



## **PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT**

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**The Butler Company  
325 South Broadway Street  
Butler, DeKalb County, Indiana  
128(a) Response Program Grant  
Indiana Brownfields Site ID: 4170705**

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## **1.0 EXECUTIVE SUMMARY**

In accordance with the Indiana Brownfields Program (IBP) and United States Environmental Protection Agency (US EPA) approved Sampling and Analysis Plan (SAP) dated April 16, 2019, Industrial Waste Management Consulting Group, LLC (IWM Consulting) conducted a Phase II Environmental Site Assessment (Phase II ESA) of The Butler Company property located at 325 South Broadway Street in Butler, DeKalb County, Indiana (Site). The objective of the investigation was to determine the presence/absence, nature and potential extent of contamination at the Site due to historical activities/operations. The environmental investigation was completed between May 15, 2019 and June 18, 2019.

The following is a brief summary of the report. Please refer to the full text of this report in its entirety for a comprehensive understanding of the information presented in this Executive Summary, as specifics are not fully discussed in this section.

### **1.1 Phase II ESA Activities**

IWM Consulting conducted Phase II ESA field activities between May 15, 2019 and June 18, 2019. During the course of this assessment the following investigative activities were completed:

- A geophysical survey of the Site was completed by Ground Penetrating Radar Systems Inc. (GPRS), to identify potential buried underground storage tanks (USTs) and/or other buried objects that may pose an environmental risk to the Site.
- An asbestos survey of the building materials contained in debris piles (previously razed building structures) and the buildings still standing on the Site.
- A lead paint survey of the building materials contained in debris piles and the buildings still standing on the Site was performed with a hand-held X-ray fluorescence (XRF) analyzer.
- A chemical inventory of potential containerized petroleum and/or hazardous substances remaining on the Site was completed.
- Installation of nine (9) subsurface soil borings (BC-GP1 through BC-GP9) to depths of one (1) to two (2) feet beneath previously identified fill material at depths ranging from two (2) to seven (7) feet below surface grade (bsg). The collection and analysis of eighteen (18) soil samples from the fill and underlying clay material.
- Installation of six (6) subsurface soil borings (BC-GP10 through BC-GP15) at depths up to 20 feet bsg to collect soil and groundwater samples for analysis.
- Installation of fifteen (15) shallow soil borings to a depth of two (2) feet bsg to delineate lead impacts in near surface soils in the vicinity of BC-GP3 and SES Environmental (SES) boring location “BC”.
- Groundwater was collected and analyzed from six (6) temporary groundwater monitoring wells installed in borings BC-GP10 through BC-GP15.

- Collection and analysis of five (5) soil and five (5) groundwater samples from BC-GP10, BC-GP11, BC-GP12, BC-GP13, and BC-GP14 for analysis of polyfluoroalkyl substances (PFOAs) and perfluoroalkyl substances (PFOS), collectively identified as PFAS, from areas of the Site possibly impacted from fire-fighting chemicals during previous fires at the Site.
- Installation of three (3) soil vapor probes adjacent to soil borings that displayed elevated vapor readings during field screening and the subsequent attempted collection of soil gas samples for laboratory analysis.
- A professional survey by Maxwell Surveying & Engineering to locate the horizontal position of subsurface boring locations and the horizontal and vertical location of the temporary monitoring wells.

## **1.2 Phase II ESA Results**

### *1.2.1 Geophysical Survey*

A geophysical survey was performed/attempted on the Site by GPRS on May 15, 2019 to determine the presence/absence of the USTs and/or product piping on the Site. Not all areas of the Site could be scanned due to interference from debris. No buried metallic objects were detected/identified; however, two (2) areas with relic utilities were identified.

### *1.2.2 Asbestos Survey Results*

For asbestos-sampling purposes, due to the conditions of the buildings at the Site, building materials were divided into five (5) primary areas (West Central Building debris, East Central Building debris, Central Shed/Kiosk, North Building, and East Building). A total of thirty (30) bulk samples of suspect asbestos-containing materials (ACMs) from each homogeneous area were collected in accordance with the requirements of 40 CFR 763.86. The suspect ACM samples included roofing materials, brick façade mortar, electrical wire insulation, transite-like panels, fire brick mortar, fire brick, window sealant, and electrical board paper backing.

Roofing material samples from several locations contained between <1 and 5% chrysotile.

Two (2) transite panel samples (BC-AB13 and BC-AB14) collected from the East Central Building exhaust stack debris contained 15-20% chrysotile. One (1) friable sample of paper backing (BC-AB21) collected from an electrical panel located near the East Central Building stack debris contained 40% chrysotile.

### *1.2.3 Lead Paint Survey Results*

IWM Consulting collected one (1) representative paint chip sample from the building near the east Site boundary, where the XRF instrument indicated a positive reading (>1.0%). The paint chip sample (red paint) was collected from the doorframe on the east side of the building and had a lead concentration of 18,000 parts per million (ppm), or 1.8 percent by weight.

#### 1.2.4 Chemical Inventory Results

Several containerized chemicals including paints, dyes, and water treatment chemicals were identified within Site buildings and on exterior portions of the Site.

#### 1.2.5 Subsurface Soil Analytical Results

IWM Consulting obtained a total of twenty-four (24) soil samples, comprised of both surface and subsurface soil samples, for the analysis Resource Conservation and Recovery Act (RCRA) 8 metals including copper and zinc and percent moisture. Additional soil samples were also submitted from each soil boring location for laboratory analysis of the toxicity characteristic leaching procedure (TCLP) RCRA 8 metals and hexavalent chromium (Cr (VI)), if necessary. Based on analytical results, Cr (VI) analysis was performed on BC-GP6-SB1 (3-4'), BC-GP8-SS1 (2-3'), and BC-GP9-SS1 (1-2') and TCLP lead analysis was performed on BC-GP3-SS1 (1-2'). Two (2) subsurface soil samples were collected from BC-GP7-SB1 (3-4') and BC-GP8-SB1 (3-4') for the analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) analysis. Eight (8) additional shallow soil samples collected from the vicinity of BC-GP3 and SES boring "BC" were analyzed for lead and percent moisture.

No VOCs, PAHs, or PCBs were detected at concentrations exceeding their respective Indiana Department of Environmental Management (IDEM) *Remediation Closure Guide* (RCG) Residential Migration to Groundwater Screening Levels (Res MTGSLs) in any soil sample.

Each of the RCRA 8 metals including copper and zinc, except silver, were detected above their respective laboratory reporting limits (LRLs) in soil samples analyzed from the Site. Arsenic and lead were each detected in excess of their respective RCG Res MTGSLs, Residential Direct Contact Screening Levels (RDCSLs), and/or Commercial/Industrial Direct Contact Screening Levels (IDCSLs) in several soil samples. Due to the elevated concentration of lead detected in BC-GP3-SS1 (1-2'), TCLP lead analysis was performed on the sample. The three (3) soil samples exhibiting the highest concentrations of total chromium were also submitted for analysis of Cr (VI). The results indicate that Cr VI is not present in soil at concentrations exceeding RCG RDCSLs.

Due to the concentrations of lead detected in BC-GP3-SS1 (1-2') at 3,160 milligram per kilogram (mg/kg) and SES boring "BC" (7,160 mg/kg and 28,700 mg/kg in the duplicate), shallow soil samples from depths of 1 to 2 feet bsg were collected from 5- to 10-feet in each cardinal direction of the aforementioned borings. Analytical results for the shallow soil samples identified lead at concentrations exceeding RCG Excavation Worker Direct Contact Screening Levels (EX DCSLs) in soil near these borings.

Five (5) soil samples and a duplicate were collected and analyzed for PFAS from borings BC-GP10, BC-GP11, BC-GP12, BC-GP13, and BC-GP14. The PFAS Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) were detected in some of the samples ranging between 0.46 and 0.61 µg/kg.

