U	40 U	40 U	39 U	40 U	40 U	40 U	40 U	39 U	44 U	39 U
SW8270D	Phenanthrene	85-01-8	--	µg/kg		3.3 U	3.6 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.6 U	3.3 U
SW8270D	Phenol	108-95-2	1900000	µg/kg		16 U	18 U	17 U	17 U	16 U	17 U	17 U	17 U	17 U	16 U	18 U	16 U
SW8270D	Pyrene	129-00-0	180000	µg/kg		3.3 UJ	**4.2 J**	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.6 UJ	3.3 UJ
SW8270D	Quinoline	91-22-5	180	µg/kg		33 U	36 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	33 U	36 U	33 U
SW8318	2-(1-METHYLETHOXY) PHENOL METHYLCARBAMATE	114-26-1	25000	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	3-HYDROXYCARBOFURAN	16655-82-6	--	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	Aldicarb (sulfide, sulfoxide, and sulfone)	116-06-3	6300	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	Aldicarb sulfone	1646-88-4	6300	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	Aldicarb sulfoxide	1646-87-3		µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	CARBOFURAN	1563-66-2	32000	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	Methiocarb	2032-65-7	--	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	Methomyl	16752-77-5	160000	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	Oxamyl (Vydate)	23135-22-0	160000	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8318	Sevin (Carbaryl)	63-25-2	630000	µg/kg		49 R	54 U	--	49 R	49 R	--	50 R	--	49 R	50 R	55 U	50 R
SW8330B	2,4-DIAMINO-6-NITROTOLUENE	6629-29-4	--	µg/kg		120 U	130 U	--	120 U	120 U	--	120 U	--	120 U	120 U	130 U	120 U
SW8330B	2,4-Dinitrotoluene	121-14-2	1700	µg/kg		36 U	38 U	--	36 U	35 U	--	35 U	--	35 U	36 U	39 U	35 U
SW8330B	2,6-DIAMINO-4-NITROTOLUENE	59229-75-3	--	µg/kg		120 U	130 U	--	120 U	120 U	--	120 U	--	120 U	120 U	130 U	120 U
SW8330B	2-AMINO-4,6-DINITROTOLUENE	35572-78-2	770	µg/kg		97 R	100 U	--	97 U	96 U	--	95 U	--	96 U	97 U	110 U	95 U
SW8330B	2-NITROTOLUENE	88-72-2	3200	µg/kg		73 R	77 U	--	73 U	73 U	--	72 U	--	73 U	73 U	81 U	72 U
SW8330B	3,5-DINITROANILINE	618-87-1	2500	µg/kg		47 R	49 U	--	47 U	46 U	--	46 U	--	46 U	47 U	51 U	46 U
SW8330B	3-Nitrotoluene	99-08-1	630	µg/kg		48 R	50 U	--	48 U	47 U	--	47 U	--	47 U	48 U	52 U	47 U
SW8330B	4-AMINO-2,6-DINITROTOLUENE	19406-51-0	770	µg/kg		30 R	31 U	--	30 U	29 U	--	29 U	--	29 U	30 U	33 U	29 U
SW8330B	4-Nitrotoluene	99-99-0	25000	µg/kg		53 R	56 U	--	53 U	53 U	--	52 U	--	53 U	53 U	59 U	52 U
SW8330B	HMX	2691-41-0	390000	µg/kg		70 R	74 U	--	70 U	70 U	--	69 U	--	70 U	70 U	77 U	69 U
SW8330B	NITROGLYCERIN	55-63-0	630	µg/kg		750 R	790 U	--	750 U	750 U	--	740 U	--	750 U	750 U	830 U	740 U
SW8330B	PENTAERYTHRITOL TETRANITRATE	78-11-5	57000	µg/kg		990 R	1000 U	--	990 U	980 U	--	970 U	--	980 U	990 U	1100 U	970 U
SW9012B	Cyanide	57-12-5	2.3	mg/kg		0.17 U	0.2 U	--	**0.45 J**	0.17 U	--	**0.73**	--	0.18 U	0.17 U	**0.23 J**	0.17 U
SW9034	Sulfide, Reactive	18496-25-8	--	mg/kg		48 R	52 R	--	**150 J**	50 R	--	48 R	--	**51 J**	48 R	55 R	50 R

Notes:
Bold cells reflect a detected result
Bold and shaded cells reflect a detect exceeding criteria
Non-bold and shaded cells reflect a nondetect exceeding criteria
J = The analyte or compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
R = The analyte or compound was determined to be unusable as a result of the data validation process. (Note: analyte or compound may or may not be present in the sample media.)
UJ = The analyte or compound was not detected exceeding the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.
bgs = below ground surface
mg/kg = milligrams per kilogram
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
µg/kg = microgram(s) per kilogram

Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	FL1	FL1	FL2	FL3	FL4	FL5	FL6	FL6	HE1	HE1	HE2	HE2	HE3	HE3
						Date:	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	8/10/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021
						Depth (feet bgs):	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5
						Sample ID:	FLOOR 1_ 20201012_N_SO	FLOOR 1_ 20201012_FD_SO	FLOOR 2_ 20201012_N_SO	FLOOR 3_ 20201012_N_SO	FLOOR 4_ 20201012_N_SO	FLOOR 5_ 20201012_N_SO	FLOOR 6_ 20201012_N_SO	FL-6_20210810_ N_SO	HE-1_000H_ 20210811_N_SO	HE-1_0H02_ 20210811_N_SO	HE-2_000H_ 20210811_N_SO	HE-2_0H02_ 20210811_N_SO	HE-3_000H_ 20210811_N_SO	HE-3_000H_ 20210811_FD_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit														
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	16 U	16 U	18 U	--	16 U	160 U	--	--	--	3.3 UJ	17 UJ	3.5 UJ	17 UJ	16 UJ
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	25 U	25 U	28 U	--	25 U	250 U	--	--	--	5.1 UJ	27 UJ	5.3 UJ	27 UJ	25 UJ
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	20 U	20 U	22 U	--	20 U	200 U	--	--	--	4.1 UJ	22 UJ	4.3 UJ	22 UJ	20 UJ
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	20 U	20 U	22 U	--	20 U	200 U	--	--	--	4.1 UJ	22 UJ	4.3 UJ	22 UJ	20 UJ
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	590	640	480	--	620	8,200	--	--	--	68 J	170 J	3.5 UJ	820 J	1,100 J
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	400 J	22 UJ	270	--	310	220 U	--	--	--	4.4 UJ	110 J	4.6 UJ	510 J	780 J
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	19 U	19 U	330	--	200	190 U	--	--	--	3.9 UJ	21 UJ	14 J	21 UJ	19 UJ
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	990	640	*1,080*	--	*1,130*	*8,200*	--	--	--	68	280	14	*1,330*	*1,880*
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	130 J	130 J	36 U	2,300	21,000	400	500	6,500 J	320	33 U	35 U	35 U	35 U	130 J
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	5,000	5,800	180 U	990,000	16,000	38,000	220,000	140,000 J	81,000	720	180 U	170 U	180 U	340 J
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes

Bold cells reflect a detected result

Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg

Non-bold and shaded cells reflect a nondetect exceeding criteria

Bold and italicized cells reflect a detect exceeding TSCA value of 1,000 µg/kg

J = The analyte or compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
R = The analyte or compound was determined to be unusable as a result of the data validation process. (Note: analyte or compound may or may not be present in the sample media.)
UJ = The analyte or compound was not detected exceeding the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.
-- = Not analyzed or a criteria value is not available
µg/kg = microgram(s) per kilogram
bgs = below ground surface
CAS = Chemical Abstracts Service
ID = identifier
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act

Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	HE3	HE4	HE4	HE5	HE5	HE 6	HE6	HE7	HE7	HE7	HE8	HE8	WA31-1	WA31-2
						Date:	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	8/11/2021	10/12/2020	10/12/2020
						Depth (feet bgs):	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5
						Sample ID:	HE-3_0H02_ 20210811_N_SO	HE-4_000H_ 20210811_N_SO	HE-4_0H02_ 20210811_N_SO	HE-5_000H_ 20210811_N_SO	HE-5_0H02_ 20210811_N_SO	HE-6_000H_ 20210811_N_SO	HE-6_0H02_ 20210811_N_SO	HE-7_000H_ 20210811_N_SO	HE-7_000H_ 20210811_FD_SO	HE-7_0H02_ 20210811_N_SO	HE-8_000H_ 20210811_N_SO	HE-8_0H02_ 20210811_N_SO	WA31-1_ 20201012_N_SO	WA31-2_ 20201012_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit														
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	17 UJ	--	33 UJ	3.7 UJ	3.5 UJ	3.6 UJ	3.5 UJ	3.6 UJ	3.6 UJ	3.5 UJ	--	3.5 UJ	3.3 U	--
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	27 UJ	--	51 UJ	5.7 UJ	5.5 UJ	5.6 UJ	5.5 UJ	5.6 UJ	5.6 UJ	5.4 UJ	--	5.4 UJ	5.1 U	--
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	22 UJ	--	41 UJ	4.6 UJ	4.4 UJ	4.5 UJ	4.4 UJ	4.5 UJ	4.5 UJ	4.4 UJ	--	4.3 UJ	4.1 U	--
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	22 UJ	--	41 UJ	4.6 UJ	4.4 UJ	4.5 UJ	4.4 UJ	4.5 UJ	4.5 UJ	4.4 UJ	--	4.3 UJ	4.1 U	--
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	230 J	--	2,400 J	16 J	3.5 UJ	3.6 UJ	3.5 UJ	11 J	9.6 J	3.5 UJ	--	3.5 UJ	20	--
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	130 J	--	1,400 J	18 J	4.7 UJ	32	4.7 UJ	16 J	11 J	4.7 UJ	--	4.6 UJ	17	--
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	21 UJ	--	39 UJ	4.4 UJ	4.2 UJ	4.3 UJ	4.2 UJ	4.3 UJ	4.3 UJ	4.1 UJ	--	4.1 UJ	3.9 U	--
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	360	--	*3,800*	34	0	32	0	27	20.6	0	--	0	37	--
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	35 U	33,000	150 J	37 U	36 U	37 U	36 U	36 U	37 U	36 U	33 U	35 U	960	820
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	170 U	6,300,000	760	190 U	180 U	180 U	180 U	180 U	180 U	180 U	6,900	180 U	7,300	260,000
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes

Bold cells reflect a detected result

Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg

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-- = Not analyzed or a criteria value is not available
µg/kg = microgram(s) per kilogram
bgs = below ground surface
CAS = Chemical Abstracts Service
ID = identifier
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act

Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	WA31-2	WA48-1	WA48-2	WA48-2	WA48-3	WA48-4	WA48-4	A3	A3	A3	A4	A4	A5	A5
						Date:	8/10/2021	10/12/2020	10/12/2020	8/10/2021	10/12/2020	10/12/2020	8/10/2021	10/24/2022	10/24/2022	10/24/2022	10/25/2022	10/25/2022	5/13/2022	5/13/2022
						Depth (feet bgs):	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0
						Sample ID:	WA31-2_20210810_N_SO	WA48-1_20201012_N_SO	WA48-2_20201012_N_SO	WA48-2_20210810_N_SO	WA48-3_20201012_N_SO	WA48-4_20201012_N_SO	WA48-4_20210810_N_SO	A3_20221024_0-0.5_ft_N_SO	A3_20221024_0-0.5_ft_FD_SO	A3_20221024_0.5-2_ft_N_SO	A4_20221025_0-0.5_ft_N_SO	A4_20221025_0.5-2_ft_N_SO	A5-0005_20220513_N_SO	A5-0520_20220513_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit														
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	--	160 U	16 U	--	18 U	16 U	--	3.5 U	3.5 U	3.5 U	160 U	17 U	160 U	3.4 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	--	250 U	25 U	--	28 U	25 U	--	5.5 U	5.4 U	5.3 U	250 U	26 U	250 U	5.2 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	--	200 U	20 U	--	22 U	20 U	--	4.4 U	4.4 U	4.3 U	200 U	21 U	200 U	4.2 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	--	200 U	20 U	--	22 U	20 U	--	4.4 U	4.4 U	4.3 U	200 U	21 U	200 U	4.2 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	--	2,300	290	--	18 U	630	--	3.5 U	3.5 U	3.5 U	6,400	250	7,900	110
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	--	220 U	220	--	24 U	350	--	10 J	12 J	4.6 U	220 U	23 U	220 U	4.5 U
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	--	190 U	19 U	--	400	19 U	--	4.2 U	4.2 U	4.1 U	190 U	20 U	190 U	4.0 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	--	*2,300*	510	--	400	980	--	10	12	0	*6,400*	250	7,900	110
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	33 UJ	68 J	350	920 J	36 U	700	36 UJ	35 U	35 U	35 U	670	34 U	1,300	34 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	500 J	2,100	12,000	100,000 J	180 U	92,000	180 UJ	180 U	180 U	170 U	3,000	170 U	3,600	170 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	--	--	--	--	--	--	--	180 U	180 U	170 U	290	170 U	1,700	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	--	--	--	--	--	--	--	35 U	35 U	35 U	33 U	34 U	33 U	34 U

Notes
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Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	A6	A6	A7	A7	A10	A10	B10	B10	B10	B2	B2	B2	B2	B3	B3
						Date:	5/13/2022	5/13/2022	5/13/2022	5/13/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	5/12/2022	10/25/2022	5/12/2022	10/25/2022	5/13/2022	5/13/2022
						Depth (feet bgs):	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.5-2.0
						Sample ID:	A6-0005_20220513_N_SO	A6-0520_20220513_N_SO	A7-0005_20220513_N_SO	A7-0520_20220513_N_SO	A10_20221024_0-0.5_ft_N_SO	A10_20221024_0.5-2_ft_N_SO	B10_20221024_0-0.5_ft_N_SO	B10_20221024_0-0.5_ft_FD_SO	B10_20221024_0.5-2_ft_N_SO	B2-0005_20220512_N_SO	B2_20221025_0-0.5_ft_N_SO	B2-0520_20220512_N_SO	B2_20221025_0.5-2_ft_N_SO	B3-0005_20220513_N_SO	B3-0520_20220513_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit															
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	330 U	3.4 U	330 U	16 U	3.7 U	3.5 U	3.3 U	3.4 U	3.5 U	--	3.3 UJ	--	3.3 U	32 U	3.4 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	510 U	5.2 U	510 U	25 U	5.7 U	5.4 U	5.2 U	5.3 U	5.4 U	--	5.1 UJ	--	5.1 U	50 U	5.2 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	410 U	4.2 U	410 U	20 U	4.6 U	4.3 U	4.2 U	4.2 U	4.4 U	--	4.1 UJ	--	4.1 U	40 U	4.2 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	410 U	4.2 U	410 U	20 U	4.6 U	4.3 U	4.2 U	4.2 U	4.4 U	--	4.1 UJ	--	4.1 U	40 U	4.2 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	24,000	25	15,000	600	100	3.5 U	3.3 U	14 J	3.5 U	--	38 J	--	3.3 U	2,000	46
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	440 U	4.5 U	440 U	22 U	84	4.6 U	4.5 U	4.6 U	4.7 U	--	4.4 UJ	--	4.4 U	43 U	4.5 U
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	390 U	4.0 U	390 U	19 U	4.3 U	4.1 U	4.0 U	4.0 U	4.2 U	--	3.9 UJ	--	3.9 U	38 U	4.0 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	*24,000*	25	*15,000*	600	184	0	0	14	0	--	38	--	0	*2,000*	46
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	11,000	34 U	1,600,000 J	84 J	37 U	35 U	34 U	34 U	35 U	34 U	--	33 U	--	160 J	34 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	320,000	170 U	41,000,000	350 J	180 U	180 U	170 U	170 U	180 U	170 U	--	330 J	--	6,000	170 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	5,500	170 U	17,000 U	160 U	180 U	180 U	170 U	170 U	180 U	170 U	--	170 U	--	170 U	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	3,600	34 U	500,000	33 U	37 U	35 U	34 U	34 U	35 U	34 U	--	33 U	--	33 U	34 U