#### 1.2.6 Groundwater Analytical Results

IWM Consulting obtained a total of six (6) groundwater samples for the analysis of VOCs, PAHs, total and dissolved RCRA 8 metals including copper and zinc, PCBs, and/or PFAS.



No VOCs, PAHs, RCRA 8 metals including copper and zinc, or PCBs were detected in any groundwater sample at concentrations exceeding their respective RCG Residential Tap Groundwater Screening Levels (Res TAP GWSLs).

Five (5) groundwater samples and a duplicate were collected and analyzed for PFAS from borings BC-GP10, BC-GP11, BC-GP12, BC-GP13, and BC-GP14. Eight (8) different PFAS compounds were detected in groundwater samples collected from BC-GP12 and/or BC-GP13 ranging from between 3.0 and 23 ng/L. Total PFAS ranged from 30.3 to 48.6 ng/L in BC-GP12 and BC-GP13, respectively.

#### 1.2.7 Soil Gas Analytical Results

IWM Consulting obtained one (1) soil gas sample (BC-SG2) and its duplicate (BC-SG-FD1) for the analysis of VOCs. No contaminants were detected in the soil gas samples at concentrations exceeding their respective calculated RCG Commercial/Industrial Soil Gas Vapor Exposure Screening Levels (Indus SGe VESLs). Water infiltration and/or tight clays prevented the collection of soil gas samples from BC-SG1 and BC-SG3.

#### 1.2.8 Hydrogeology

Groundwater flow beneath the site was determined based on groundwater elevations from the temporary wells to flow to the south-southeast. The groundwater present beneath the site appears to be located within sandy unconsolidated sediments at depths ranging from approximately 19.63 feet bsg (BC-GP11) to approximately 21.18 feet bsg (BC-GP14). Groundwater flow was determined by surveying the elevations of the six (6) temporary well casings to within 1/100<sup>th</sup> of a foot and the spatial well placement on the Site to within 1/10<sup>th</sup> of a foot. Groundwater elevations were calculated based on gauging data collected on May 22, 2019.

### **1.3 Conclusions and Recommendations**

Due to the significant debris and metallic objects on the ground surface at the Site, the geophysical survey could not be successfully completed with the equipment utilized at the time of the survey. No obvious buried metallic objects resembling USTs were identified during the geophysical survey.

ACMs were identified in roofing materials and exhaust stack components in the vicinity of the East Central Building and North Building. Asbestos is present in some of the building materials and should be handled appropriately.

Lead based paint (LBP) was identified (1.8 percent by weight) on the East Building associated with the red paint, but is below actionable concentrations of 5 percent by weight. Disposal considerations for these materials should be discussed with the disposal facility.

Several containerized chemicals were identified in the North Building and near the East Building. An inventory of these materials was performed. However, none of these materials were sampled and/or analyzed to determine disposal options.

In general, the most significant lead and arsenic soil impacts are in surface soils ranging from 0- to 3-feet bsg. No contaminants were detected in groundwater at concentrations exceeding their respective RCG Res TAP GWSLs.



PFAS were detected in both soil and groundwater. There are currently no IDEM RCG screening levels for soil or groundwater impacted with PFAS.

No contaminants were detected in soil gas at concentrations exceeding their respective calculated RCG Indus SGe VESLs.

## 2.0 SITE BACKGROUND/HISTORY

The Site is located at 325 South Broadway Street, north of East Willow Street, in Butler, Indiana as indicated on **Figure 1 (Site Location Map)**. Additionally, the Site is located in the southwest ¼ of the northwest ¼ of the northwest ¼ of Section 12, Township 34 North, Range 14 East in Wilmington Township, DeKalb County, Indiana. The Site is roughly rectangular in shape and contains a total of 3.55-acres in one (1) parcel. According to the property card from the DeKalb County Assessor, provided in **Appendix A**, the parcel number is 17-07-12-109-001.000-027. A copy of the Tax Deed for the Site is also provided in **Appendix A**. A map depicting the surrounding area of the Site is included as **Figure 2 (Site Map and Sample Location Map)**.

A review of the Phase I ESA (dated November 10, 2017) performed for the Site by SES on behalf of the City of Butler indicated that the Site operations between 1888 and 1997 included a machine shop, painting and varnishing shops, plating operations, a foundry, and a chemical company. The ESA also identified at least three (3) buried tanks, possibly corresponding to the USTs located on various portions of the Site as shown on historical Sanborn Fire Insurance Rate Maps. The recognized environmental conditions (RECs) identified by SES in the 2017 Phase I ESA included the following:

- REC#1** Historic manufacturing operations conducted at the site from at least 1898 until 1997 included a machine shop, painting and varnishing shops, plating, a foundry, and a chemical company. Hazardous substances and petroleum products including but not limited to oil, petroleum fuels, solvents, and/or metals were likely stored and used at the site. The potential exists of releases of hazardous substances or petroleum products to have occurred during the long history of manufacturing operations at the site.
- REC#2** During investigation of a petroleum release at the east adjacent bulk plant, chlorinated solvents including trichloroethylene (TCE) were detected in a groundwater sample obtained approximately 200 feet east of the site. While IDEM issued “No Further Action” status to the petroleum release, the source and extent of chlorinated solvent impact in groundwater was not determined.
- REC#3** Evidence of underground storage tanks was not observed during the site inspection; however, a 10-barrel buried oil tank is depicted on the central portion of the site on a historical map from 1897, a gasoline tank is shown on the northeast portion of the site on a map from 1914, and a gasoline tank is shown west of the site beneath South Broadway Street on a map from 1923.

A Phase II ESA dated June 13, 2018 was performed at the Site by SES for the City of Butler. The Phase II included the advancement of seven (7) soil borings, each with a temporary monitoring well. However, groundwater was only identified in six (6) of the temporary wells. Soils encountered in the borings consisted of fill material (bricks, paint chips, cinders, slag, coarse gravel, and wood) which ranged in depth from the surface to about 8 feet bsg. Soils beneath the fill were typically clay with some intermittent sand seams. The borings ranged in depth from 12 to 20 feet bsg. Soil and groundwater samples were analyzed for VOCs, PAHs, and total RCRA 8 metals, including copper and zinc. The Phase II ESA did not identify VOCs, PAHs,

or PCBs in soil and/or groundwater samples collected at the Site that exceeded their respective IDEM RCG Screening Levels. Numerous soil samples had elevated metals concentrations in excess of their respective RCG RDCSLs, IDCSLs, and Res MTGSLs. Lead was detected in one (1) soil sample in excess of its RCG EX DCSL of 1,000 mg/kg.

### **3.0 POTENTIAL AND KNOWN CONTAMINANTS OF CONCERN (COCs)**

Based upon the historical information obtained regarding the subject Site and the IBP's Request for Proposal (RFP), the following potential contaminants of concern were characterized during these Site assessment activities:

- Asbestos using PLM/DS with EPA Method 600/R-93/116 (ACM);
- Lead paint using SW-846 Method 7000B (paint chips);
- VOCs using SW-846 Method TO-15 (soil gas);
- VOCs using SW-846 Method 8260 (soil and groundwater);
- PAHs using SW-846 Method 8270 SIM (soil and groundwater);
- Total RCRA 8 metals including copper and zinc using the appropriate SW-846 Method (soil and groundwater);
- Dissolved RCRA 8 metals including copper and zinc using the appropriate SW-846 Method (groundwater);
- Cr VI low level using SW-846 Method 7199 (soil);
- TCLP metals using SW-846 Method 1311/6010 and/or 1311/7471 (soil);
- PCBs using SW-846 Method 8082 (soil and groundwater);
- Perfluoroalkyl and polyfluoroalkyl substances (PFAS) using SW-846 Method 537M (soil and groundwater); and,
- Percent moisture (soil).

### **4.0 PROPOSED REUSE OF SITE AND REGULATORY GUIDANCE**

The City of Butler Planning Department indicated that the Site may be redeveloped by a local commercial entity that has expressed interest in the Site. The soil analytical results obtained as part of these assessment activities were compared with the applicable 2019 RCG Screening Levels for soil exposure (including residential direct contact, migration to groundwater, and recreational direct contact, if applicable) and the groundwater results were compared to the residential tap screening levels as outlined in Table A-6, Appendix A, of the IDEM RCG, updated March 4, 2019.

## **5.0 SCOPE OF WORK & METHODOLOGIES**

### **5.1 Proposed Scope of Work**

Per the approved SAP, IWM Consulting originally proposed the following scope of work:

- Perform a geophysical survey of the Site to determine if the historical USTs were still present at the Site and/or other buried objects that may pose an environmental risk to the Site were present.
- Perform an asbestos survey of the building materials contained in debris piles (previously razed building structures) and the buildings still standing on the Site.
- Perform a lead paint survey of the building materials contained in debris piles and the buildings still standing on the Site.
- Complete a chemical inventory of potential containerized petroleum products and/or hazardous substances remaining on the Site.
- Install nine (9) soil borings (BC-GP1 through BC-GP9) to one (1) to two (2) feet beneath the fill material which was identified during a previous subsurface investigation at depths ranging from two (2) to seven (7) feet bsg to investigate the current environmental condition of the fill material and underlying clay related to historical Site operations.
- Install six (6) subsurface soil borings (BC-GP10 through BC-GP15) up to 20 feet bsg to investigate the current soil conditions related to historical Site operations.
- Install six (6) temporary groundwater monitoring wells in BC-GP10 through BC-GP15 to determine whether the aquifer has been adversely impacted by historical operations at the Site.
- Analyze select soil and groundwater samples for PFAS to determine their presence.
- Install three (3) soil gas probes adjacent to soil borings which displayed elevated vapor readings during field screening to investigate the potential for vapor intrusion.
- If necessary, perform additional analyses based on initial analytical results and consultation with the IBP Project Manager which include soil samples for Cr VI and TCLP metals and groundwater samples for dissolved RCRA metals including copper and zinc.

The above scope of work was successfully completed (with limited exceptions) as discussed in the following sections of this report. The selection of the final boring locations was based on utility locations and above ground Site features. Site features, utility lines, and boring locations are illustrated on **Figure 2**.

### **5.2 Geophysical Survey Methodology**

Three (3) buried tanks were previously identified on the Site based on a review of historical Sanborn Fire Insurance Rate Maps. A geophysical survey was performed/attempted on the Site by GPRS on May 15, 2019



to determine the presence/absence of the tanks and/or product piping on the Site. GPRS utilized an RD 7000/8000 Radio Frequency detector and a 400-megahertz (MHz) ground penetrating radar (GPR) antenna to identify buried objects on the Site and clear borings prior to the subsurface investigation. Not all areas of the Site could be scanned due to interference from building debris (i.e., wood, metal, concrete, etc.) debris. No buried metallic objects were detected/identified; however, two (2) areas with relic utilities were identified.

### **5.3 Asbestos Survey Methodology**

The asbestos survey included a visual walkthrough at the Site by an Indiana licensed asbestos inspector to identify the presence and general locations of suspect ACMs. The licensed asbestos building inspector conducted an inspection of the accessible building materials contained in debris piles (previously razed building structures) and of the buildings still standing on the Site in accordance with NESHAP requirements for building demolition. Suspect ACMs were located and the materials were delineated into homogeneous areas (areas of suspect ACM that are uniform in color and texture and were installed at the same time for the same purpose).

A total of thirty (30) bulk samples of suspect ACMs from each homogeneous area were collected in accordance with the requirements of 40 CFR 763.86. The suspect ACM samples included roofing materials, brick façade mortar, electrical wire insulation, transite-like panels, fire brick mortar, fire brick, window sealant, and electrical board paper backing. The locations of the bulk samples and homogenous areas are shown on **Figure 3 (Bulk Asbestos and Lead Paint Sample Location Map)**. Standard sampling protocol was employed throughout the inspection, with sampling tools being cleaned between samples and chain-of-custody procedures being observed. The samples were submitted to EMSL Analytical, Inc. (EMSL) of Indianapolis, Indiana, a laboratory accredited to conduct asbestos bulk analyses under the National Voluntary Laboratory Accreditation Program (NVLAP) (Lab Code: 200188-0), and analyzed for asbestos using polarized light microscopy/dispersion staining (PLM/DS) in accordance with EPA Method 600/R-93/116.

### **5.4 Lead Paint Survey Methodology**

The lead paint survey included a visual walkthrough at the Site by an Indiana licensed lead inspector to identify the presence and general locations of suspected, readily accessible LBP. The licensed lead inspector conducted an inspection of the accessible building materials contained in debris piles (previously razed building structures) and of the buildings still standing on the Site. Suspect lead-painted surfaces were located and the materials were delineated into homogeneous areas (areas of suspected LBP that are uniform in color and texture and appeared to be painted at the same time).

IWM Consulting utilized an OLYMPUS® Innov-X Systems Alpha Series™ XRF spectrometer to perform in-situ lead paint determinations. The XRF was utilized to conduct direct field measurements of painted surfaces (e.g., walls, ceilings, window sills, bricks, etc.). Paint chip samples were collected for laboratory analysis from materials with XRF readings exceeding a positive threshold determined by field calibration, substrate correction, and/or model specifications.

IWM Consulting collected one (1) representative paint chip sample from the building near the east Site boundary, where the XRF instrument indicated a positive reading (>1.0%). The paint chip sample was collected from the doorframe on the east side of the building. The location of the paint sample is shown on

**Figure 3.** The paint chip sample was submitted to EMSL of Indianapolis, Indiana and analyzed for lead using SW-846 Method 7000B by flame atomic absorption.

## **5.5 Chemical Inventory Methodology**

A chemical inventory consisting of identifying potential containerized petroleum and/or chemical materials was performed on the Site and within the Site buildings. The chemical inventory was completed concurrently with the asbestos and lead paint surveys.

## **5.6 Subsurface Sampling & Decontamination Methodology**

Soil sample locations were selected based on the locations of previously identified soil and/or groundwater contamination described in the 2018 Phase II ESA by SES and the anticipated lateral extent of potential soil and groundwater contamination. The boring locations are illustrated on **Figure 2**.

Strict decontamination procedures were followed during the investigation activities by IWM Consulting personnel to reduce the potential for cross-contamination. Drilling and all non-disposable, down-hole sampling equipment was decontaminated prior to first use on-site, and thereafter between borings, using vigorous wash in Alconox<sup>®</sup> solution, followed by a distilled water rinse. For borings where PFAS samples were collected, a high-pressure spray washer was used on all non-disposable, down-hole sampling equipment, followed by a triple rinse with laboratory-provided “PFAS-free” deionized water. Equipment blanks were also collected by pouring laboratory-prepared water or distilled water over, or through, the field sampling equipment (e.g., the cutting shoe or bladder pump) and collecting the rinsate in the proper sample containers for laboratory analysis.

Samples collected for chemical analyses were based on the scope of work for the assessment, field photo-ionization detector (PID) screening results, olfactory and visual observations, and/or changes in lithology. Standard protocols were observed for sample collection, sample handling and preservation, and chain-of-custody documentation. Samples were placed in a cooler containing ice and maintained at a temperature of approximately 4° Celsius prior to analysis.