Notes

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Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	B3	B4	B4	B5	B5	B6	B6	B7	B7	B8	B8	B9	B9	C1
						Date:	5/13/2022	5/12/2022	5/12/2022	5/13/2022	5/13/2022	5/13/2022	5/13/2022	5/13/2022	5/13/2022	10/25/2022	10/25/2022	10/24/2022	10/24/2022	5/12/2022
						Depth (feet bgs):	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
						Sample ID:	B3-0520_ 20220513_FD_SO	B4-0005_ 20220512_N_SO	B4-0520_ 20220512_N_SO	B5-0005_ 20220513_N_SO	B5-0520_ 20220513_N_SO	B6-0005_ 20220513_N_SO	B6-0520_ 20220513_N_SO	B7-0005_ 20220513_N_SO	B7-0520_ 20220513_N_SO	B8_20221025 _0-0.5_ft_N_SO	B8_20221025 _0.5-2_ft_N_SO	B9_20221024 _0-0.5_ft_N_SO	B9_20221024 _0.5-2_ft_N_SO	C1-0005_ 20220512_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit															
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	3.4 U	65 R	3.4 U	170 U	3.4 U	66 U	3.4 U	66 U	3.3 U	65 U	3.7 U	330 U	3.5 U	--
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	5.2 U	100 U	5.3 U	260 U	5.3 U	100 U	5.2 U	100 U	5.2 U	100 U	5.8 U	510 U	5.3 U	--
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	4.2 U	81 U	4.2 U	210 U	4.3 U	81 U	4.2 U	82 U	4.2 U	81 U	4.6 U	410 U	4.3 U	--
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	4.2 U	81 U	4.2 U	210 U	4.3 U	81 U	4.2 U	82 U	4.2 U	81 U	4.6 U	410 U	4.3 U	--
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	68	3,500	52	9,400	110	2,900	20	4,800	88	4,500	87	14,000	26	--
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	4.5 U	2,000	4.6 U	220 U	4.6 U	87 U	4.5 U	88 U	4.5 U	3,000	5.0 U	440 U	4.6 U	--
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	4.0 U	77 R	4.0 U	200 U	4.0 U	77 U	4.0 U	78 U	4.0 U	77 U	4.4 U	390 U	4.1 U	--
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	68	*5,500*	52	*9,400*	110	*2,900*	20	*4,800*	88	*7,500*	87	*14,000*	26	--
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	35 U	150 J	34 U	39,000	34 U	510	34 U	1,800	34 U	2,800	38 U	2,600	35 U	33 J
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	170 U	3,700	170 J	62,000	170 U	2,500	170 U	9,000	170 U	12,000	190 U	33,000	170 U	170 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	170 U	170 U	860	170 U	160 U	170 U	480	170 U	990	190 U	160 U	170 U	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	35 U	33 U	34 U	2,000	34 U	33 U	34 U	33 U	34 U	200	38 U	33 U	35 U	33 U

Notes

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Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	C1	C1	C1	C2	C2	C4	C4	C5	C5	C6	C6	C7	C7	C8	C8
						Date:	10/25/2022	5/12/2022	10/25/2022	10/25/2022	10/25/2022	5/13/2022	5/13/2022	5/12/2022	5/12/2022	5/13/2022	5/13/2022	5/13/2022	5/13/2022	10/24/2022	10/24/2022
						Depth (feet bgs):	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0
						Sample ID:	C1_20221025_0-0.5_ft_N_SO	C1-0520_20220512_N_SO	C1_20221025_0.5-2_ft_N_SO	C2_20221025_0-0.5_ft_N_SO	C2_20221025_0.5-2_ft_N_SO	C4-0005_20220513_N_SO	C4-0520_20220513_N_SO	C5-0005_20220512_N_SO	C5-0520_20220512_N_SO	C6-0005_20220513_N_SO	C6-0520_20220513_N_SO	C7-0005_20220513_N_SO	C7-0520_20220513_N_SO	C8_20221024_0-0.5_ft_N_SO	C8_20221024_0.5-2_ft_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit															
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	33 U	--	3.3 U	66 U	3.5 U	650 U	33 U	160 U	16 U	160 U	3.3 U	330 U	16 U	160 U	3.3 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	51 U	--	5.1 U	100 U	5.3 U	1,000 U	50 U	250 U	25 U	250 U	5.0 U	500 U	25 U	250 U	5.0 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	41 U	--	4.1 U	82 U	4.3 U	810 U	41 U	200 U	20 U	200 U	4.0 U	410 U	20 U	200 U	4.0 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	41 U	--	4.1 U	82 U	4.3 U	810 U	41 U	200 U	20 U	200 U	4.0 U	410 U	20 U	200 U	4.0 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	2,000	--	28	2,900	32	29,000	580	6,200	580	8,300	200	19,000	460	9,400	86
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	44 U	--	4.4 U	88 U	4.6 U	14,000	320	220 U	22 U	3,800	93	9,100	220	220 U	41
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	39 U	--	3.9 U	78 U	4.1 U	770 U	39 U	190 U	19 U	190 U	3.8 U	390 U	19 U	190 U	3.8 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	*2,000*	--	28	*2,900*	32	*43,000*	900	*6,200*	580	*12,100*	293	*28,100*	680	*9,400*	127
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	--	34 U	--	100 J	35 U	16,000	33 U	1,300	1,800	22,000	360	4,300	1,600	950	54 J
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	--	170 U	--	430 J	170 U	5,800,000	270 J	19,000	560,000	1,800,000	2,600	36,000	5,600	42,000	3,500
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	--	170 U	--	170 U	170 U	170 U	170 U	170 U	610	9,900	170 U	460	170 U	170 U	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	--	34 U	--	33 U	35 U	36,000	33 U	2,100	5,700	22,000	33 U	33 U	33 U	33 U	33 U

Notes

Bold cells reflect a detected result

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TSCA = Toxic Substances Control Act

Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	C9	C9	D0	D0	D1	D1	D1	D2	D2	D2	D2	D2	D3	D3	D4
						Date:	10/26/2022	10/26/2022	10/25/2022	10/25/2022	10/24/2022	10/24/2022	10/24/2022	5/12/2022	10/25/2022	5/12/2022	5/12/2022	10/25/2022	5/13/2022	5/13/2022	5/13/2022
						Depth (feet bgs):	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.0-0.5	0.5-2.0	0.5-2.0	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
						Sample ID:	C9_20221026_0-0.5_ft_N_SO	C9_20221026_0.5-2_ft_N_SO	D0_20221025_0-0.5_ft_N_SO	D0_20221025_0.5-2_ft_N_SO	D1_20221024_0-0.5_ft_N_SO	D1_20221024_0.5-2_ft_N_SO	D1_20221024_0.5-2_ft_FD_SO	D2-0005_20220512_N_SO	D2_20221025_0-0.5_ft_N_SO	D2-0520_20220512_N_SO	D2-0520_20220512_FD_SO	D2_20221025_0.5-2_ft_N_SO	D3-0005_20220513_N_SO	D3-0520_20220513_N_SO	D4-0005_20220513_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit																
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	3.3 UJ	3.4 U	3.4 U	3.4 U	17 U	3.5 U	3.5 U	--	160 U	--	--	3.3 U	650 U	160 U	160 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	5.1 UJ	5.3 U	5.3 U	5.3 U	26 U	5.4 U	5.4 U	--	250 U	--	--	5.0 U	1,000 U	250 U	250 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	4.1 UJ	4.3 U	4.3 U	4.3 U	21 U	4.4 U	4.4 U	--	200 U	--	--	4.1 U	810 U	200 U	200 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	4.1 UJ	4.3 U	4.3 U	4.3 U	21 U	4.4 U	4.4 U	--	200 U	--	--	4.1 U	810 U	200 U	200 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	160 J	8.5 J	3.4 U	3.4 U	640	17 J	10 J	--	8,400	--	--	53	36,000	8,000	8,300
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	4.4 UJ	4.6 U	16 J	4.6 U	620	13 J	8.6 J	--	220 U	--	--	4.4 U	870 U	220 U	3,700
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	3.9 UJ	4.1 U	4.1 U	4.0 U	20 U	4.1 U	4.1 U	--	190 U	--	--	3.9 U	770 U	190 U	190 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	160	8.5	16	0	*1,260*	30	18.6	--	*8,400*	--	--	53	*36,000*	*8,000*	*12,000*
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	110 J	35 U	35 U	35 U	59 J	35 U	35 U	12,000	--	52 J	160 J	--	590	860	560
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	520	180 U	180 U	170 U	390 J	180 U	170 U	1,400,000	--	11,000 J	22,000 J	--	6,100	150,000	9,100
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	180 U	180 U	170 U	170 U	180 U	170 U	2,400	--	170 U	270	--	170 U	170 U	160 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	33 U	35 U	35 U	35 U	33 U	35 U	35 U	21,000	--	33 U	33 U	--	33 U	33 U	33 U

Notes
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TSCA = Toxic Substances Control Act

Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	D4	D6	D6	D7	D7	D8	D8	E0	E0	E0	E1	E1	E2	E2	E3
						Date:	5/13/2022	5/13/2022	5/13/2022	10/24/2022	10/24/2022	10/26/2022	10/26/2022	10/25/2022	10/25/2022	10/25/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	5/13/2022
						Depth (feet bgs):	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
						Sample ID:	D4-0520_20220513_N_SO	D6-0005_20220513_N_SO	D6-0520_20220513_N_SO	D7_20221024_0-0.5_ft_N_SO	D7_20221024_0.5-2_ft_N_SO	D8_20221026_0-0.5_ft_N_SO	D8_20221026_0.5-2_ft_N_SO	E0_20221025_0-0.5_ft_N_SO	E0_20221025_0.5-2_ft_N_SO	E0_20221025_0.5-2_ft_FD_SO	E1_20221024_0-0.5_ft_N_SO	E1_20221024_0.5-2_ft_N_SO	E2_20221024_0-0.5_ft_N_SO	E2_20221024_0.5-2_ft_N_SO	E3-0005_20220513_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit															
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	160 U	160 U	3.4 U	65 U	3.4 U	3.3 U	3.4 U	4.0 U	3.5 U	3.5 U	17 U	3.4 U	1,600 U	70 U	330 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	250 U	250 U	5.3 U	100 U	5.3 U	5.0 U	5.3 U	6.2 U	5.3 U	5.4 U	26 U	5.3 U	2,500 U	110 U	510 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	200 U	200 U	4.2 U	81 U	4.3 U	4.1 U	4.3 U	5.0 U	4.3 U	4.3 U	21 U	4.3 U	2,000 U	87 U	410 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	200 U	200 U	4.2 U	81 U	4.3 U	4.1 U	4.3 U	5.0 U	4.3 U	4.3 U	21 U	4.3 U	2,000 U	87 U	410 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	13,000	8,300	190	2,400	8.8 J	110	22	4.0 U	3.5 U	3.5 U	220	4.8 J	25,000 J	4,600	24,000
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	5,500	5,300	110	87 U	4.6 U	4.4 U	4.6 U	12 J	4.6 U	4.6 U	180	4.6 U	2,200 U	93 U	11,000
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	190 U	190 U	4.0 U	77 U	4.1 U	3.9 U	4.1 U	4.8 U	4.1 U	4.1 U	20 U	4.0 U	1,900 U	82 U	390 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	*18,500*	*13,600*	300	*2,400*	8.8	110	22	12	0	0	400	4.8	*25,000*	*4,600*	*35,000*
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	2,900	2,100	34 U	320	35 U	33 U	35 U	41 U	35 U	35 U	33 U	34 U	9,400	35 U	1,000
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	790,000	24,000	170 U	1,400	170 U	190 J	170 U	200 U	170 U	170 U	370 J	170 U	17,000	170 U	6,800
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	350	170 U	170 U	170 U	170 U	170 U	200 U	170 U	170 U	170 U	170 U	1,000	170 U	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	3,700	33 U	34 U	33 U	35 U	33 U	35 U	41 U	35 U	35 U	33 U	34 U	1,300	35 U	33 U

Notes
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Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	E3	E4	E4	E6	E6	F1	F1	F2	F2	F2	F3	F3	F3	F4
						Date:	5/13/2022	5/13/2022	5/13/2022	5/13/2022	5/13/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	5/14/2022	5/14/2022	5/14/2022	5/13/2022
						Depth (feet bgs):	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5
						Sample ID:	E3-0520_ 20220513_N_SO	E4-0005_ 20220513_N_SO	E4-0520_ 20220513_N_SO	E6-0005_ 20220513_N_SO	E6-0520_ 20220513_N_SO	F1_20221024 _0-0.5_ft_N_SO	F1_20221024 _0.5-2_ft_N_SO	F2_20221024 _0-0.5_ft_N_SO	F2_20221024 _0-0.5_ft_FD_SO	F2_20221024 _0.5-2_ft_N_SO	F3-0005_ 20220514_N_SO	F3-0520_ 20220514_N_SO	F3-0520_ 20220514_FD_SO	F4-0005_ 20220513_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit															
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	160 U	66 U	33 U	3.5 U	3.4 U	3.5 U	3.5 U	3.8 UJ	34 U	3.5 U	33 U	3.2 U	3.3 U	66 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	250 U	100 U	50 U	5.4 U	5.3 U	5.3 U	5.4 U	5.9 UJ	52 U	5.4 U	50 U	5.0 U	5.1 U	100 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	200 U	81 U	41 U	4.3 U	4.3 U	4.3 U	4.3 U	4.7 UJ	42 U	4.4 U	40 U	4.0 U	4.1 U	82 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	200 U	81 U	41 U	4.3 U	4.3 U	4.3 U	4.3 U	4.7 UJ	42 U	4.4 U	40 U	4.0 U	4.1 U	82 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	8,900	5,100	2,500	3.5 U	3.4 U	47	4.9 J	190 J	1,900 J	41	660	42	37	4,800
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	4,700	3,700	1,300	17 J	4.6 U	4.6 U	4.6 U	5.1 UJ	45 U	4.7 U	420	35	29	2,600
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	190 U	77 U	39 U	4.1 U	4.0 U	4.1 U	4.1 U	4.5 UJ	40 U	4.1 U	38 U	3.8 U	3.9 U	78 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	*13,600*	*8,800*	*3,800*	17	0	47	4.9	190	*1,900*	41	*1,080*	77	66	*7,400*
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	7,400	320	5,500	35 U	35 U	35 U	35 U	380 U	38 U	35 U	1,500	33 U	33 U	2,700
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	480,000	2,400	1,000,000	170 U	170 U	170 U	180 U	1,900 U	190 U	180 U	81,000	580	190 J	1,300,000 J
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	430	160 U	820	170 U	170 U	170 U	180 U	1,900 U	190 U	180 U	240	160 U	170 U	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	4,700	33 U	8,100	35 U	35 U	35 U	35 U	380 U	38 U	35 U	1,500	33 U	33 U	9,200

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Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	F4	F4	F5	F5	F7	F7	G1	G1	G2	G2	G4	G4	G5	G5
						Date:	5/13/2022	5/13/2022	5/13/2022	5/13/2022	5/12/2022	5/12/2022	10/24/2022	10/24/2022	5/12/2022	5/12/2022	5/14/2022	5/14/2022	5/13/2022	5/13/2022
						Depth (feet bgs):	0.5-2.0	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0
						Sample ID:	F4-0005_20220513_FD_SO	F4-0520_20220513_N_SO	F5-0005_20220513_N_SO	F5-0520_20220513_N_SO	F7-0005_20220512_N_SO	F7-0520_20220512_N_SO	G1_20221024_0-0.5_ft_N_SO	G1_20221024_0.5-2_ft_N_SO	G2-0005_20220512_N_SO	G2-0520_20220512_N_SO	G4-0005_20220514_N_SO	G4-0520_20220514_N_SO	G5-0005_20220513_N_SO	G5-0520_20220513_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit														
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	66 U	16 U	3.3 U	3.3 UJ	--	--	--	--	--	--	16 U	3.2 U	160 U	3.3 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	100 U	25 U	5.1 U	5.0 UJ	--	--	--	--	--	--	25 U	5.0 U	250 U	5.0 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	82 U	20 U	4.1 U	4.0 UJ	--	--	--	--	--	--	20 U	4.0 U	200 U	4.0 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	82 U	20 U	4.1 U	4.0 UJ	--	--	--	--	--	--	20 U	4.0 U	200 U	4.0 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	5,300	490	250	33 J	--	--	--	--	--	--	1,100	46	12,000	54
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	2,800	310	200	8.9 J	--	--	--	--	--	--	510	15 J	9,300	28
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	78 U	19 U	3.9 U	3.8 UJ	--	--	--	--	--	--	19 U	3.8 U	190 U	3.8 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	*8,100*	800	450	41.9	--	--	--	--	--	--	*1,610*	61	*21,300*	82
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	2,300	72 J	130 J	7,500	34 U	34 U	35 U	35 U	100 J	34 U	320	1,900	1,200	1,300
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	130,000 J	4,200	4,800	410,000	170 U	170 U	170 U	170 U	3,600	170 U	5,200	16,000	9,200	9,400
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	170 U	160 U	160 U	170 U	170 U	170 U	170 U	170 U	170 U	160 U	160 U	170 U	160 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	4,800	33 U	33 U	51,000	34 U	34 U	35 U	35 U	33 U	34 U	33 U	2,100	33 U	33 U

Notes

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µg/kg = microgram(s) per kilogram
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CAS = Chemical Abstracts Service
ID = identifier
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TSCA = Toxic Substances Control Act

Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	G6	G6	G7	G7	H1	H1	H2	H2	H3	H3	H4	H4	H5	H5
						Date:	5/13/2022	5/13/2022	5/12/2022	5/12/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	5/14/2022	5/14/2022	5/14/2022	5/14/2022	5/14/2022	5/14/2022
						Depth (feet bgs):	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5
						Sample ID:	G6-0005_20220513_N_SO	G6-0520_20220513_N_SO	G7-0005_20220512_N_SO	G7-0520_20220512_N_SO	H1_20221024_0-0.5_ft_N_SO	H1_20221024_0.5-2_ft_N_SO	H2_20221024_0-0.5_ft_N_SO	H2_20221024_0.5-2_ft_N_SO	H3-0005_20220514_N_SO	H3-0520_20220514_N_SO	H4-0005_20220514_N_SO	H4-0520_20220514_N_SO	H5-0005_20220514_N_SO	H5-0005_20220514_FD_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit														
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	3.3 U	3.2 U	3.4 U	3.4 U	--	--	--	--	3.7 U	3.4 U	3.4 U	3.4 U	3.5 U	3.5 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	5.1 U	5.0 U	5.2 U	5.3 U	--	--	--	--	5.7 U	5.3 U	5.2 U	5.2 U	5.4 U	5.4 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	4.1 U	4.0 U	4.2 U	4.3 U	--	--	--	--	4.6 U	4.3 U	4.2 U	4.2 U	4.3 U	4.3 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	4.1 U	4.0 U	4.2 U	4.3 U	--	--	--	--	4.6 U	4.3 U	4.2 U	4.2 U	4.3 U	4.3 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	110	10 J	3.4 U	3.4 U	--	--	--	--	65	35	150	10 J	41	44
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	100	4.3 U	4.5 U	4.6 U	--	--	--	--	67	62	140	4.5 U	31	42
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	3.9 U	3.8 U	4.0 U	4.0 U	--	--	--	--	4.4 U	4.0 U	4.0 U	4.0 U	4.1 U	4.1 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	210	10	0	0	--	--	--	--	132	97	290	10	72	86
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	33 U	33 U	34 U	34 U	35 U	34 U	35 U	34 U	38 U	35 U	34 U	34 U	35 U	35 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	280 J	280 J	170 U	170 U	170 U	170 U	180 U	170 U	190 U	170 U	170 U	170 U	180 U	170 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	160 U	170 U	170 U	170 U	170 U	180 U	170 U	190 U	170 U	170 U	170 U	180 U	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	33 U	33 U	34 U	34 U	35 U	34 U	35 U	34 U	38 U	35 U	34 U	34 U	35 U	35 U

Notes

Bold cells reflect a detected result

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Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	H5	H7	H7	H7	I4	I4	I4	I5	I5	I6	I6	I6	I7	I7
						Date:	5/14/2022	5/12/2022	5/12/2022	5/12/2022	10/25/2022	10/25/2022	10/25/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022
						Depth (feet bgs):	0.5-2.0	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0
						Sample ID:	H5-0520_ 20220514_N_SO	H7-0005_ 20220512_N_SO	H7-0520_ 20220512_N_SO	H7-0520_ 20220512_FD_SO	I4_20221025 _0-0.5_ft_N_SO	I4_20221025 _0-0.5_ft_FD_SO	I4_20221025 _0.5-2_ft_N_SO	I5-0005_ 20220512_N_SO	I5-0520_ 20220512_N_SO	I6-0005_ 20220512_N_SO	I6-0005_ 20220512_FD_SO	I6-0520_ 20220512_N_SO	I7-0005_ 20220512_N_SO	I7-0520_ 20220512_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit														
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	4.6 U	3.2 U	3.3 U	3.4 U	--	--	--	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.4 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	7.1 U	5.0 U	5.0 U	5.2 U	--	--	--	5.2 U	5.3 U	5.0 U	5.0 U	5.0 U	5.2 U	5.3 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	5.7 U	4.0 U	4.1 U	4.2 U	--	--	--	4.2 U	4.2 U	4.0 U	4.0 U	4.1 U	4.2 U	4.3 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	5.7 U	4.0 U	4.1 U	4.2 U	--	--	--	4.2 U	4.2 U	4.0 U	4.0 U	4.1 U	4.2 U	4.3 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	4.6 U	3.2 U	3.3 U	3.4 U	--	--	--	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.4 U
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	6.1 U	20	4.4 U	4.5 U	--	--	--	20	4.6 U	4.3 U	4.3 U	4.4 U	4.5 U	4.6 U
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	5.4 U	11 J	3.9 U	4.0 U	--	--	--	4.0 U	4.0 U	3.8 U	3.8 U	3.9 U	4.0 U	4.1 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	0	31	0	0	--	--	--	20	0	0	0	0	0	0
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	46 U	33 U	33 U	34 U	35 U	35 U	34 U	34 U	34 U	1,800 J	120 J	33 U	34 U	34 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	230 U	270 J	220 J	170 U	170 U	170 U	170 U	170 U	170 U	21,000 J	1,900 J	280 J	170 U	170 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	230 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	230	160 U	170 U	170 U	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	46 U	33 U	33 U	34 U	35 U	35 U	34 U	34 U	34 U	33 U	33 U	33 U	34 U	34 U

Notes

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Table 3. Soil Sample Results - Horizontal Extent
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	J4	J4	J5	J5	J6	J6	J6	J7	J7	X10	X10	X7	X7	X8	X8
						Date:	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/24/2022	10/24/2022	10/26/2022	10/26/2022	10/24/2022	10/24/2022
						Depth (feet bgs):	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0
						Sample ID:	J4_20221025_0-0.5_ft_N_SO	J4_20221025_0.5-2_ft_N_SO	J5_20221025_0-0.5_ft_N_SO	J5_20221025_0.5-2_ft_N_SO	J6_20221025_0-0.5_ft_N_SO	J6_20221025_0.5-2_ft_N_SO	J6_20221025_0.5-2_ft_FD_SO	J7_20221025_0-0.5_ft_N_SO	J7_20221025_0.5-2_ft_N_SO	X10_20221024_0-0.5_ft_N_SO	X10_20221024_0.5-2_ft_N_SO	X7_20221026_0-0.5_ft_N_SO	X7_20221026_0.5-2_ft_N_SO	X8_20221024_0-0.5_ft_N_SO	X8_20221024_0.5-2_ft_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit															
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	--	--	--	--	--	--	--	--	--	3.5 U	3.6 U	3.5 U	3.5 U	16 UJ	3.4 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	--	--	--	--	--	--	--	--	--	5.5 U	5.5 U	5.5 U	5.4 U	25 UJ	5.3 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	--	--	--	--	--	--	--	--	--	4.4 U	4.4 U	4.4 U	4.4 U	20 UJ	4.3 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	--	--	--	--	--	--	--	--	--	4.4 U	4.4 U	4.4 U	4.4 U	20 UJ	4.3 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	--	--	--	--	--	--	--	--	--	3.5 U	3.6 U	3.5 U	3.5 U	450	12 J
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	--	--	--	--	--	--	--	--	--	4.7 U	4.7 U	4.7 U	4.7 U	240	4.6 U
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	--	--	--	--	--	--	--	--	--	4.2 U	4.2 U	6.6 J	4.1 U	19 UJ	4.1 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	--	--	--	--	--	--	--	--	--	0	0	6.6	0	690	12
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	35 U	35 U	36 U	35 U	37 U	36 U	35 U	36 U	35 U	36 U	36 U	36 U	36 U	100 J	35 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	170 U	170 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	510	170 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	170 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	160 U	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	35 U	35 U	36 U	35 U	37 U	36 U	35 U	36 U	35 U	36 U	36 U	36 U	36 U	33 U	35 U

Notes
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2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	X9	X9	Y10	Y10	Y5	Y5	Y6	Y6	Y7	Y7	Z10	Z10	Z4	Z4	Z5
						Date:	10/25/2022	10/25/2022	10/24/2022	10/24/2022	10/25/2022	10/25/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022	10/24/2022
						Depth (feet bgs):	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
						Sample ID:	X9_20221025_0-0.5_ft_N_SO	X9_20221025_0.5-2_ft_N_SO	Y10_20221024_0-0.5_ft_N_SO	Y10_20221024_0.5-2_ft_N_SO	Y5_20221025_0-0.5_ft_N_SO	Y5_20221025_0.5-2_ft_N_SO	Y6_20221024_0-0.5_ft_N_SO	Y6_20221024_0.5-2_ft_N_SO	Y7_20221024_0-0.5_ft_N_SO	Y7_20221024_0.5-2_ft_N_SO	Z10_20221024_0-0.5_ft_N_SO	Z10_20221024_0.5-2_ft_N_SO	Z4_20221024_0-0.5_ft_N_SO	Z4_20221024_0.5-2_ft_N_SO	Z5_20221024_0-0.5_ft_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit															
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	3.4 U	3.4 U	3.4 UJ	3.5 U	3.5 U	3.4 U	3.6 UJ	3.5 UJ	16 UJ	3.4 UJ	3.4 UJ	3.4 U	17 U	3.5 U	33 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	5.3 U	5.3 U	5.3 UJ	5.3 U	5.4 U	5.3 U	5.6 UJ	5.4 UJ	25 UJ	5.3 UJ	5.3 UJ	5.3 U	27 U	5.4 U	51 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	4.3 U	4.3 U	4.2 UJ	4.3 U	4.3 U	4.3 U	4.5 UJ	4.3 UJ	20 UJ	4.2 UJ	4.2 UJ	4.3 U	22 U	4.4 U	41 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	4.3 U	4.3 U	4.2 UJ	4.3 U	4.3 U	4.3 U	4.5 UJ	4.3 UJ	20 UJ	4.2 UJ	4.2 UJ	4.3 U	22 U	4.4 U	41 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	3.4 U	3.4 U	3.4 UJ	3.5 U	3.5 U	3.4 U	47 J	3.5 UJ	930	3.4 UJ	3.4 UJ	3.4 U	400	3.5 U	1,200
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	4.6 U	4.6 U	6.0 J	4.6 U	26	4.6 U	39	4.7 UJ	480	4.6 UJ	4.6 UJ	4.6 U	340	4.7 U	690
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	4.1 U	4.1 U	4.0 U	4.1 U	4.1 U	4.1 U	4.3 U	4.1 U	19 UJ	4.0 U	4.0 U	4.1 U	21 U	4.2 U	39 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	0	0	6	0	26	0	86	0	*1,410*	0	0	0	740	0	*1,890*
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	35 U	35 U	34 U	35 U	35 U	35 U	37 U	35 U	34 J	35 U	35 U	35 U	35 U	35 U	84 J
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	180 U	180 U	170 U	170 U	180 U	170 U	180 U	180 U	160 J	170 U	170 U	170 U	170 U	180 U	380 J
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	180 U	180 U	170 U	170 U	180 U	170 U	180 U	180 U	160 U	170 U	170 U	170 U	170 U	180 U	160 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	35 U	35 U	34 U	35 U	35 U	35 U	37 U	35 U	33 U	35 U	35 U	35 U	35 U	35 U	33 U