Soil borings were advanced utilizing direct-push technology. Continuous soil samples were obtained utilizing dual-tube sampling methods for the soil samples where a 4.0-foot long acetate sleeve contained within a stainless-steel casing was advanced hydraulically to obtain the soil sample. A new acetate sleeve was placed inside the casing for continued sampling and advancement of the borehole.

Shallow soil samples were collected from the surface to a depth of two (2) feet bsg with a hand auger at fifteen (15) boring locations in the vicinity of BC-GP3 and SES boring “BC” to delineate lead impacts in soil. The shallow sample locations were identified by their cardinal direction and distance from their respective borings. Since SES boring “BC” does not adhere to the sample designations for this project, soil samples collected in the vicinity of that boring were designated as BC-GP16. The hand auger was decontaminated using a vigorous Alconox<sup>®</sup> solution wash, followed by a distilled water rinse, before first use and between each sample.

Each of the shallow soil samples were screened in the field with an OLYMPUS<sup>®</sup> Innov-X Systems Delta Series™ XRF analyzer. The XRF was utilized to try and correlate handheld XRF readings with laboratory

analyzed soil samples for concentrations of lead. The XRF was calibrated in the field in accordance with the Quality Assurance Project Plan (QAPP), dated April 12, 2019, in order to assure accurate testing results. One (1) soil sample exhibiting the highest XRF readings in each cardinal direction was selected for laboratory analysis of lead.

The soil samples collected were field screened using a PID to determine the relative presence of adsorbed VOCs and/or PAHs. Confirmatory soil sampling from the subsurface soil borings included collecting a soil sample from the native soil beneath the fill material, and analyzing samples displaying the highest potential for impairment based on field observations (visual, olfactory, or by field screening with the PID). Where indications of contamination in soil were present (elevated PID readings, odor, or visual evidence), samples were collected for VOC, PAH, and PCB analyses. The VOC soil samples were obtained in general accordance with EPA Sampling Method 5035M using bulk TerraCore™ sampling supplies, including the 5-gram T-handle sampling device (or comparable).

The soil samples collected from subsurface borings were submitted for laboratory analysis of RCRA 8 metals including copper and zinc. Additional soil samples were also submitted from each soil boring location for laboratory analysis of TCLP RCRA 8 metals and Cr (VI), in the event that additional analyses could be performed if necessary. Select samples were also submitted for VOC, PAH, PCB, and PFAS analyses. Due to strict laboratory sampling guidelines for PFAS analysis and the low detection limits (microgram per kilogram ( $\mu\text{g}/\text{kg}$ )) range, PFAS soil samples were collected and containerized prior to other analytical samples. Field reagent blanks (FRBs) were obtained during each day of PFAS soil sampling by decanting laboratory-provided “PFAS-free” water into an appropriate laboratory-provided container.

To facilitate collection of the one-time groundwater samples from the subsurface borings, temporary, 2-inch diameter polyvinyl chloride (PVC) screens were installed in borings B-10 through B-15 at depths ranging from 8 feet bsg to 30 feet bsg. Groundwater samples were obtained using low-flow groundwater sampling techniques as approved by the IBP Project Manager from all well locations. Purging of the wells was completed using a pneumatically-operated bladder pump equipped with new, disposable ¼-inch polyethylene tubing. Water quality parameters measured using a YSI Model 556 multi-meter included temperature ( $^{\circ}\text{C}$ ), specific conductance ( $\text{mS}/\text{cm}^{\circ}$ ), dissolved oxygen ( $\text{mg}/\text{L}$ ), pH (standard units), and oxygen reduction potential (mV). Groundwater samples were collected from each well when the temperature, specific conductivity ( $\pm 3\%$ ), dissolved oxygen ( $\pm 10\%$ ), pH ( $\pm 0.1$  s.u.), and oxygen reduction potential ( $\pm 10$  mV) reached equilibrium.

The groundwater samples were placed into the appropriate laboratory-provided pre-labeled containers. The groundwater samples were submitted for laboratory analysis of VOCs, PAHs, RCRA 8 metals including copper and zinc (total and dissolved), PCBs, and PFAS. Due to strict laboratory sampling guidelines for PFAS analysis and the low detection limits (nanogram per liter ( $\text{ng}/\text{L}$ )) range, PFAS groundwater samples were collected and containerized prior to other analytical samples. An FRB was obtained during PFAS groundwater sampling by decanting laboratory-provided “PFAS-free” water into an appropriate laboratory-provided container.

For QA/QC purposes, one (1) field duplicate, one (1) equipment blank, and one (1) matrix spike/matrix spike duplicate (MS/MSD) sample per twenty (20) samples from each matrix type were obtained as part of this investigation. One (1) trip blank accompanied each cooler shipment which contained samples for VOC analyses. PFAS QA/QC protocol included a duplicate sample, FRB, and standard laboratory QA/QC deliverables.

Decontamination/purge water generated during well development and groundwater sampling activities was containerized on-site into three (3) labeled, 55-gallon drums for subsequent disposal at an approved off-site facility. Once disposal is completed, drum disposal manifests will be provided as soon as they are received by IWM Consulting for inclusion in **Appendix B, Waste Disposal Documentation**.

In an effort to determine the site-specific groundwater flow direction, the top-of-casing (TOC) elevations and ground surface elevations adjacent to each well for the temporary sampling points were surveyed to a common benchmark by Maxwell Surveying & Engineering (Maxwell) of Huntington, Indiana on May 24, 2019. Depth to groundwater measurements were obtained from each of the wells on May 22, 2019 during the groundwater sampling event.

To facilitate collection of the one-time soil gas samples from the subsurface, 6-inch stainless-steel soil vapor probes connected to polyethylene tubing were installed near borings BC-GP7, BC-GP8, and BC-GP12. The locations of the soil vapor probes were determined based on soil lithology, PID readings, and depth to groundwater. Direct push technology was utilized in the same manner as previously described for soil borings.

Prior to collecting soil gas samples, the soil vapor probes, including tubing and annular backfilled space, were purged of up to three (3) volumes of air prior to collecting vapor samples, where possible. A helium shroud and helium meter were utilized prior to sample collection in order to confirm a tight seal existed for each soil vapor probe. One-time soil gas samples were collected for 10-minutes from the soil vapor probes where possible in laboratory provided, 1-liter Summa® canisters.

Upon completion of the site assessment activities, each of the temporary well and soil vapor probe locations were abandoned. The PVC well materials were removed where possible, or the PVC casing material was unscrewed from the well screen at least 5.0-feet bsg, the borings were sealed with bentonite chips and the ground surface at each location was capped with like material.

## **6.0 GEOPHYSICAL SURVEY RESULTS**

No USTs were identified by GPRS during the geophysical survey. Buried relic utilities were identified on the Site including a storm sewer catch basin, buried water, and buried natural gas lines. A Job Summary provided by GPRS describing their findings is provided in **Appendix C**.

## **7.0 ASBESTOS SURVEY RESULTS**

The East Building, located near the eastern Site boundary, did not contain any suspect ACM.

Thirty-two (32) bulk samples of suspect ACM, including two (2) duplicate samples, were collected during the inspection for laboratory analysis. Because of multiple layers of materials on some samples, a total of forty-one (41) analyses were conducted by the laboratory. The bulk samples of suspect ACMs were analyzed by EMSL of Indianapolis, Indiana, using the PLM method.

The laboratory analytical results for each asbestos sample are included in **Table 1 (Summary of Bulk Asbestos Sample Laboratory Results)** with the complete laboratory analytical report provided in **Appendix D**.

## **8.0 LEAD PAINT SURVEY RESULTS**

A written description of each paint chip screening location is included in **Table 2 (Summary of Lead Paint Screening Results)**. The analytical results for the paint chip sample (BC-PB1) indicate that the lead concentration in the red paint was 18,000 ppm, or 1.8 percent by weight. The laboratory analytical report for the paint chip sample is provided in **Appendix E**.