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Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	Z5	Z6	Z6	Z7	Z7	Z7
						Date:	10/24/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022
						Depth (feet bgs):	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.0-0.5	0.5-2.0
						Sample ID:	Z5_20221024_0.5-2_ft_N_SO	Z6_20221025_0-0.5_ft_N_SO	Z6_20221025_0.5-2_ft_N_SO	Z7_20221025_0-0.5_ft_N_SO	Z7_20221025_0-0.5_ft_FD_SO	Z7_20221025_0.5-2_ft_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit						
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	3.5 UJ	3.5 U	3.4 U	65 U	65 U	3.4 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	5.4 UJ	5.5 U	5.3 U	100 U	100 U	5.3 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	4.3 UJ	4.4 U	4.2 U	81 U	81 U	4.2 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	4.3 UJ	4.4 U	4.2 U	81 U	81 U	4.2 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	3.5 UJ	120	3.4 U	2,500	2,700	92
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	4.6 UJ	4.7 U	4.6 U	1,900	2,100	74
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	4.1 U	4.2 U	4.0 U	77 U	77 U	4.0 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	0	120	0	*4,400*	*4,800*	166
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	35 U	35 U	34 U	580	630	35 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	170 U	180 U	170 U	1,500	2,100	170 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	180 U	170 U	160 U	220	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	35 U	35 U	34 U	33 U	33 U	35 U

Notes

Bold cells reflect a detected result

Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg

Non-bold and shaded cells reflect a nondetect exceeding criteria

Bold and italicized cells reflect a detect exceeding TSCA value of 1,000 µg/kg

J = The analyte or compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
R = The analyte or compound was determined to be unusable as a result of the data validation process. (Note: analyte or compound may or may not be present in the sample media.)
UJ = The analyte or compound was not detected exceeding the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.
-- = Not analyzed or a criteria value is not available
µg/kg = microgram(s) per kilogram
bgs = below ground surface
CAS = Chemical Abstracts Service
ID = identifier
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act

Table 4. Soil Sample Results - Vertical Extent Soil Borings
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	C4	C4	C4	C4	C4	C4	E7	E7	E7	E7	E7	E7	FL3	FL3
						Date:	10/26/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2023	10/26/2023	10/26/2022	10/26/2022	10/26/2022	5/11/2022	5/11/2022
						Depth (feet bgs):	0.0-2.0	2.0-4.0	4.0-6.0	6.0-8.0	6.0-8.0	8.0-10.0	0.0-2.0	2.0-4.0	2.0-4.0	4.0-6.0	6.0-8.0	8.0-10.0	0.0-2.0	2.0-4.0
						Sample ID:	C4_20221026_0-2_ft_N_SO	C4_20221026_2-4_ft_N_SO	C4_20221026_4-6_ft_N_SO	C4_20221026_6-8_ft_N_SO	C4_20221026_6-8_ft_FD_SO	C4_20221026_8-10_ft_N_SO	E7_20221026_0-2_ft_N_SO	E7_20231026_2-4_ft_N_SO	E7_20231026_2-4_ft_FD_SO	E7_20221026_4-6_ft_N_SO	E7_20221026_6-8_ft_N_SO	E7_20221026_8-10_ft_N_SO	FL3-0002_20220511_N_SO	FL3-0204_20220511_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit														
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	72 U	3.4 U	21 U	3.6 U	3.9 U	4.2 U	3.5 U	3.4 U	3.4 U	4.1 U	3.5 U	3.9 U	160 U	160 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	110 U	5.3 U	32 U	5.6 U	6.0 U	6.4 U	5.4 U	5.3 U	5.3 U	6.4 U	5.4 U	6.0 U	250 U	250 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	89 U	4.3 U	26 U	4.5 U	4.8 U	5.2 U	4.4 U	4.3 U	4.3 U	5.1 U	4.4 U	4.8 U	200 U	200 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	89 U	4.3 U	26 U	4.5 U	4.8 U	5.2 U	4.4 U	4.3 U	4.3 U	5.1 U	4.4 U	4.8 U	200 U	200 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	6,200	30	740	3.8 J	3.9 U	4.2 U	3.5 U	3.4 U	3.4 U	4.1 U	3.5 U	3.9 U	4,100	4,000 J
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	96 U	4.6 U	28 U	4.9 U	5.2 U	5.6 U	4.7 U	4.6 U	4.6 U	5.5 U	4.7 U	5.1 U	3,200	2,600 J
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	85 U	4.0 U	25 U	4.3 U	4.6 U	4.9 U	4.2 U	4.1 U	4.1 U	4.9 U	4.2 U	4.6 U	190 U	190 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	*6,200*	30	740	3.8	0	0	0	0	0	0	0	0	*7,300*	*6,600*
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	37 U	35 U	43 U	37 U	39 U	42 U	36 U	35 U	35 U	42 U	36 U	39 U	2,300	160 J
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	180 U	180 U	210 U	190 U	200 U	210 U	180 U	170 U	170 U	210 U	180 U	200 U	1,200,000	16,000
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	180 U	180 U	210 U	190 U	200 U	210 U	180 U	170 U	170 U	210 U	180 U	200 U	13,000	170 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	37 U	35 U	43 U	37 U	39 U	42 U	36 U	35 U	35 U	42 U	36 U	39 U	6,400	33 U

Notes:
Bold cells reflect a detected result
Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg
Non-bold and shaded cells reflect a nondetect exceeding criteria
Bold and italicized cells reflect a detect exceeding TSCA value of 1,000 µg/kg

J = The analyte or compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.
ft bgs = eet below ground surface
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act
µg/kg = microgram(s) per kilogram
-- = Not analyzed or a criteria value is not available

Table . Soil Sample Results - erti al Extent Soil orin s
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	FL3	FL3	FL3	FL3	FL3	FL5	FL5	FL5	FL5	FL5	FL5
						Date:	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022
						Depth (feet bgs):	4.0-6.0	6.0-8.0	6.0-8.0	8.0-10.0	10.0-12.0	0.0-2.0	2.0-4.0	4.0-6.0	6.0-8.0	6.0-8.0	8.0-10.0
						Sample ID:	FL3-0406_20220511_N_SO	FL3-0608-20220511_FD_SO	FL3-0608_20220511_N_SO	FL3-0810_20220511_N_SO	FL3-1012_20220511_N_SO	FL5-0002_20220511_N_SO	FL5-0204_20220511_N_SO	FL5-0406_20220511_N_SO	FL5-0608-20220511_FD_SO	FL5-0608_20220511_N_SO	FL5-0810_20220511_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit											
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	3.3 U	3.3 U	3.2 U	3.9 U	4.1 U	65 U	330 U	3.3 U	3.6 U	3.7 U	4.0 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	5.1 U	5.1 U	5.0 U	6.1 U	6.3 U	100 U	500 U	5.1 U	5.6 U	5.7 U	6.1 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	4.1 U	4.1 U	4.0 U	4.9 U	5.1 U	81 U	410 U	4.1 U	4.5 U	4.6 U	4.9 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	4.1 U	4.1 U	4.0 U	4.9 U	5.1 U	81 U	410 U	4.1 U	4.5 U	4.6 U	4.9 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	3.3 U	89	8.0 J	35	12 J	3,300	14,000	83	22	8.5 J	4.0 U
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	4.4 U	4.4 U	4.3 U	5.2 U	5.4 U	87 U	10,000	4.4 U	4.9 U	4.9 U	5.3 U
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	3.9 U	3.9 U	3.8 U	4.6 U	4.8 U	77 U	390 U	3.9 U	4.3 U	4.4 U	4.7 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	0	89	8	35	12	*3,300*	*24,000*	83	22	8.5	0
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	33 U	83 J	33 U	40 U	41 U	1,100	850	33 U	37 U	37 U	40 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	280 J	2,100	270 J	200 U	200 U	31,000	72,000	260 J	190 U	180 U	200 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	530	170 U	200 U	200 U	170 U	170 U	170 U	190 U	180 U	200 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	33 U	33 U	33 U	40 U	41 U	980	1,500	33 U	37 U	37 U	40 U

Notes:
Bold cells reflect a detected result
Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg
Non-bold and shaded cells reflect a nondetect exceeding criteria
Bold and italicized cells reflect a detect exceeding TSCA value of 1,000 µg/kg

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U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.
ft bgs = eet below ground surface
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act
µg/kg = microgram(s) per kilogram
-- = Not analyzed or a criteria value is not available

Table . Soil Sample Results - erti al Extent Soil orin s
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	FL5	I5	I5	I5	I5	I5	MW-306	MW-306	MW-306	MW-306	MW-306	MW-306	MW-306
						Date:	5/11/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022	10/25/2022
						Depth (feet bgs):	10.0-12.0	0.0-2.0	2.0-4.0	4.0-6.0	6.0-8.0	8.0-10.0	0.0-2.0	0.0-2.0	2.0-4.0	4.0-6.0	6.0-8.0	8.0-10.0	10.0-12.0
						Sample ID:	FL5-1012_20220511_N_SO	I5_20221026_0-2_ft_N_SO	I5_20221026_2-4_ft_N_SO	I5_20221026_4-6_ft_N_SO	I5_20221026_6-8_ft_N_SO	I5_20221026_8-10_ft_N_SO	MW-306_20221025_0-2_ft_N_SO	MW-306_20221025_0-2_ft_FD_SO	MW-306_20221025_2-4_ft_N_SO	MW-306_20221025_4-6_ft_N_SO	MW-306_20221025_6-8_ft_N_SO	MW-306_20221025_8-10_ft_N_SO	MW-306_20221025_10-12_ft_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit													
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	3.2 U	3.4 U	3.8 U	3.9 U	3.6 U	3.9 U	3.4 U	3.5 U	3.4 U	3.4 U	4.0 U	4.0 U	3.9 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	5.0 U	5.3 U	5.9 U	6.1 U	5.5 U	6.0 U	5.3 U	5.3 U	5.3 U	5.3 U	6.1 U	6.1 U	6.1 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	4.0 U	4.3 U	4.7 U	4.9 U	4.4 U	4.8 U	4.2 U	4.3 U	4.3 U	4.2 U	4.9 U	4.9 U	4.9 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	4.0 U	4.3 U	4.7 U	4.9 U	4.4 U	4.8 U	4.2 U	4.3 U	4.3 U	4.2 U	4.9 U	4.9 U	4.9 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	3.2 U	3.4 U	3.8 U	3.9 U	3.6 U	3.9 U	3.4 U	3.5 U	3.4 U	3.4 U	4.0 U	4.0 U	3.9 U
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	4.3 U	4.6 U	5.1 U	5.2 U	4.7 U	5.2 U	4.6 U	4.6 U	4.6 U	4.6 U	5.3 U	5.3 U	5.2 U
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	3.8 U	4.1 U	4.5 U	4.6 U	4.2 U	4.6 U	4.0 U	4.1 U	4.1 U	4.0 U	4.7 U	4.7 U	4.6 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	33 U	35 U	39 U	40 U	36 U	39 U	35 U	35 U	35 U	35 U	40 U	41 U	40 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	170 U	170 U	190 U	200 U	180 U	200 U	170 U	170 U	170 U	170 U	200 U	200 U	200 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	170 U	190 U	200 U	180 U	200 U	170 U	170 U	170 U	170 U	200 U	200 U	200 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	33 U	35 U	39 U	40 U	36 U	39 U	35 U	35 U	35 U	35 U	40 U	41 U	40 U

Notes:
Bold cells reflect a detected result
Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg
Non-bold and shaded cells reflect a nondetect exceeding criteria
Bold and italicized cells reflect a detect exceeding TSCA value of 1,000 µg/kg

J = The analyte or compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.
ft bgs = eet below ground surface
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act
µg/kg = microgram(s) per kilogram
-- = Not analyzed or a criteria value is not available

Table . Soil Sample Results - erti al Extent Soil orin s
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	WA48-1	WA48-1	WA48-1	WA48-1	WA48-1	WA48-1
						Date:	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022	5/11/2022
						Depth (feet bgs):	0.0-2.0	2.0-4.0	4.0-6.0	6.0-8.0	8.0-10.0	10.0-12.0
						Sample ID:	WA48-1-0002_20220511_N_SO	WA48-1-0204_20220511_N_SO	WA48-1-0406_20220511_N_SO	WA48-1-0608_20220511_N_SO	WA48-1-0810_20220511_N_SO	WA48-1-1012_20220511_N_SO
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit						
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	330 U	160 U	3.3 U	66 U	3.7 U	4.1 U
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	500 U	250 U	5.1 U	100 U	5.7 U	6.3 U
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	410 U	200 U	4.1 U	81 U	4.6 U	5.0 U
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	410 U	200 U	4.1 U	81 U	4.6 U	5.0 U
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	16,000	13,000	6.5 J	2,900	25	4.1 U
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	440 U	7,300	4.4 U	1,200	4.9 U	5.4 U
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	390 U	190 U	3.9 U	77 U	4.4 U	4.8 U
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	*16,000*	*20,300*	6.5	*4,100*	25	0
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	1,200	1,100	33 U	800	38 U	42 U
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	140,000	270,000	460 J	47,000	190 U	210 U
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	170 U	170 U	170 U	170 U	190 U	210 U
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	1,300	1,300	33 U	220	38 U	42 U

Notes:
Bold cells reflect a detected result
Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg
Non-bold and shaded cells reflect a nondetect exceeding criteria
Bold and italicized cells reflect a detect exceeding TSCA value of 1,000 µg/kg

J = The analyte or compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.
ft bgs = eet below ground surface
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act
µg/kg = microgram(s) per kilogram
-- = Not analyzed or a criteria value is not available

Table . Soil Sample Results - Stoc pile
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID :	S -1	S -2	S -1	S -2	S -3	S -4	S -4	S -5	S -6	S -7	S -7	S -8	S -9	S -10			
						Date:	10/12/2020	10/12/2020	8/10/2021	8/10/2021	8/10/2021	8/10/2021	8/10/2021	8/10/2021	8/10/2021	8/10/2021	8/10/2021	8/10/2021	8/10/2021	8/10/2021			
						Sample ID:	S -IM -1_ 20201012_N_SO	S -IM -2_ 20201012_N_SO	S -1_IM _ 20210810_N_SO	S -2_IM _ 20210810_N_SO	S -3_IM _ 20210810_N_SO	S -4_IM _ 20210810_N_SO	S -4_IM _ 20210810_FD_SO	S -5_IM _ 20210810_N_SO	S -6_IM _ 20210810_N_SO	S -7_IM _ 20210810_N_SO	S -7_IM _ 20210810_FD_SO	S -8_IM _ 20210810_N_SO	S -9_IM _ 20210810_N_SO	S -10_IM _ 20210810_N_SO			
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit																	
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	7,500	12,000	13,000 J	290,000 J	6,800 J	25,000 J	12,000 J	10,000 J	2,200 J	2,500 J	16,000 J	5,900 J	8,800 J	3,500 J			
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	340,000	5,300,000	86,000 J	1,200,000 J	760,000 J	160,000 J	320,000 J	120,000 J	18,000 J	110,000 J	4,100,000 J	370,000 J	46,000 J	40,000 J			
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--			

-- = Location ID numbers in 2021 that are the same as in 2022 do not represent the same physical locations in the stockpile.

Notes:
Bold cells reflect a detected result
Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg
Non-bold and shaded cells reflect a nondetect exceeding criteria
Bold and italicized cells reflect a detect exceeding TSCA value of 1,000 µg/kg
-- = Not analyzed or a criteria value is not available
µg/kg = microgram(s) per kilogram
bgs = below ground surface
CAS = Chemical Abstracts Service
ID = identifier
J = The analyte or compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act
U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.

Table . Soil Sample Results - Sto pile
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

						Location ID:	S -1	S -2	S -3	S -3	S -4	S -5	S -6	S -7	S -8	S -9	S -10		
						Date:	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022	5/12/2022		
						Sample ID:	S -1-IM _ 20220512_N_SO	S -2-IM _ 20220512_N_SO	S -3-IM _ 20220512_N_SO	S -3-IM _ 20220512_FD_SO	S -4-IM _ 20220512_N_SO	S -5-IM _ 20220512_N_SO	S -6-IM _ 20220512_N_SO	S -7-IM _ 20220512_N_SO	S -8-IM _ 20220512_N_SO	S -9-IM _ 20220512_N_SO	S -10-IM _ 20220512_N_SO		
Analytical Method	Chemical Name	CAS	Residential RSL	TSCA Value for High Occupancy Area	TSCA Value for Low Occupancy Area	Result Unit													
SW8082A	Aroclor 1016	12674-11-2	410	--	--	µg/kg	650 U	1,600 U	330 U	330 U	1,600 U	1,600 U	1,700 U	660 U	1,600 U	660 U	650 U		
SW8082A	Aroclor 1221	11104-28-2	200	--	--	µg/kg	1,000 U	2,500 U	510 U	510 U	2,500 U	2,500 U	2,600 U	1,000 U	2,500 U	1,000 U	1,000 U		
SW8082A	Aroclor 1232	11141-16-5	170	--	--	µg/kg	810 U	2,000 U	410 U	410 U	2,000 U	2,000 U	2,100 U	820 U	2,000 U	810 U	810 U		
SW8082A	Aroclor 1242	53469-21-9	230	--	--	µg/kg	810 U	2,000 U	410 U	410 U	2,000 U	2,000 U	2,100 U	820 U	2,000 U	810 U	810 U		
SW8082A	Aroclor 1248	12672-29-6	230	--	--	µg/kg	49,000	51,000	22,000	17,000	50,000	49,000	32,000	26,000	27,000	11,000	17,000		
SW8082A	Aroclor 1254	11097-69-1	120	--	--	µg/kg	25,000	23,000	13,000	9,100	22,000	24,000	15,000	13,000	12,000	5,600	7,200		
SW8082A	Aroclor 1260	11096-82-5	240	--	--	µg/kg	770 U	1,900 U	390 U	390 U	1,900 U	1,900 U	2,000 U	780 U	1,900 U	770 U	770 U		
SW8082A	Total Aroclor PCBs	TOTPCB	--	1,000	25,000	µg/kg	*74,000*	*74,000*	*35,000*	*26,100*	*72,000*	*73,000*	*47,000*	*39,000*	*39,000*	*16,600*	*24,200*		
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	--	--	µg/kg	2,500	24,000	120,000 J	500,000 J	5,600	32,000	6,200	43,000	510,000	15,000	11,000		
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	--	--	µg/kg	29,000	140,000	19,000,000 J	7,200,000 J	30,000	9,400,000	34,000	470,000	12,000,000	120,000	190,000		
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	--	--	µg/kg	230	2,600	27,000	44,000	880	1,700 U	740	4,600	12,000	510	290		
SW8270D	Malononitrile	109-77-3	630	--	--	µg/kg	670	3,400	130,000	160,000	1,300	55,000	1,200	11,000	110,000	3,700	8,800		

-- = Location ID numbers in 2021 that are the same as in 2022 do not represent the same physical locations in the stockpile.

Notes:
Bold cells reflect a detected result
Bold and shaded cells reflect a detect exceeding respective RSL or TSCA value of 25,000 µg/kg
Non-bold and shaded cells reflect a nondetect exceeding criteria
Bold and italicized cells reflect a detect exceeding TSCA value of 1,000 µg/kg
-- = Not analyzed or a criteria value is not available
µg/kg = microgram(s) per kilogram
bgs = below ground surface
CAS = Chemical Abstracts Service
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J = The analyte or compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
RSL = Regional Screening Level (November 2023, Target Risk Level of 1E-06 and a THQ of 0.1)
TSCA = Toxic Substances Control Act
U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.

Table 6. 2022 Groundwater Sample Results
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

				Location ID:	MW-306	MW-306
				Date:	10/27/2022	10/27/2022
				Depth (feet bgs):	12.52-12.72	12.52-12.72
				Sample ID:	MW-306_20221027 _12.52-12.72_ft_N_WG	MW-306_20221027 _12.52-12.72_ft_FD_WG
Analytical Method	Chemical Name	CAS	Tap Water RSL	Result Unit		
SW8082A	Aroclor 1016	12674-11-2	0.14	µg/L	0.10 U	0.10 U
SW8082A	Aroclor 1221	11104-28-2	0.0047	µg/L	0.10 U	0.10 U
SW8082A	Aroclor 1232	11141-16-5	0.0047	µg/L	0.10 U	0.10 U
SW8082A	Aroclor 1242	53469-21-9	0.0078	µg/L	0.10 U	0.10 U
SW8082A	Aroclor 1248	12672-29-6	0.0078	µg/L	0.080 U	0.081 U
SW8082A	Aroclor 1254	11097-69-1	0.0078	µg/L	0.080 U	0.081 U
SW8082A	Aroclor 1260	11096-82-5	0.0078	µg/L	0.080 U	0.081 U
SW8270D	2-Chlorobenzaldehyde	89-98-5	--	µg/L	1.0 U	--
SW8270D	2-Chlorobenzalmalononitrile	2698-41-1	--	µg/L	5.1 U	--
SW8270D	Benzoic acid, 2-chloro-	118-91-2	--	µg/L	1.0 U	--
SW8270D	Malononitrile	109-77-3	0.2	µg/L	1.0 U	--

Notes:

Bold cells reflect a detected result

Bold and shaded cells reflect a detect exceeding criteria

U = The analyte or compound was analyzed for but was not detected exceeding the reported sample method detection limit.

bgs = below ground surface

CAS = Chemical Abstracts Service

ID = identifier

RSL = Regional Screening Level (November 2023, TR=1E-06, THQ=0.1)

µg/L = microgram(s) per liter

Table 7. Analytical Methods
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

Analytical Method	Type of Constituent
SW846 6020A	Metals
SW846 6850	Perchlorate
SW846 7471B	Mercury
SW846 8081B	Organochlorine Pesticides
SW846 8082A	PCBs
SW846 EPA 8141A	Organophosphorus Pesticides
SW846 8151A	Herbicides
SW846 8260C	Volatile Organic Compounds + Top 10 TICs
SW846 8270D	Semivolatile Organic Compounds + Top 10 TICs
SW846 8318A	N-Methyl Carbamates
SW846 8330B	Explosive residue
SW846 9012B	Cyanide
SW846 9034	Sulfide

PCB = polychlorinated biphenyl

TIC = tentatively identified compound

Table 8. Proposed Soil Cleanup Levels
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

Chemical Name	CAS	Criterion mg/kg	Basis for Criterion
Arsenic	7440-38-2	3	EPA RSL for industrial soil
2-Chlorobenzaldehyde	89-98-5	0.17	Best available technology based on achievable laboratory quantitation limit
2-Chlorobenzalmalononitrile	2698-41-1	0.5	Best available technology based on achievable laboratory quantitation limit
2-chlorobenzoic acid	118-91-2	2,500	EPA RSL for industrial soil screening level for p-chlorobenzoic acid as a surrogate for 2-chlorobenzoic acid for which EPA does not list an RSL
Malononitrile	109-77-3	8.2	EPA RSL for industrial soil

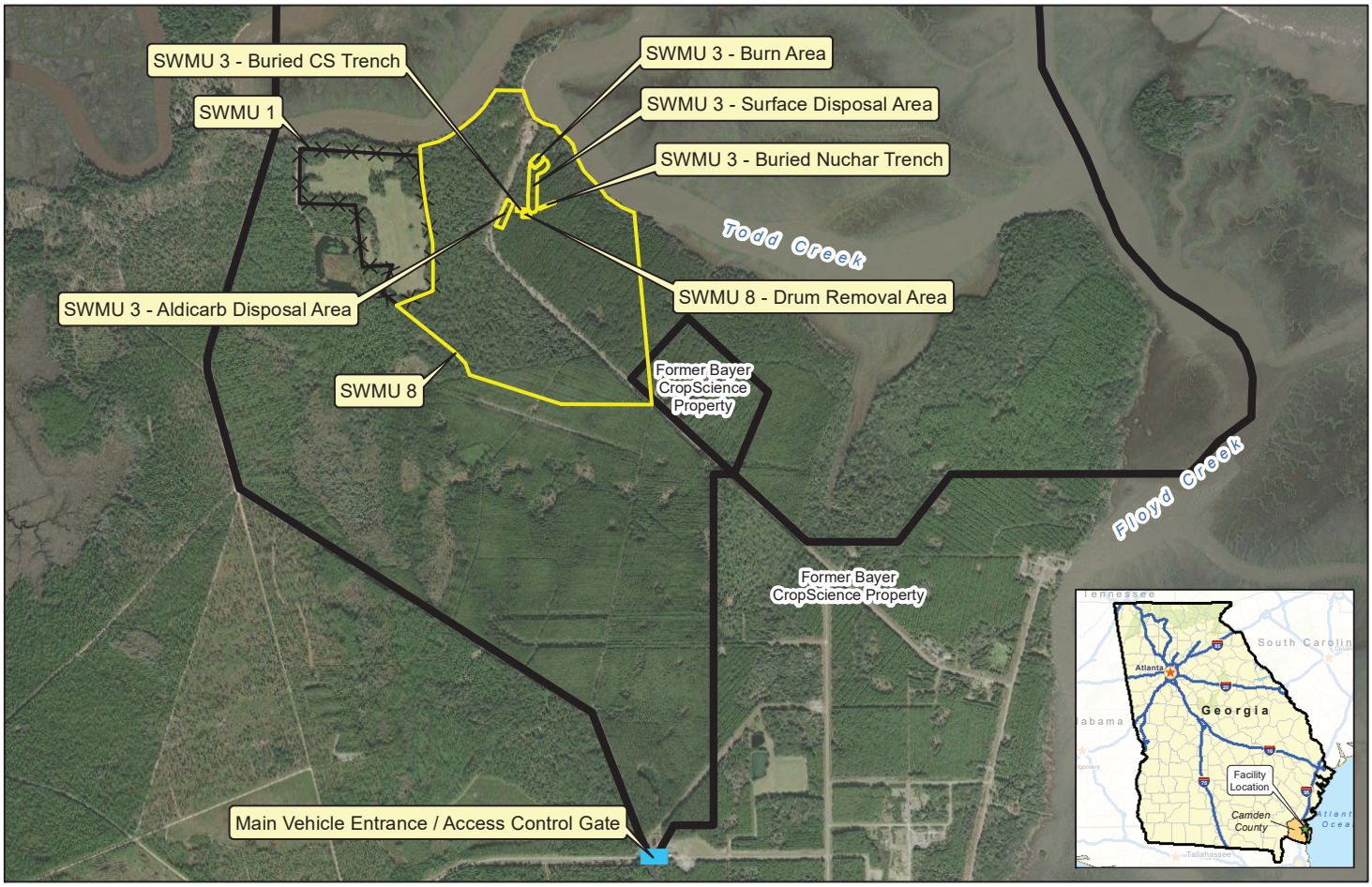
CAS = Chemical Abstracts Service
EPA = U.S. Environmental Protection Agency
mg/kg = milligram(s) per kilogram
RSL = Regional Screening Level

Table 9. Remedial Alternatives Summary
2-chlorobenzalmalononitrile Corrective Action Plan
Solid Waste Management Unit 8 - Drum Removal Area
Union Carbide Corporation
UCC-Woodbine, Camden County, Georgia

Alternative	Estimated Costs	Description	Pros	Cons
Alternative 1: Removal and offsite disposal of CS-impacted soil	Construction: $1,289,000 O&M per Year: $0 Life Cycle: $1,289,000	- Excavation and offsite disposal of soil where CS >0.5 mg/kg and PCBs >1 mg/kg - Offsite disposal of soil stockpile - Confirmation sampling for site CS constituents and verification sampling for PCBs - Site restoration	- Removes impacted soil from site - No additional future use restrictions - No future monitoring and maintenance	- Highest cost driven by offsite disposal transportation and fees - Some uncertainty in soil excavation volume
Alternative 2: Onsite Management of CS-Impacted Surface Soil with Soil Cover	Construction: $895,000 O&M per Year: $9,000 Life Cycle: $1,165,000	- Excavation and offsite disposal of soils where PCBs >25 mg/kg - Excavation of top 1 foot of soil where CS > 0.5 mg/kg and consolidate in drum excavation and cover with 18 inches of soil - Confirmation sampling for site CS constituents and verification sampling for PCBs - Offsite disposal of soil stockpile - Site restoration - Installation of permanent markers for CS-impacted area - Record environmental covenant - Groundwater monitoring and soil cover maintenance for 30 years	- Lower capital costs than Alternatives 1 and 2 - Less offsite transportation and disposal	- Long-term monitoring and maintenance required - Additional land use restrictions required on disposal area
Alternative 3: Onsite Disposal of CS-Impacted Soil with Engineered Cap	Construction: $1,213,000 O&M per Year: $12,000 Life Cycle: $1,573,000	- Excavation of soil where CS >0.5 mg/kg and ≤ PCBs 100 mg/kg - Consolidate removed soils and stockpile in drum excavation and cover with engineered cap - Confirmation sampling for site CS constituents and verification sampling for PCBs - Installation of permanent markers and fencing around capped area - Record environmental covenant - Groundwater monitoring and soil cover maintenance for 30 years	- No offsite disposal required - Engineered cap prevents infiltration and better protects groundwater than Alternative 2	- Longer timeframe for agency reviews and approvals - Long-term monitoring and maintenance required - Additional land use restrictions required on capped area

Notes:
CS = 2-chlorobenzalmalononitrile
> = greater than
COCs = constituents of concern
mg/kg = milligram(s) per kilogram
O&M = operation and maintenance
PCB = polyvinyl chloride
TSCA = Toxic Substances Control Act