## **9.0 CHEMICAL INVENTORY RESULTS**

Several containerized products were identified on the Site during this investigation. A written description of each containerized chemical and/or petroleum material located at the Site is included in **Table 3 (Summary of Chemical Inventory)**. Photographs of the containerized chemicals are provided in **Appendix F**.

## **10.0 SOIL BORING INSTALLATION & SAMPLING ACTIVITIES**

IWM Consulting personnel supervised SCS Environmental Contracting, Inc. (SCS) personnel during the advancement of the fifteen (15) subsurface soil borings (BC-GP1 through BC-GP15) between May 20, 2019 and May 21, 2019. Borings GP-1 through GP-6, GP-8, and GP-9 were advanced to a depth of 4-feet bsg; boring GP-7 was advanced to a depth of 6-feet bsg; boring GP-13 was advanced to a depth of 16-feet bsg; borings GP-10, GP-11 and GP-12 were advanced to a depth of 28-feet bsg; and borings GP-14 and GP-15 were advanced to a depth of 30-feet bsg. Groundwater was typically encountered within sandy unconsolidated sediments at depths ranging from approximately 22 feet bsg (BC-GP12) to approximately 28 feet bsg (BC-GP14) as identified on the soil boring and temporary well logs provided in **Appendix G**.

Upon completion of soil sampling, temporary 2-inch monitoring wells were installed in six (6) of the subsurface soil borings (GP-10 through GP-15) using direct push methods to facilitate the collection of groundwater samples. Groundwater samples were obtained from each of the six (6) temporary well locations on May 22, 2019.

The 2-inch temporary wells were developed using an electric pump designated to be “PFAS free” by the manufacturer. Groundwater removed during development was stored in three (3) 55-gallon drums and left on the Site pending characterization and disposal/treatment. Disposal documentation for the drums will be forwarded upon receipt by IWM Consulting for inclusion in **Appendix B**.



## **10.1 Soil Sampling Activities**

Surface soil samples (0.0-3.0 feet bsg) were collected from each of the fifteen (15) boring locations (BC-GP1 through BC-GP15) on May 20 and 21, 2019. Subsurface soil samples (>3.0 feet bsg) were collected from nine (9) boring locations (BC-GP1 through BC-GP9) on May 20 and 21, 2019. Shallow soil samples (1.0-2.0 feet bsg) were collected from fifteen (15) hand auger locations in the vicinity of BC-GP3 and SES boring “BC” on June 18, 2019. The soils were collected in accordance with the methodologies described in Section 5.6 of this report.

IWM Consulting obtained a total of twenty-four (24) soil samples, comprised of both surface and subsurface soil samples, for the analysis RCRA 8 metals including copper and zinc and percent moisture. Additional soil samples were also submitted from each soil boring location for laboratory analysis of TCLP RCRA 8 metals and Cr (VI), if necessary. Based on analytical results, Cr (VI) analysis was performed on BC-GP6-SB1 (3-4’), BC-GP8-SS1 (2-3’), and BC-GP9-SS1 (1-2’) and TCLP lead analysis was performed on BC-GP3-SS1 (1-2’). Two (2) subsurface soil samples were collected from BC-GP7-SB1 (3-4’) and BC-GP8-SB1 (3-4’) for the analysis of VOCs, PAHs, and PCBs analysis. Eight (8) additional shallow soil samples collected from the vicinity of BC-GP3 and SES boring “BC” were analyzed for lead and percent moisture. The soil samples were delivered to the courier for Pace Analytical Services, LLC (Pace) under chain-of-custody controls for delivery to Pace located in Indianapolis, Indiana for analysis. The soil samples were analyzed using the analytical methods outlined in Section 3.0 of this report.

Five (5) surface soil samples and a duplicate sample were collected for PFAS analysis. The sampling included the field reagent blanks (FRBs) prepared by the laboratory. One (1) FRB per day of sampling was collected and submitted for analysis of PFAS in the event that PFAS were detected in the soil samples. Due to the strict decontamination and sampling procedures for PFAS, the PFAS soil samples were collected prior to the soil samples for the other analyses. The PFAS soil samples were delivered via FedEx standard overnight delivery under chain-of-custody controls to Pace in Minneapolis, Minnesota for analysis. The soil samples were analyzed using the analytical method outlined in Section 3.0 of this report.

For QA/QC purposes, IWM Consulting also submitted four (4) duplicate and three (3) MS/MSD soil samples. The following table provides the parent sample information related to the field duplicate and MS/MSD samples:

<b>QA/QC Sample Type/ ID</b>	<b>Parent Sample ID</b>
BC-SB-FD1	BC-GP13-SS1 (1-2’)
BC-SB-FD2	BC-GP4-SS1 (1-2’)
BC-SB-FD3	BC-GP8-SB1 (3-4’)
BC-SB-FD4	BC-GP3-N5 (1-2’)
MS/MSD	BC-GP2-SB1 (3-4’)
MS/MSD	BC-GP3-W5 (1-2’)
MS/MSD	BC-GP9-SB1 (3-4’)

The MS/MSD and duplicate soil samples were submitted for the same laboratory analysis as the parent samples. One (1) trip blank sample (BC-TB1) accompanied the soil samples obtained for VOC analyses and the trip blank was submitted for laboratory analysis of VOCs only. Two (2) FRBs (BC-FRB1 and BC-FRB2), one (1) for each day of sampling, were submitted for PFAS analysis. One (1) equipment blank (BC-EB-SB1) was collected and submitted for VOC, PAH, PCB, RCRA 8 metals analyses. The QA/QC samples were analyzed using Level II QA/QC reporting standards.

## **10.2 Groundwater Sampling Activities**

Groundwater samples were collected from the six (6) temporary monitoring wells (BC-GP10 through BC-GP15) on May 22, 2019 in accordance with the methodologies described in Section 5.6 of this report. Low-flow Water Parameter Monitoring Forms with field notes regarding the sampling procedures are included in **Appendix H**.

IWM Consulting obtained a total of six (6) groundwater samples for the analysis of VOCs, PAHs, total and dissolved RCRA 8 metals including copper and zinc, and PCBs. The groundwater samples were delivered to the courier for Pace under chain-of-custody controls for delivery to Pace located in Indianapolis, Indiana for analysis. The groundwater samples were analyzed using the analytical methods outlined in Section 3.0 of this report.

Five (5) groundwater samples and a duplicate sample were collected for PFAS analysis. One (1) FRB per day of sampling was collected and submitted for analysis of PFAS in the event that PFAS were detected in the groundwater samples. Due to the strict decontamination and sampling procedures for PFAS, the PFAS groundwater samples were collected prior to the samples for the other analyses. The groundwater samples were delivered via FedEx standard overnight delivery under chain-of-custody controls to Pace in Minneapolis, Minnesota. The groundwater samples were analyzed using the analytical method outlined in Section 3.0 of this report.

For QA/QC purposes, IWM Consulting also submitted one (1) duplicate sample and one (1) MS/MSD groundwater sample. The duplicate sample, designated BC-GPGW-FD1, was obtained from the parent groundwater sample BC-GP11-GW1. The MS/MSD sample was obtained from the parent groundwater sample BC-GP15-GW1. The duplicate sample and MS/MSD sample were each analyzed for the same constituents as the parent samples. One (1) trip blank sample (BC-TB1) accompanied the groundwater samples to the Pace-Indianapolis laboratory and were submitted for laboratory analysis of VOCs only. One (1) FRB (BC-FRB3) was submitted for PFAS analysis. One (1) equipment blank (BC-EB-GW1) was collected and submitted for VOC, PAH, PCB, RCRA 8 metals analyses. The QA/QC samples were analyzed using Level II QA/QC reporting standards.