Figures

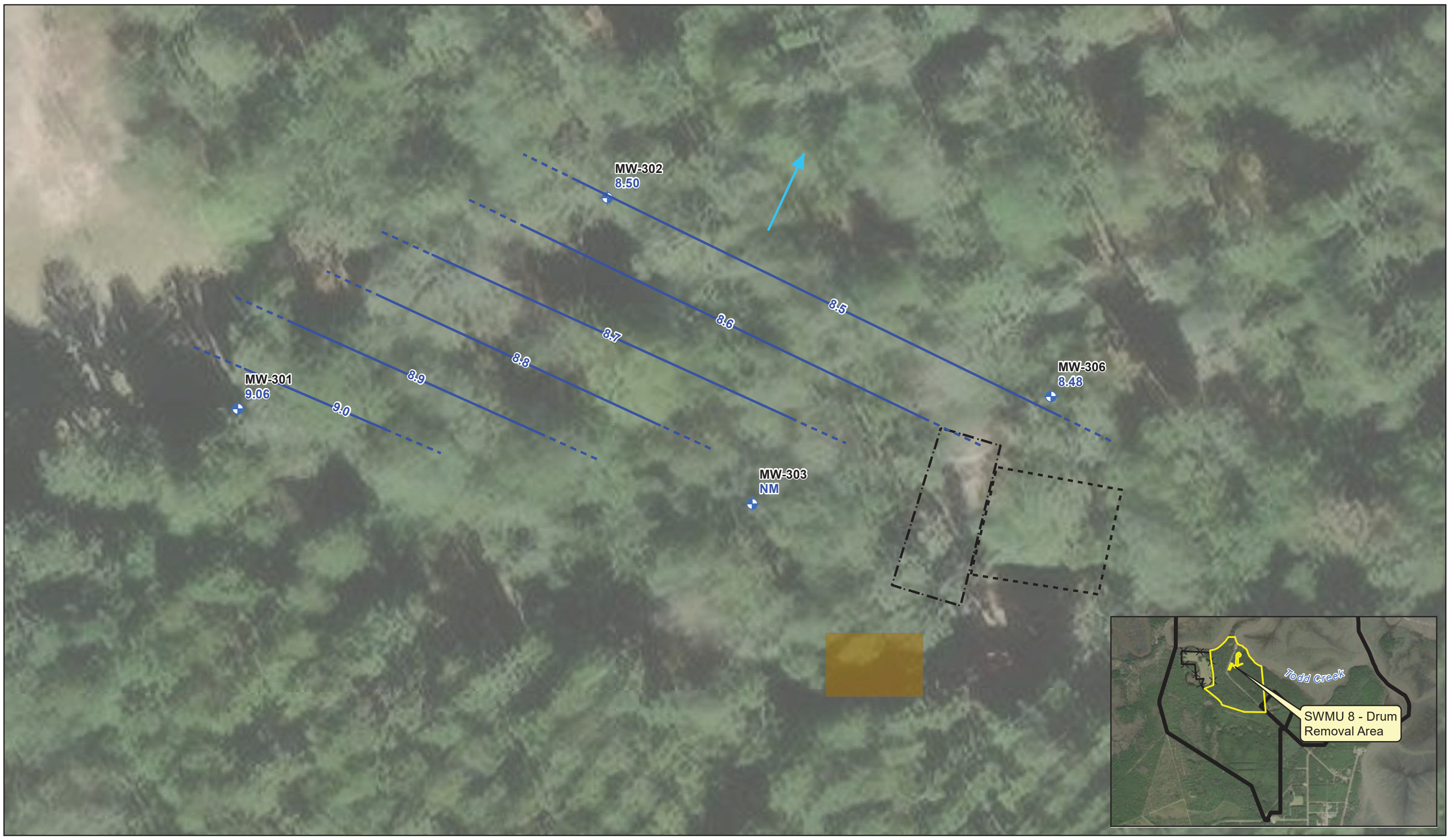


Access Gate
Solid Waste Management Unit (SWMU)
Closed Landfill Boundary/Fence
Property Boundary

Notes:
1. ESRI Aerial from ArcGIS Online, Dated 11/18/2020
2. Property boundary based on survey completed September 21, 2017 by Geomatics Corporation.

N
0 1,000 2,000 Feet

Figure 1. Drum Removal Area Location
2-Chlorobenzalmalononitrile Corrective Action Plan
SWMU 8 - Drum Removal Area
Union Carbine Corporation
UCC Woodbine, Camden County, Georgia



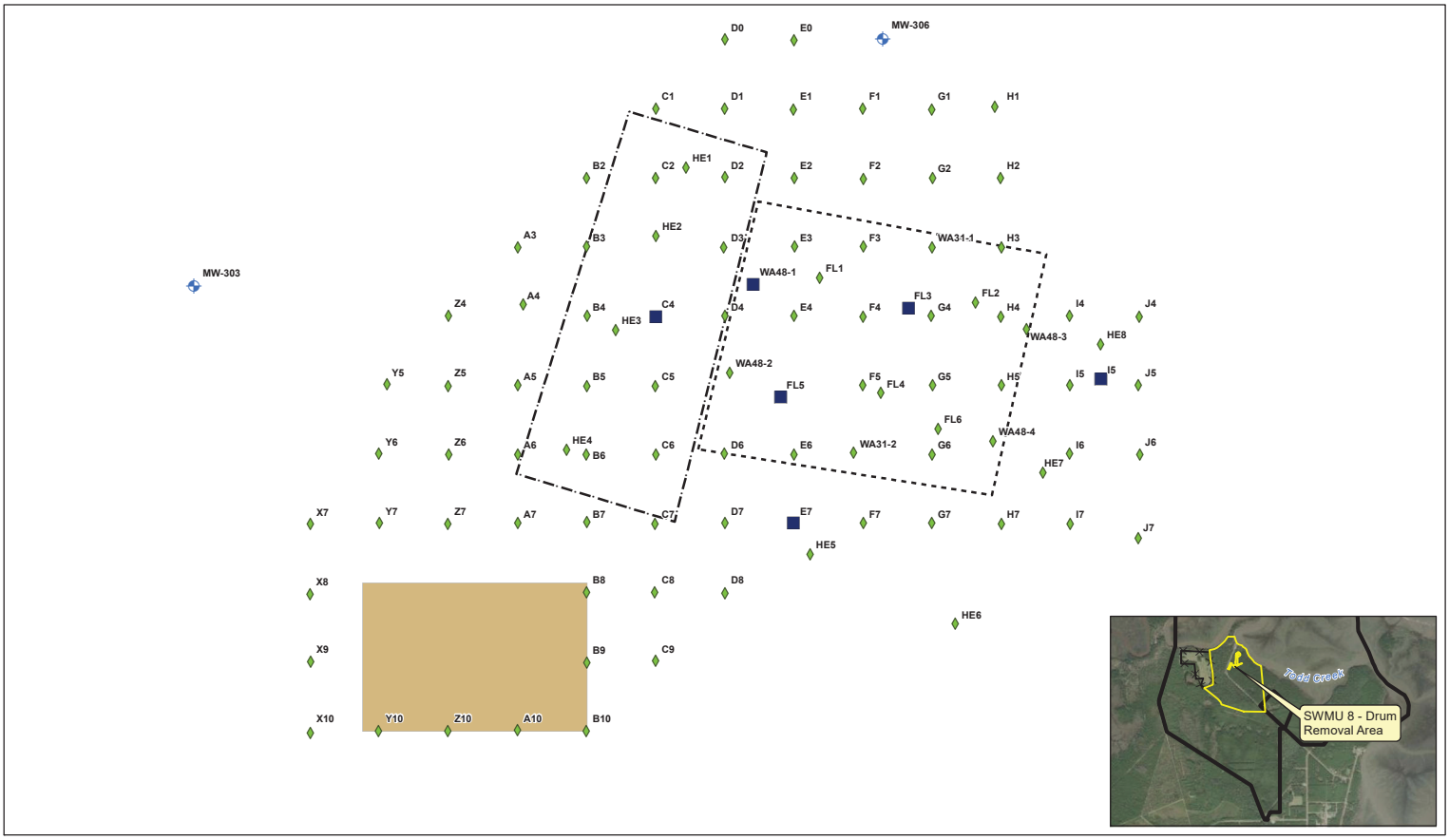
Monitoring Well
Potentiometric Contour (dashed where inferred)
Approximate Groundwater Flow Direction
Approximate Excavation Boundary
Approximate Former Stockpile Location
Approximate Stockpile Location

Notes:
1. NM = Not measured due to an obstruction in the well.
2. Groundwater elevation shown are in NAVD 88
3. ESRI Aerial from ArcGIS Online, Dated 11/18/2020

N
0 30 60
Feet

Figure 2. Potentiometric Surface – October 2022
2-Chlorobenzalmalononitrile Corrective Action Plan
SWMU 8 - Drum Removal Area
Union Carbide Corporation
UCC Woodbine, Camden County, Georgia

Jacobs



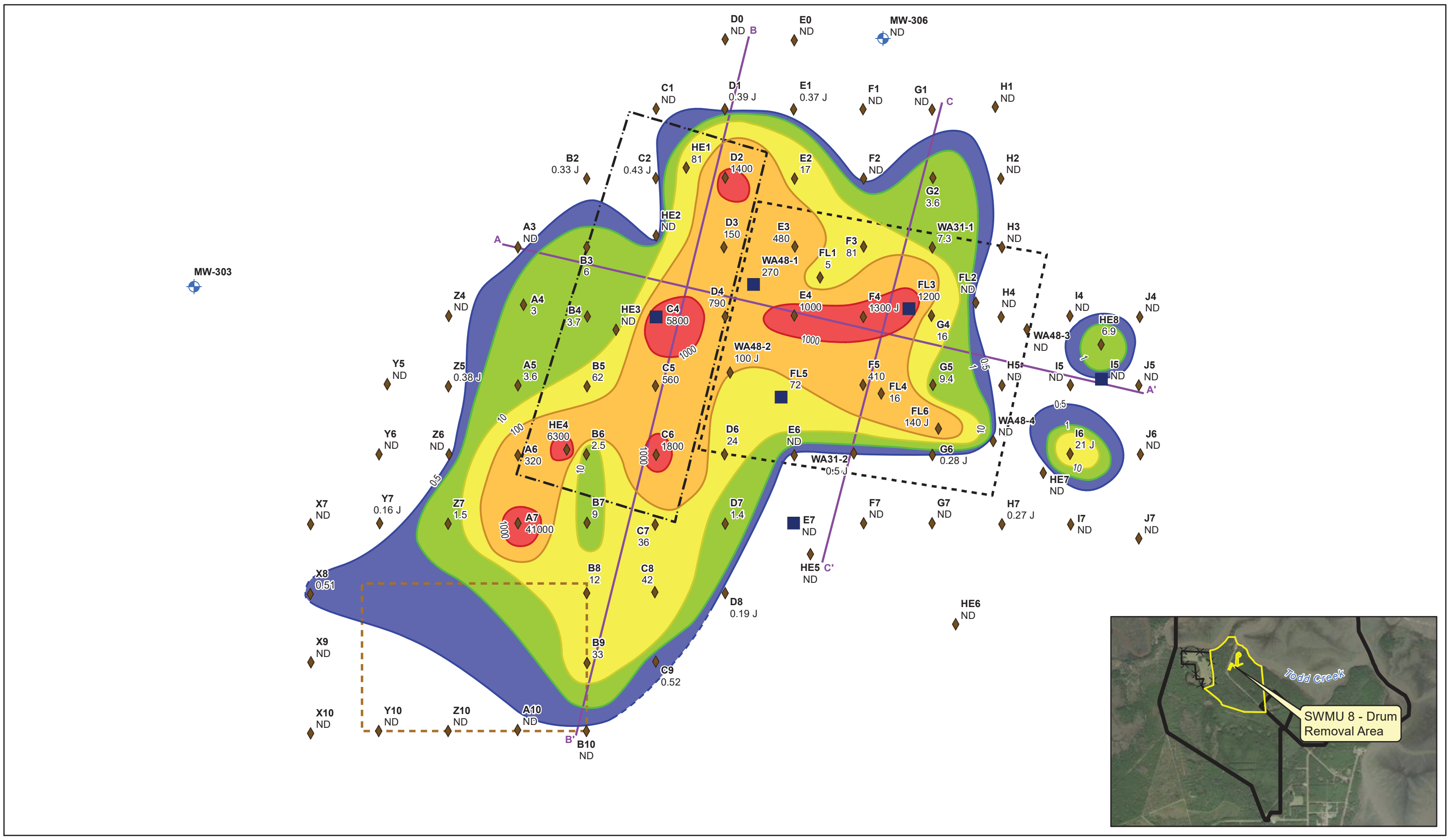
Hand Auger Soil Sample Location
Soil Boring Location
Monitoring Well
Approximate Excavation Boundary
Approximate Former Stockpile Location
Approximate Stockpile Location

Note:
Samples collected in 2022 were based on a 3-meter grid spacing

N
0 13 26
Feet

Figure 3. Drum Removal Area Investigation Locations
2-Chlorobenzalmalononitrile Corrective Action Plan
SWMU 8 - Drum Removal Area
Union Carbide Corporation
UCC Woodbine, Camden County, Georgia

Jacobs



- Hand Auger Soil Sample Location
- Soil Boring Location
- Transect
- Approximate Excavation Boundary
- Approximate Former Stockpile Location
- Approximate Stockpile Location

CS Concentration in Soil (mg/kg)
(Border Dashed Where Inferred)

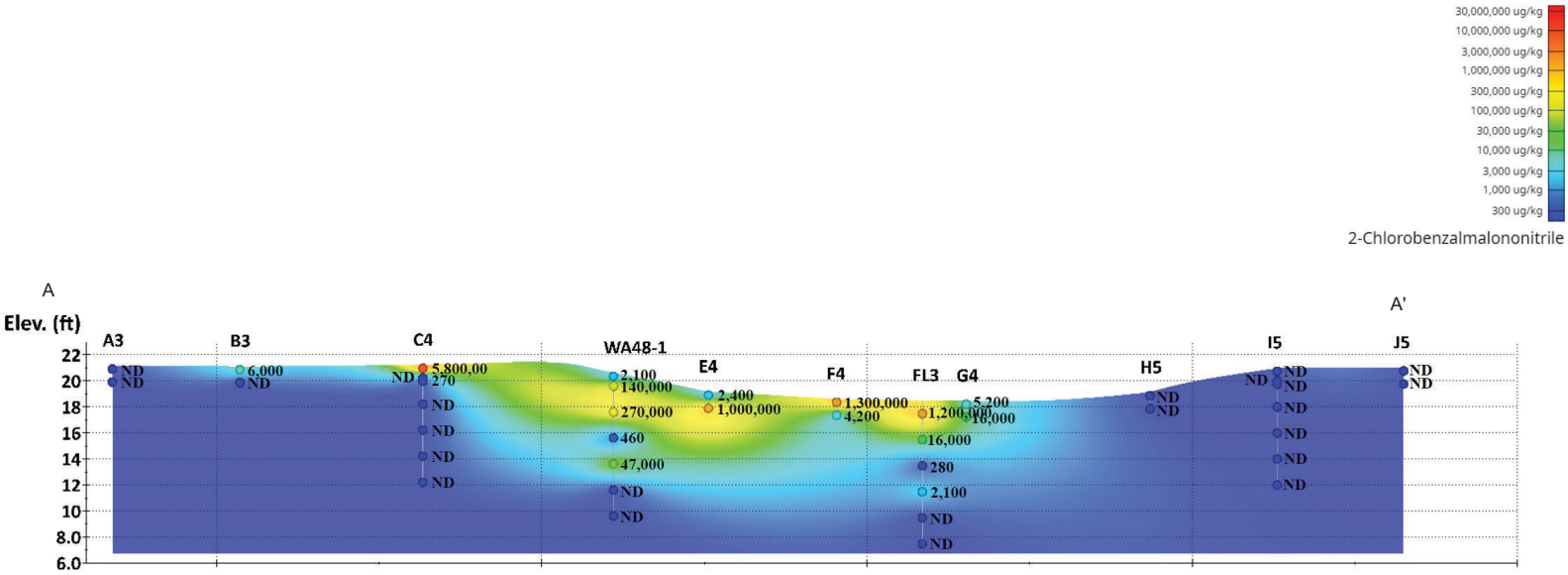
≥0.5 ≥100
≥1 ≥1000
≥10

Notes:
1. 2-chlorobenzalmalononitrile (CS) concentrations shown in milligrams per kilogram.
2. Data collected over multiple sampling events from 2020 to 2022. If a location was sampled during multiple events, the most recent data set was used.
3. The maximum concentration for each location is posted and used for contouring.
4. ND = Not Detected
5. J = The analyte/compound was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Figure 4. Extent of CS in Soil
2-Chlorobenzalmalononitrile Corrective Action Plan
SWMU 8 - Drum Removal Area
Union Carbide Corporation
UCC Woodbine, Camden County, Georgia

MKE \\dc1vs01\GISProj\D\DowChemicals\Woodbine\MapFiles\2023\2023_SWMU8_CAP\Figure04_Extent_of_CS_in_Soil.mxd STOLZRC 6/19/2023 3:16:14 PM

Jacobs

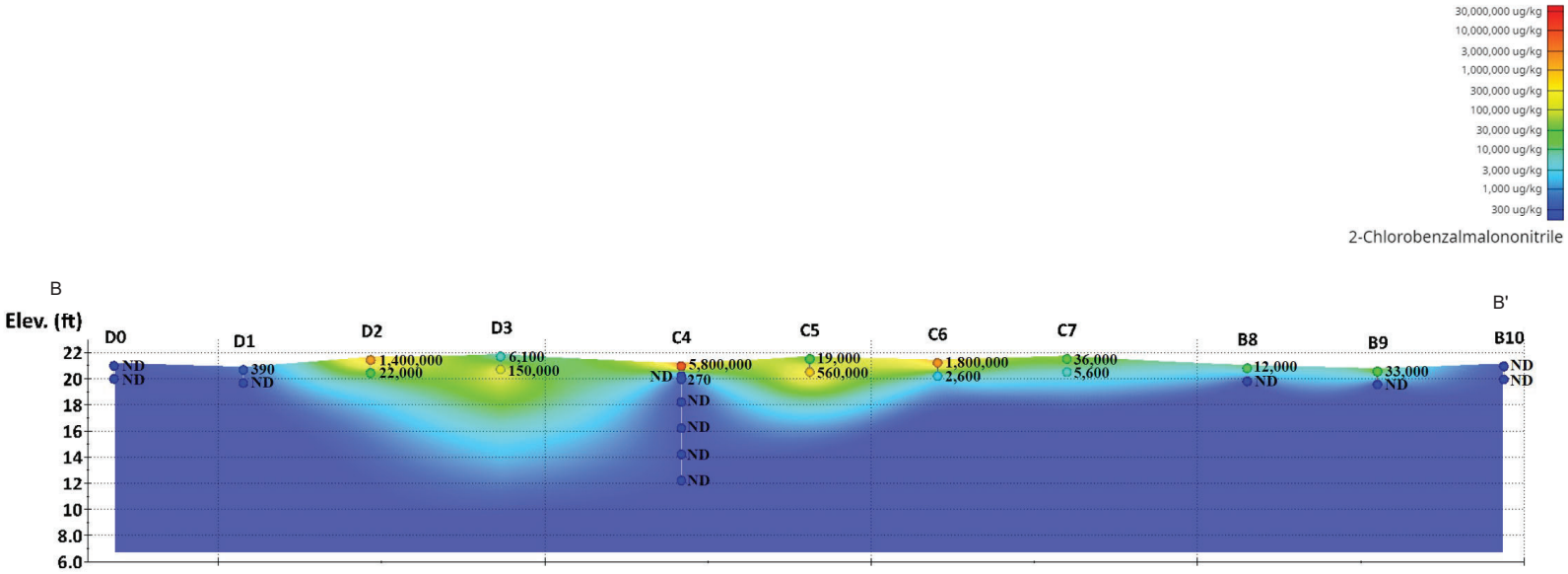


Notes:

1. CS = 2-chlorobenzalmalononitrile
2. ug/kg = micrograms per kilogram
3. Data collected over multiple sampling events from 2020 to 2022. If a location was sampled during multiple events, the most recent data set was used for contouring.
4. ND = not detected
5. Elevations are in feet (ft) and datum is NAVD 88.

Figure 5. Cross Section A-A' - CS Results
2-Chlorobenzalmalononitrile Corrective Action Plan
SWMU 8 - Drum Removal Area
Union Carbine Corporation
UCC Woodbine, Camden County, Georgia

Jacobs

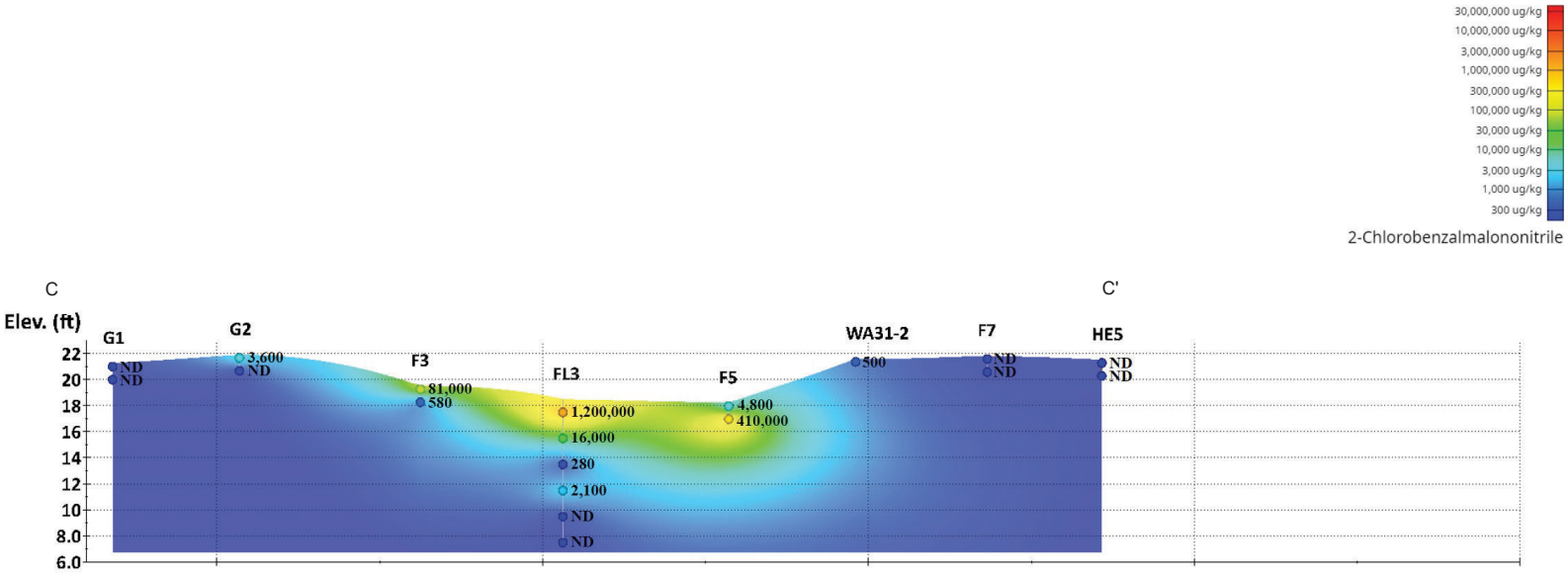


Notes:

1. CS = 2-chlorobenzalmalononitrile
2. ug/kg = micrograms per kilogram
3. Data collected over multiple sampling events from 2020 to 2022. If a location was sampled during multiple events, the most recent data set was used for contouring.
4. ND = not detected
5. Elevations are in feet (ft) and datum is NAVD 88.

Figure 6. Cross Section B-B' - CS Results
2-Chlorobenzalmalononitrile Corrective Action Plan
SWMU 8 - Drum Removal Area
Union Carbine Corporation
UCC Woodbine, Camden County, Georgia

Jacobs



Notes:

1. CS = 2-chlorobenzalmalononitrile
2. ug/kg = micrograms per kilogram
3. Data collected over multiple sampling events from 2020 to 2022. If a location was sampled during multiple events, the most recent data set was used for contouring.
4. ND = not detected
5. Elevations are in feet (ft) and datum is NAVD 88.

Figure . Cross Section C-C' - CS Results
2-Chlorobenzalmalononitrile Corrective Action Plan
SWMU 8 - Drum Removal Area
Union Carbine Corporation
UCC Woodbine, Camden County, Georgia

Jacobs

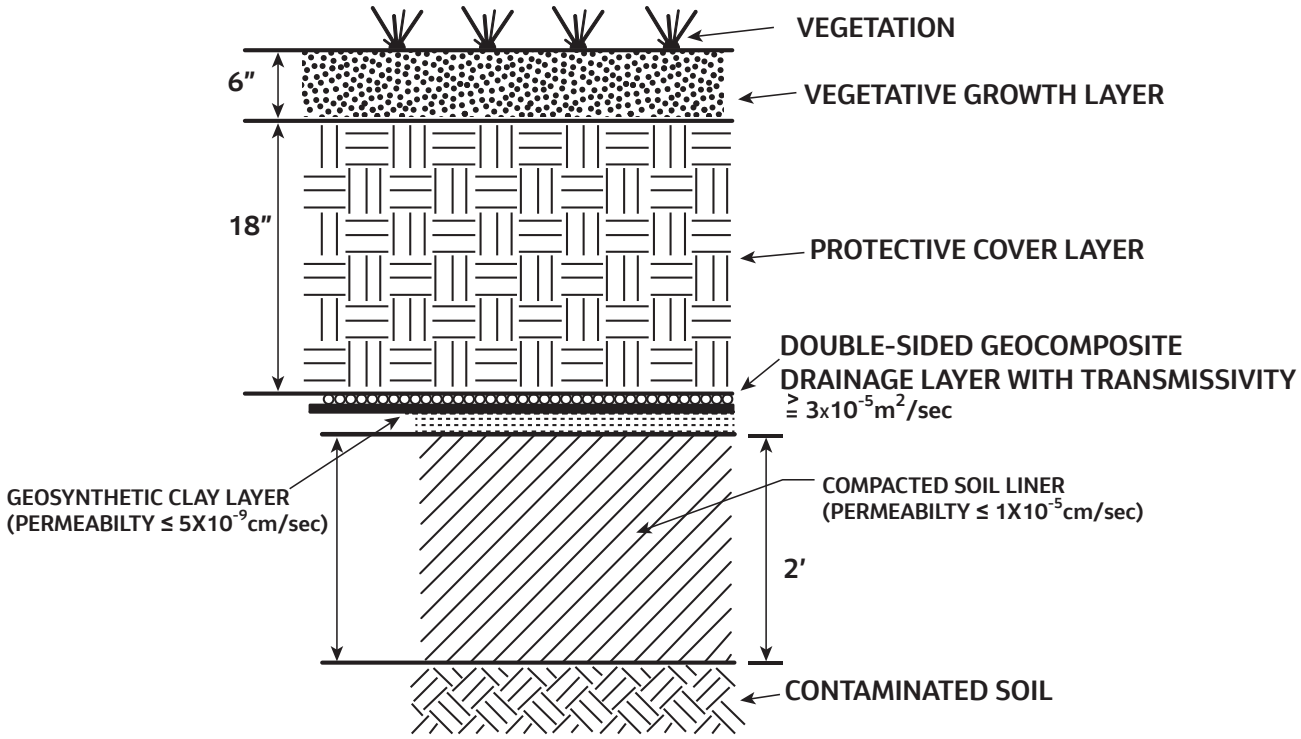


Figure 8. Conceptual Cap Design
2-Chlorobenzalmalononitrile Corrective Action Plan
SWMU 8 - Drum Removal Area
Union Carbine Corporation
UCC Woodbine, Camden County, Georgia

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Attachment 1
Soil Boring Logs and Well Installation Record

Jacobs

PROJECT NUMBER:	CORE NUMBER:	
WOO028DW	C4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 9.0 ft START : 10/27/22 14:40 END : 10/27/2022 LOGGER : B. Thomas

DEPTH BELOW EXISTING GRADE (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0.0 - 1.2 - SILTY SAND (SM) - (2.5Y 3/3), dry, very loose, non-plastic, non-cohesive, massive, fine sand and silt, some woody debris(limbs)	PID 0.0 ppm throughout boring
		3.0	RS-1		1.2 - 3.0 - SAND (SP) - (2.5Y 5/6), dry, very loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	Piece of metal mesh at 2.5' bgs
					3.0 - 4.7 - NO RECOVERY	
5	5.0				4.7 - 6.9 - SAND (SP) - Interbedded layered bands of different colored sand, dark tan and brownish gray (2.5Y 6/6 - 2.5Y 4/2), moist, loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
		2.0	RS-2		6.9 - 8.0 - SAND (SP) - (10YR 5/6), dry, very loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
					8.0 - 9.6 - NO RECOVERY	Water table 9.0' bgs
10	10.0				9.6 - 12.0 - SAND (SP) - Very dark brown (5YR 2.5/1), moist, loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
		3.0	RS-3		12.0 - 13.0 - SAND (SP) - (10YR 5/6), moist, loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
	13.0				EOB at 13' bgs	
15						

Jacobs

PROJECT NUMBER:	CORE NUMBER:	
WOO028DW	E7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 8-9 START : 10/26/22 13:00 END : 10/26/22 13:30 LOGGER : B. Thomas

DEPTH BELOW EXISTING GRADE (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0.0 - 2.0 - SAND (SP) - Tan (2.5Y 6/4), dry, very loose, non-plastic, non-cohesive, massive, fine sand, possible some silt, wood fragments at 1.3 - 1.4' bgs, roots at surface but no real organic layer	PID 0.0 ppm throughout boring Possibly 1.5' fill over original native surface which is the wood in sample/interval E7_20221026_0-2_ft_N_SO
		2.0	RS-1		2.0 - 5.0 - NO RECOVERY	E7_20221026_4-6_ft_N_SO
5	5.0					
		5.0	RS-2		5.0 - 8.0 - SAND (SP) - Several color changes (See below), dry, very loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted 5.0 - 5.5 - (2.5Y 3/3) 5.5 - 6.4 - (2.5Y 4/3) 6.4 - 7.3 - (2.5Y 8/2) 7.3 - 8.0 - (10YR 6/6)	E7_20221026_6-8_ft_N_SO
					8.0 - 13.0 - SAND (SP) - Several color changes (See below), moist, very loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted 8.0 - 10.1 - (7.5YR 5/4) 10.1 - 11.0 - (7.5YR 3/3) 11.0 - 13.0 - (10YR 4/6)	E7_20221026_8-10_ft_N_SO Water table at 8-9' bgs
10	10.0					
		3.0	RS-3			
	13.0					
					EOB at 13' bgs	
15						

Jacobs

PROJECT NUMBER:	CORE NUMBER:	
WOO028DW	I5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 8-9 START : 10/27/22 09:50 END : 10/27/22 10:30 LOGGER : B. Thomas