Purge water from the low-flow sampling performed at the Site was placed into one (1) of three (3) drums left on the Site for characterization and disposal/treatment. Disposal documentation for the drums will be forwarded upon receipt by IWM Consulting for inclusion in **Appendix B**.

## **10.3 Groundwater Gauging Activities**

Groundwater measurements, including total well depths, were recorded using an interface probe which makes an intermittent tone when the probe contacts the groundwater and a solid tone when the probe contacts any light non-aqueous phase liquid (LNAPL). The distance between the TOC riser pipe elevation and the water table was read from the incremented probe line, which records measurements to within 0.01 feet. The interface probe utilized at the Site was selected due to the materials of construction being “PFAS free”.

Depths to groundwater and groundwater elevations are summarized on **Table 4 (Summary of Groundwater and Well Measurements – May 22, 2019)**. A report summarizing the professionally surveyed TOC, ground elevations, and horizontal locations for the temporary monitoring well locations is provided in **Appendix I**.

## **10.4 Soil Vapor Sampling Activities**

Soil gas samples were obtained on May 31, 2019 using the methodologies described in Section 5.6 of this report. Purge tests failed in vapor probes BC-SG1 and BC-SG3 due to water infiltration and/or tight clayey soils. A Soil Gas Sampling Data Sheet with field notes regarding the sampling procedures are included in **Appendix J**.

IWM Consulting obtained one (1) soil gas sample (BC-SG2) for the analysis of VOCs. The soil gas sample was delivered via FedEx under chain-of-custody controls to Pace in Minneapolis, Minnesota. The soil gas sample was analyzed using the analytical method outlined in Section 3.0 of this report.

For QA/QC purposes, IWM Consulting also submitted one (1) duplicate sample (BC-SG-FD1) obtained from the parent soil gas sample BC-SG2. The duplicate sample was collected at the same time as BC-SG2 and attached to the same regulator as the parent sample using a “T-fitting”.

## **11.0 SOIL INVESTIGATION RESULTS**

### **11.1 Lithological Description**

Generally, soils encountered in borings advanced at the Site consisted of fill (bricks, paint chips, cinders, slag, coarse gravel, and wood) from the surface to depths ranging from approximately 2-feet to about 8-feet bsg. Soils beneath the fill were typically silty clay with some intermittent sand seams. The borings ranged in depth from 4- to 30-feet bsg. Refer to the boring logs in **Appendix G** for complete soil lithologic descriptions.

### **11.2 Laboratory Analytical Results Summary – Soil**

Soil samples submitted for laboratory analysis are described in Section 10.1 of this report. Tables summarizing the results of the soil samples and QA/QC duplicate samples obtained from the Site are included as **Table 5 (Summary of Soil Metals Analytical Results (mg/kg))**, **Table 6 (Summary of Soil PAH Analytical Results (mg/kg))**, **Table 7 (Summary of Soil VOC and PCB Analytical Results (mg/kg))**, **Table 8 (Summary of XRF and Lead Analytical Results)**, and **Table 9 (Summary of Soil PFAS Analytical Results (µg/kg))**. The soil analytical results for contaminants in soil at concentrations exceeding RCG IDCSSLs are displayed by location on **Figure 4 (Soil Analytical Results Map)**. The soil analytical reports are included in **Appendix K**.

The analytical results for the four (4) duplicate samples collected for QA/QC measures were generally comparable to the parent samples. Analytical results for the duplicate soil samples are presented with the corresponding samples in **Table 5** through **Table 9**. No contaminants were detected in the equipment blank or trip blank samples submitted with the soil samples.

Soil results for PFAS are provided for information purposes only since there are no current IDEM RCG screening levels established for PFAS constituents. Perfluorooctanoic acid (PFOA) was detected at 0.61 µg/kg and 0.58 µg/kg in BC-GP10 (1-2') and its laboratory duplicate, respectively. Perfluorooctanesulfonic acid (PFOS) was detected at 0.54 µg/kg and 0.46 µg/kg in BC-GP11-SS1 (0.5-1.5') and BC-GP13-SS1 (1-2'),

respectively, but was not detected in the duplicate sample of BC-GP13-SS1 (BC-SB-FD1). No other PFAS were detected in any soil sample submitted for PFAS analysis.

No VOCs, PAHs, or PCBs were detected at concentrations exceeding their respective IDEM RCG Res MTGSLs in any soil sample.

Each of the RCRA 8 metals including copper and zinc, except silver, were detected above their respective laboratory reporting limits (LRLs) in soil samples analyzed from the Site. Arsenic and lead were each detected in excess of their respective IDEM RCG Res MTGSLs, RDCSLs, and/or IDCSLs in several soil samples. Due to the elevated concentration of lead detected in BC-GP3-SS1 (1-2'), TCLP lead analysis was performed on the sample. The resulting 30.6 mg/L lead detection in the leachate reveals that the lead is leachable in the vicinity of the BC-GP3 and BC-GP16 borings; therefore, no other soil samples were submitted for TCLP lead analysis. The three (3) soil samples exhibiting the highest concentrations of total chromium were also submitted for analysis of Cr (VI). The results indicate that Cr VI is not present in soil at concentrations exceeding its IDEM RCG RDCSLs.

Due to the concentrations of lead detected in BC-GP3-SS1 (1-2') at 3,160 mg/kg and in SES boring "BC" (7,160 mg/kg and 28,700 mg/kg in the duplicate), shallow soil samples from 1-2 feet bsg were collected from 5- to 10-feet in each cardinal direction of the aforementioned borings, with SES boring "BC" corresponding to a BC-GP16 designation for this investigation. Analytical results for the shallow soil samples reveal that the extent of lead contamination at concentrations exceeding IDEM RCG EX DCSLs in soil near these borings has not been delineated.

## 12.0 GROUNDWATER INVESTIGATION RESULTS

Groundwater samples submitted for laboratory analysis are described in Section 10.2 of this report. Tables summarizing the results of the groundwater samples and QA/QC duplicate samples obtained from the Site are included in **Table 10 (Summary of Groundwater Metals Analytical Results (µg/L))**, **Table 11 (Summary of Soil PAH, VOC, and PCB Analytical Results (µg/L))**, and **Table 12 (Summary of Groundwater PFAS Analytical Results (ng/L))**. The groundwater analytical reports are included in **Appendix L**.

The analytical results for the one (1) duplicate sample collected for QA/QC purposes was generally comparable to the parent sample. Analytical results for the duplicate groundwater sample are presented with the corresponding sample in **Table 10** through **Table 12**. No contaminants were detected in the equipment blank or trip blank samples submitted with the groundwater samples.

Groundwater results for PFAS are provided for information purposes only since there are no IDEM RCG screening levels established for PFAS constituents. Perfluorobutoanoic acid (PFBA) and PFOS were detected in BC-GP12-GW1 at 7.3 ng/L and 23 ng/L, respectively. Eight (8) PFAS were detected in BC-GP13-GW1 at concentrations ranging from 3.0 ng/L to 13 ng/L. No other groundwater samples contained PFAS at detectable concentrations. The FRBs collected for QA/QC purposes during the groundwater sampling were also non-detectable for PFAS.

No VOCs, PAHs, or PCBs were detected at concentrations exceeding their respective IDEM RCG Res TAP GWSLs in any groundwater sample.

Multiple total RCRA 8 metals including copper and zinc were detected in groundwater samples; however, only barium, cadmium, and zinc were detected in the laboratory-filtered dissolved RCRA 8 metals groundwater samples. No metals detections exceeded their respective IDEM RCG Res TAP GWSLs.

## **12.1 Hydrogeology**

Groundwater flow beneath the site was determined to flow to the south-southeast. The groundwater present beneath the site appears to be located within sandy unconsolidated sediments at depths ranging from approximately 19.63 feet bsg (BC-GP11) to approximately 21.18 feet bsg (BC-GP14). Groundwater flow was determined by surveying the elevations of the six (6) temporary well casings to within 1/100<sup>th</sup> of a foot and the spatial well placement on the Site to within 1/10<sup>th</sup> of a foot. Groundwater elevations were calculated based on gauging data collected on May 22, 2019. The groundwater flow direction for the Site is depicted on **Figure 5 (Groundwater Potentiometric Map)**.

## **13.0 SOIL VAPOR INVESTIGATION RESULTS**

Soil gas samples submitted for laboratory analysis are described in Section 10.4 of this report. Analytical results for the soil gas samples are summarized in **Table 13 (Summary of Soil Gas Sampling Analytical Results ( $\mu\text{g}/\text{m}^3$ ))**. The soil gas analytical report is provided as **Appendix M**.

The analytical results for the one (1) duplicate sample collected for QA/QC purposes was generally comparable to the parent sample. Analytical results for the duplicate soil gas sample are presented with the corresponding sample in **Table 13**.

A total of twenty-three (23) separate VOCs were detected in the soil gas samples. However, no contaminants were detected in the soil gas samples at concentrations exceeding their respective calculated IDEM RCG Indus SGe VESLs. The RCG Indus SGe VESLs were calculated using an attenuation factor of 0.1, corresponding to the screened interval shallower than five (5) feet bsg.

## **14.0 WELLHEAD PROTECTION**

Based on the IDEM Wellhead Proximity Determinator website (<https://idemmaps.idem.in.gov/whpa2/>), the Site is located inside a Wellhead Protection Area (**Appendix N**). According to the Indiana Department of Natural Resources (IDNR) Water Well Record Database (<http://www.in.gov/dnr/water/3595.htm>) thirty-one (31) mixed use water wells were identified within a 1-mile radius of the Site. Two (2) significant withdrawal (>70 gallons per minute) wells owned by the City of Butler Water Department are used for public supply wells and are shown as being located across Broadway Street, approximately 290 feet west of the Site. Other mixed-use water wells are located in close proximity to the Site as shown on the **1-Mile Radius Water Well Map** included in **Appendix N**.

Well Reference No. 107441 is a high capacity well (1,150 gallons per minute), installed at a depth of 147 feet bsg, and located approximately 290 feet west of the Site. Well Reference No. 107430 is a high capacity well (600 gallons per minute), installed at a depth of 149 feet bsg, and located approximately 430 feet west of the Site. There are six (6) wells identified on the map (Well Reference Nos. 107360, 107415, 107430, 107441, 107471, and

232269) shown being located within a 0.25-mile radius of the Site. The available well logs for the six (6) wells identified are provided in **Appendix N**.

## **15.0 QAPP FIELD AUDIT & DATA ASSESSMENT REPORT**

In accordance with the QAPP, the IWM Consulting Quality Assurance (QA) manager conducted a field audit concurrently with the soil sampling activities on May 21, 2019. The IWM Consulting QA manager also prepared a Data Assessment Report (DAR) in accordance with the QAPP, which discusses the overall precision, accuracy, usability, and completeness of the data collected during the May 2019 Phase II ESA activities. Although several minor variations were noted in the DAR, the data collected during the Phase II ESA activities was deemed acceptable and usable with limitations, as outlined in the DAR. A copy of the Field Audit Report and DAR are included in **Appendix O**.

## **16.0 CONCLUSIONS AND RECOMMENDATIONS**

Due to building debris, trash, and an abundance of metallic objects on the ground surface at the Site, the geophysical survey was limited, and not all of the equipment proposed to be used on the Site could be utilized at the time of the survey. No obvious buried metallic objects were identified during the geophysical survey.

ACMs were identified in the East Central Building debris and North Building, and LBP was identified on the East Building. Asbestos-containing asphalt-based roofing products which are nonfriable and will not be made friable through sanding, grinding, cutting, or abrading are not regulated as ACM under the National Emission Standard for Asbestos (NESHA) or Solid Waste Management Rule 329 IAC 10-8.1-12; therefore, the asphalt-based roofing materials which are in good condition may be removed and sent to a permitted solid waste disposal site as solid waste. Nonfriable asbestos-containing transite has a high probability of becoming crumbled, pulverized or reduced to powder during disposal (i.e., unloading and compaction); therefore, if these materials are from a commercial, industrial, or institutional structure, they must be disposed at a permitted municipal solid waste landfill. The US EPA requires that construction and demolition (C&D) debris from commercial or industrial sites that is contaminated with lead-based paint must be managed as RCRA hazardous waste if a representative sample meets the toxicity characteristic (D008).

Analytical results for the shallow soil samples reveal that the extent of lead contamination at concentrations exceeding IDEM RCG EX DCSLs in soil near these borings has not been delineated. In general, the most significant soil impacts are in surface soils at depths from 0- to 3-feet bsg.

Groundwater beneath the Site did not contain any contaminants detected in excess of their respective IDEM RCG Res TAP GWSLs and soil gas samples did not contain any contaminants detected in excess of their respective calculated IDEM RCG Indus SGe VESLs.

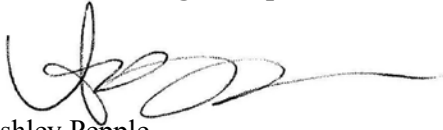
Based upon the data obtained during this Phase II ESA, IWM recommends delineation of the surface soil lead impacts in the vicinity of borings BC-GP3 and BC-GP16 and development of a Remediation Work Plan to address the surface soil impacts.

Waste disposal documentation for the three (3) drums of well development and purge water will be forwarded upon receipt by IWM Consulting for inclusion in **Appendix B**.

IWM Consulting appreciates the opportunity to provide the IBP with this Phase II ESA Report. If you have any questions regarding this document, please contact Mark Anderson at 260-442-3017, by email at [manderson@iwmconsult.com](mailto:manderson@iwmconsult.com).

Sincerely,

**IWM Consulting Group, LLC**



Ashley Pepple  
Associate Project Manager



Mark Anderson, LPG No. 1403  
Senior Project Manager

cc: Ms. Patricia Polston, USEPA Region 5 Project Officer  
Ms. Tracey Michael, IDEM

## TABLES



**TABLE 1**  
**Summary of Bulk Asbestos Sample Laboratory Results**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Material Description	Sample ID	HA	Sample Location	ACM Class. <sup>1</sup>	Results (% Asbestos)
Roofing (a) Felt (b)	BC-AB1a	1	West Central Building Debris	I	ND
	BC-AB1b			I	ND
	BC-AB2a			I	ND
	BC-AB2b			I	ND
Mortar	BC-AB3	2	West Central Building Debris	II	ND
	BC-AB4			II	ND
	BC-AB5			II	ND
Electrical Wire Insulation	BC-AB6	3	West Central Building Debris	I	ND
	BC-AB7a			I	ND
	BC-AB7b			I	ND
Roofing (a) Shingle (b)	BC-AB8a	4	East Central Building Debris	I	2%
	BC-AB8b			I	<1%
	BC-AB9a			I	2%
	BC-AB9b			I	<1%
Mortar	BC-AB10	5	East Central Building Debris	II	ND
	BC-AB11			II	ND
	BC-AB12			II	ND
Transite Panels	BC-AB13	6	East Central Building Stack Debris	II	20%
	BC-AB14			II	15%
Fire Brick Mortar	BC-AB15	7	East Central Building Stack Debris	II	ND
	BC-AB16			II	ND
Fire Brick	BC-AB17	8	East Central Building Stack Debris	II	ND
	BC-AB18			II	ND
Fire Brick Glazing	BC-AB19	9	East Central Building Stack Debris	II	ND
	BC-AB20			II	ND