DEPTH BELOW EXISTING GRADE (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0.0 - 3.0 - ORGANIC SOIL (OL) - Brownish gray (10YR 6/1), dry, very loose (matted roots nut sand is loose), non-plastic, non-cohesive, massive, peaty roots, some silty sand, leaves	PID 0.0 ppm throughout boring
					0.3 - 0.8 - SILTY SAND (SM) - Grayish brown (2.5YR 5/2), dry, very loose, non-plastic, non-cohesive, massive, very fine sand	I5-0005_20220512_N_SO I5_20221026_0-2_ft_N_SO
					0.8 - 2.0 - SAND (SP) - Tan (10YR 5/2), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted	
		5.0	RS-1		2.0 - 3.8 - SAND (SP) - Tannish brown (2.5YR 4/4), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted	I5_20221026_2-4_ft_N_SO
					3.8 - 4.2 - SAND (SP) - Brownish gray (2.5YR 5/2), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted	I5_20221026_4-6_ft_N_SO
5	5.0				4.2 - 6.5 - SAND (SP) - Tan (2.5YR 7/4), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted, fine sand	
						I5_20221026_6-8_ft_N_SO
		5.0	RS-2		6.5 - 8.0 - SAND (SP) - Reddish brown (7.5YR 3/4), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted, fine sand	
					8.0 - 13.0 - SAND (SP) - Reddish brown (7.5YR 3/4), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted, fine sand	I5_20221026_8-10_ft_N_SO Water table 8.0 - 9.0' bgs
10	10.0					3.5 bags hole plug to fill hole to surface
		3.0	RS-3			
	13.0				EOB at 13' bgs	Total depth 13.0' bgs
15						

Jacobs

PROJECT NUMBER:	CORE NUMBER:	
WOO028DW	MW-306	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 11.0 ft START : 10/25/22 15:20 END : 10/25/22 16:00 LOGGER : B. Thomas

DEPTH BELOW EXISTING GRADE (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0.0 - 1.0 - SILTY SAND (SM) - (2.5Y 7/2), dry, very loose, non-plastic, non-cohesive, massive	PID 0.0 ppm throughout entire boring
		5.0	RS-1		1.0 - 3.9 - FINE SAND (SP) - (2.5Y 5/3), some silt, dry, very loose, non-plastic, non-cohesive, massive	100% recovery but due to size of core bag and loose nature of soil, recovered 6' of soil in 3' bag. Every 6" is actually 1' MW-306_20221025_0-2_ft_N_SO MW-306_20221025_0-2_ft_FD_SO MW-306_20221025_2-4_ft_N_SO
5	5.0				3.9 - 5.8 - FINE SAND (SP) - (2.5Y 7/6), some silt but less than above, dry, very loose, non-plastic, non-cohesive, massive	MW-306_20221025_4-6_ft_N_SO
		5.0	RS-2		5.8 - 7.5 - FINE SAND (SP) - (7.5YR 4/4), dry, very loose, non-plastic, non cohesive, massive	MW-306_20221025_6-8_ft_N_SO
					7.9 - 9.0 - FINE SAND (SP) - (7.5YR 3/3), dry, poorly sorted, very loose, non-plastic, non-cohesive, massive	6 - 11' - Only recovered 3' of core due to settling of sand 100% recovery but loose sand collapsed into core bag. MW-306_20221025_8-10_ft_N_SO
10	10.0				9.0 - 11.0 - FINE SAND (SP) - (10YR 4/6), dry, poorly sorted, very loose, non-plastic, non,cohesive, massive	MW-306_20221025_10-12_ft_N_SO
		5.0	RS-3		11.0 - 16.0 - FINE SAND (SP) - (2.5Y 4/6), moist, poorly sorted, very loose, non-plastic, non,cohesive, massive	Water table at 11.0' bgs
15	15.0					
		5.0	RS-4		16.0 - 21.0 - FINE SAND (SP) - (2.5Y 4/6), moist, poorly sorted, very loose, non-plastic, non,cohesive, massive	
20	20.0					
	21.0	1.0	RS-5			
					EOB at 21' bgs	
25						

PROJECT NUMBER:	BORING NUMBER:
WOO023DW	FL-3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling | PROJECT LOCATION: Woodbine, GA

ELEVATION : | DRILLING CONTRACTOR : Cascade Drilling

DRILLING EQUIPMENT AND METHOD : Geoprobe 6620DT, DPT | LOGGER : B. Thomas

WATER LEVELS : ▼ 10 | START : 5/11/22 13:20 | END : 5/11/22 13:40 | EDITOR : J. Graham

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (ft)	#TYPE	SYMBOLIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0.0 - 1.2 - NO RECOVERY	FL3-1-0002-20220511-N-SO (0.0-2.0')
					1.2 - 1.5 - SILTY SAND (SM) - Light brownish tan, dry, very loose, noncohesive, nonplastic, massive	
					1.5 - 2.15 - SILTY SAND (SM) - Light grayish tan, dry, loose, noncohesive, nonplastic, massive, 1/4"-1/2" fragment of product at 1.95' bgs, large chunk of pine bark at 2.0' bgs	FL3-1-0204-20220511-N-SO (2.0-4.0')
		3.8	MC - 1		2.15 - 2.7 - SILTY SAND (SM) - Very light tan, dry, loose, nonohesive, nonplastic, massive	
					2.7 - 5.0 - SILTY SAND (SM) - Tannish brown to brownish tan, dispersed coloring (not mottling but spotty, diffuse changes in color from light to dark), dry, loose, noncohesive, nonplastic, massive	FL3-1-0406-20220511-N-SO (4.0-6.0')
5	5.0					
					5.0 - 5.9 - NO RECOVERY	
					5.9 - 6.0 - SILTY SAND (SM) - Tannish brown to brownish tan, dispersed coloring (not mottling but spotty, diffuse changes in color from light to dark), dry, loose, noncohesive, nonplastic, massive	FL3-1-0608-20220511-N-SO (6.0-8.0') FL3-1-0608-20220511-FD-SO (6.0-8.0')
					6.0 - 7.0 - SILTY SAND (SM) - Brown with dark brown mottling (possibly organics), dry, loose, noncohesive, nonplastic, massive	
		4.1	MC - 2		7.0 - 10.0 - SILTY SAND (SM) - Brown, dry, loose, noncohesive, nonplastic, massive, damp/moist at 9' bgs	FL3-1-0810-20220511-N-SO (8.0-10.0')
10	10.0					▼
					10.0 - 12.0 - SILTY SAND (SM) - Brown, wet, loose, noncohesive, nonplastic, massive, very wet at 12' bgs	Water table 10.0' bgs
		2.0	MC - 3			FL3-1-1012-20220511-N-SO (10.0-12.0')
	12.0					
					EOB at 12.0' bgs	
15						

PROJECT NUMBER:	BORING NUMBER:
WOO023DW	FL-5 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling | PROJECT LOCATION: Woodbine, GA

ELEVATION : | DRILLING CONTRACTOR : Cascade Drilling

DRILLING EQUIPMENT AND METHOD : Geoprobe 6620DT, DPT | LOGGER : B. Thomas

WATER LEVELS : ▼ 9.8 | START : 5/11/22 12:35 | END : 5/11/22 13:05 | EDITOR : J. Graham

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (ft)	#TYPE	SYMBOLIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0.0 - 2.5 - NO RECOVERY	FL5-1-0002-20220511-N-SO (0.0-2.0')
		2.5	MC - 1		2.5 - 3.0 - SILTY SAND (SM) - Light tan, dry, very loose, noncohesive, nonplastic, massive	FL5-1-0204-20220511-N-SO (2.0-4.0')
					3.0 - 3.4 - SILTY SAND (SM) - Light brown, dry, loose, noncohesive, nonplastic, massive	
					3.4 - 5.0 - SILTY SANDY (SM) - Orangish tan from 3.4'-3.6' becoming tan from 3.6'-3.8' to light grayish/cream tan from 3.8'-4.3' to light grayish brown from 4.3'-5.0', dry, loose, noncohesive, nonplastic, massive	FL5-1-0406-20220511-N-SO (4.0-6.0')
5	5.0				5.0 - 5.6 - NO RECOVERY	
		4.4	MC - 2		5.6 - 7.5 - SILTY SAND (SM) - Dark brown, dry, noncohesive, nonplastic, massive	FL5-1-0608-20220511-N-SO (6.0-8.0') FL5-1-0608-20220511-FD-SO (6.0-8.0')
					7.5 - 10.0 - SILTY SAND (SM) - Brownish tan, dry to damp at 9.8' bgs, soft, noncohesive, nonplastic, massive	FL5-1-0810-20220511-N-SO (8.0-10.0')
10	10.0					Water at 9.8' bgs ▼
		2.0	MC - 3		10.0 - 12.0 - SILTY SAND (SM) - Brownish tan, damp to wet, soft, noncohesive, nonplastic, massive	FL5-1-1012-20220511-N-SO (10.0-12.0')
	12.0				EOB at 12.0' bgs	
15						

Jacobs

PROJECT NUMBER:	BORING NUMBER:
WOO023DW	WA48-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling | PROJECT LOCATION: Woodbine, GA

ELEVATION : | DRILLING CONTRACTOR : Cascade Drilling

DRILLING EQUIPMENT AND METHOD : Geoprobe 6620DT, DPT | LOGGER : B. Thomas

WATER LEVELS : ▼ 10 | START : 5/11/22 10:45 | END : 5/11/22 11:00 | EDITOR : J. Graham

DEPTH BELOW EXISTING GRADE (ft)	INTERVAL (ft)	RECOVERY (ft)	#TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0.0					0.0 - 1.8 - NO RECOVERY	WA48-1-0002-20220511-N-SO (0.0-2.0') PID = 0.0 ppm throughout boring
		3.2	MC - 1		1.8 - 2.9 - SILTY SAND (SM) - Brown, dry, very loose, noncohesive, nonplastic, massive	WA48-1-0204-20220511-N-SO (2.0-4.0') WA48-1-0204-20220511-MS-SO (2.0-4.0') WA48-1-0204-20220511-MSD-SO (2.0-4.0')
					2.9 - 3.4 - SILTY SAND (SM) - Dark brown, dry, very loose, noncohesive, nonplastic, massive	
					3.4 - 5.0 - SILTY SAND (SM) - Brown, dry, very loose, noncohesive, nonplastic, massive, becoming lighter in color, turning to tan at 3.6'-3.8'	WA48-1-0406-20220511-N-SO (4.0-6.0')
5 5.0					5.0 - 5.7 - NO RECOVERY	
		4.3	MC - 2		5.7 - 6.0 - SILTY SAND (SM) - Tan, dry, very loose, noncohesive, nonplastic, massive	WA48-1-0608-20220511-N-SO (6.0-8.0')
					6.0 - 6.3 - SILTY SAND (SM) - Dark grayish-brown, sharp transition/contact	
					6.3 - 10.0 - SILTY SAND (SM) - Dark brown, some areas slightly lighter brown than others, some black (possibly organic) mottling between 8'-10', dry, loose, noncohesive, nonplastic, massive	WA48-1-0810-20220511-N-SO (8.0-10.0')
10 10.0					10.0 - 12.0 - SILTY SAND (SM) - Dark brown, some areas slightly lighter brown than others, some black (possibly organic) mottling, wet, loose, noncohesive, nonplastic, massive	Water table 10' bgs WA48-1-1012-20220511-N-SO (10.0-12.0')
		2.0	MC - 3			
12.0					EOB at 12.0' bgs	
15						

COMPLETION REPORT OF WELL No. MW-306

PROJECT: **UCC Delineation Investigation**

PROJECT LOCATION: **UCC Woodbine**

GROUND SURFACE ELEVATION:

DRILLING CONTRACTOR: **Cascade Drilling**

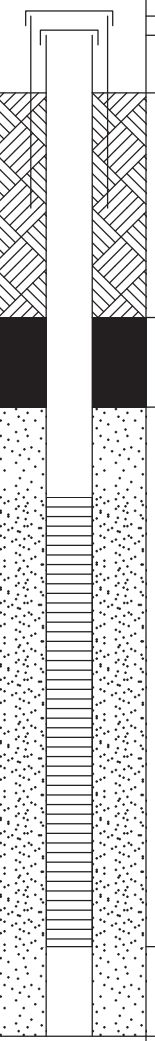
DATUM: **NVGD**

DRILLING METHOD: **Sonic**

LOGGED BY: **B. Thomas**

DATE COMPLETED: **October 27, 2022**

STRATA DESCRIPTION	DEPTH (ft.)	SYMBOL
0.0 - 1.0 - SILTY SAND (SM) - (2.5Y 7/2)	0	
1.0 - 3.9 - FINE SAND (SP) - (2.5Y 5/3)		
3.9 - 5.8 - FINE SAND (SP) - (2.5Y 7/6)	5	
5.8 - 7.5 - FINE SAND (SP) - (7.5YR 4/4)		
7.9 - 9.0 - FINE SAND (SP) - (7.5YR 3/3)		
9.0 - 11.0 - FINE SAND (SP) - (10YR 4/6)	10	
11.0 - 16.0 - FINE SAND (SP) - (2.5Y 4/6)		
	15	
16.0 - 21.0 - FINE SAND (SP) - (2.5Y 4/6)		
	20	



WELL DETAILS

DEPTH (ft.)		ELEVATION (ft.)
	TPC	
	TRC	
0.0	GS	
5.0		
7.0		
19.0		
21.0		

WELL CONSTRUCTION DETAILS

PROTECTIVE CASING
- Diameter:
- Type: **Concrete Pad**
- Interval: **0.0 - 4.0"**

RISER CASING
- Diameter:
- Type: **Stick Up**
- Interval:

GROUT
- Type: **Portland Cement + Quick Gel**
- Interval: **0.0 - 5.0'**

SEAL
- Type: **Bentonite (Time Release Pellets)**
- Interval: **5.0 - 7.0'**

SANDPACK
- Type: **Sand (20/30)**
- Interval: **7.0 - 21.0'**

SCREEN
- Diameter: **2.0"**
- Type: **Sch. 40 PVC, 0.010"**
- Interval: **9.0 - 19.0'**

WELL DEVELOPMENT DATA
- DATE: **10/27/2022**
- METHOD: **Hurricane Pump (Surge/Purge)**
- DURATION: **1 hr**
- RATE: **110 gallons/hr**

FINAL MEASUREMENTS:

pH	Temperature (° C)	Conductivity (mmhos/cm)	Turbidity (NTU)
6.28	23.06	0.173	9.7

LEGEND

FILTER PACK	
BENTONITE	
CEMENT GROUT	
CUTTINGS / BACKFILL	

TPC	TOP OF PROTECTIVE CASING
TRC	TOP OF RISER CASING
GS	GROUND SURFACE
BS	BENTONITE SEAL
FP	FILTER PACK
TSC	TOP OF SCREEN
BSC	BOTTOM OF SCREEN
TD	TOTAL DEPTH

COMPLETION REPORT OF WELL No. MW-306