<sup>1</sup> Asbestos Containing Material Classification: Friable (F), Category I (I), Category II (II).  
HA – Homogeneous Area; ND – None Detected

**TABLE 1**  
**Summary of Bulk Asbestos Sample Laboratory Results**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Material Description	Sample ID	HA	Sample Location	ACM Class. <sup>1</sup>	Results (% Asbestos)
Paper Backing	BC-AB21	10	East Central Building Debris	F	40%
Window Sealant	BC-AB22	11	East Central Building Debris	F	ND
	BC-AB23			F	ND
Window Sealant	BC-AB24	12	Central Shed	F	ND
	BC-AB25			F	ND
Roofing (a) Felt (b), Tar (c) and Shingle (d)	BC-AB26a	13	North Building	I	ND
	BC-AB26b			I	ND
	BC-AB26c			I	2%
	BC-AB27b			I	ND
	BC-AB27c			I	5%
	BC-AB27d			I	ND
Mortar	BC-AB28	14	North Building	II	ND
	BC-AB29			II	ND
	BC-AB30			II	ND

<sup>1</sup> Asbestos Containing Material Classification: Friable (F), Category I (I), Category II (II).  
HA – Homogeneous Area; ND – None Detected

**TABLE 2**  
**Summary of Lead Paint Screening Results**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No: 4170705**

Sample Location	XRF Result	Lab Sample Collected	Sample ID	Laboratory Results (ppm)
<b>West Central Building</b>				
Handrail - Yellow	Negative	No	NA	NA
Handrail - White	Negative	No	NA	NA
Grout on Bricks - Yellow	Negative	No	NA	NA
Grout on Bricks - White	Negative	No	NA	NA
<b>Central Shed</b>				
Windows/Doorframes - Green/Blue	Negative	No	NA	NA
<b>East Central Building</b>				
Grout on Bricks - Light Blue	Negative	No	NA	NA
Roof Tile Glaze - Brown	Negative	No	NA	NA
<b>East Building</b>				
Door and Doorframe - Red	0.96 ± 0.15	Yes	BC-PB1	18,000
Sheet Metal - Red	0.60 ± 0.10	No	NA	NA
<b>North Building</b>				
Outer Wall - Yellow	Negative	No	NA	NA
Steps - Light Blue	Negative	No	NA	NA
Metal Soffit - Red	Negative	No	NA	NA
Interior Wall - White	Negative	No	NA	NA
Basement Wall - White	Negative	No	NA	NA

Negative = Instrument displayed "negative" for the detection of lead



**TABLE 4**  
**Summary of Groundwater and Well Measurements - May 22, 2019**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Well	Groundwater Observations	TOC Elevation <sup>1</sup>	Depth to Groundwater	Groundwater Elevation <sup>1</sup>
BC-GP10	brn, mod turb, no odor, no sheen	868.22	22.76	845.46
BC-GP11	brn, v sl turb, no odor, no sheen	867.16	21.81	845.35
BC-GP12	lt brn, v sl turb, no odor, no sheen	866.67	21.68	844.99
BC-GP13	cl, v sl turb, no odor, no sheen	866.66	4.88	861.78
BC-GP14	lt brn, sl turb, no odor, no sheen	866.36	21.52	844.84
BC-GP15	brn, sl turb, no odor, no sheen	865.78	20.94	844.84

Notes:

<sup>1</sup>Elevation in feet based on survey data prepared by Maxwell Surveying & Engineering, May 24, 2019.

Groundwater observations may include: color (cl–clear, gry–gray, blk–black, brn–brown, orn–orange), turbidity (turb), odor (gas–gasoline, die–diesel, sep–septic), shade (lt–light, dk–dark), modifier (v–very, sl–slight, mod–moderate, sig–significant)

Groundwater Observations were made at the time the well was purged.

**Table 5**  
**Summary of Soil Metals Analytical Results (mg/kg)**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Sample ID	Sample Depth in Feet	Sample Date	Arsenic	Barium	Cadmium	Chromium	Hexavalent Chromium	Copper	Lead	Mercury	Selenium	Zinc
<b>METALS</b>												
BC-GP1-SS1	1-2	05/21/19	<b>14.0</b>	80.2	<0.54	19.1	NA	55.6	61.6	0.92	<1.1	101
BC-GP1-SB1	3-4	05/21/19	2.6	127	<0.54	24.1	NA	15.2	11.3	<0.24	<1.1	58.8
BC-GP2-SS1	0.5-1.5	05/21/19	<b>8.6</b>	81.1	4.3	13.3	NA	127	97.7	0.58	<1.0	290
BC-GP2-SB1	3-4	05/21/19	<b>9.3</b>	87.5	<0.60	22.8	NA	21.7	9.4	<0.24	<1.2	57.7
BC-GP3-SS1	1-2	05/21/19	<b>6.7</b>	651	1.2	15.3	NA	90.0	<b>3,160</b>	0.46	<1.1	446
BC-GP3-SB1	3-4	05/21/19	5.5	136	<0.59	27.3	NA	17.0	11.5	<0.24	<1.2	72.5
BC-GP4-SS1	1-2	05/21/19	<b>12.0</b>	269	1.9	16.6	NA	88.1	<b>395</b>	<0.24	1.4	837
BC-SB-FD2	1-2	05/21/19	<b>11.5</b>	416	1.5	15.2	NA	59.2	<b>691</b>	<0.26	1.4	684
BC-GP4-SB1	3-4	05/21/19	3.0	76.4	<0.57	22.0	NA	15.4	11.3	<0.26	<1.1	71.6
BC-GP5-SS1	2-3	05/21/19	<b>10.4</b>	57.7	<0.58	10.9	NA	62.5	63.1	<0.24	<1.2	73.1
BC-GP5-SB1	3.5-4	05/21/19	5.9	81.8	0.73	19.6	NA	29.1	13.6	<0.23	<1.1	57.8
BC-GP6-SS1	1-2	05/21/19	<b>13.2</b>	55.8	0.77	19.7	NA	90.1	62.5	<0.22	<1.0	241
BC-GP6-SB1	3-4	05/21/19	5.5	250	2.8	32.7	<b>&lt;0.423</b>	128	15.6	<0.32	2.3	77.6
BC-GP7-SS1	1-2	05/21/19	<b>44.0</b>	694	1.2	24.2	NA	222	159	<0.26	<1.3	273
BC-GP7-SB1	3-4	05/21/19	<b>28.2</b>	116	1.2	17.3	NA	52.9	198	<0.25	1.3	203
BC-GP8-SS1	2-3	05/21/19	<b>33.9</b>	46.2	<0.54	38.4	<b>&lt;0.263</b>	39.7	25.4	<0.22	<1.1	91.5
BC-GP8-SB1	3-4	05/21/19	2.8	116	<0.55	25.6	NA	15.8	10.7	<0.26	<1.1	66.3
BC-SB-FD3	3-4	05/21/19	<b>27.7</b>	35.9	<0.50	32.5	NA	35.6	27.0	<0.23	<1.0	63.0
BC-GP9-SS1	1-2	05/21/19	<b>25.5</b>	169	2.4	44.0	<b>0.600 J</b>	688	<b>448</b>	<0.26	<1.1	745
BC-GP9-SB1	3-4	05/21/19	<b>13.8</b>	85.2	<0.58	23.5	NA	25.9	12.6	<0.23	<1.2	77.6
BC-GP10-SS1	1-2	05/21/19	<b>11.6</b>	228	0.60	32.2	NA	212	158	0.54	<1.2	159
BC-GP11-SS1	0.5-1.5	05/21/19	<b>15.0</b>	323	5.3	16.7	NA	385	<b>282</b>	<0.25	1.8	1,230
BC-GP12-SS1	1-2	05/20/19	3.1	131	<0.54	21.2	NA	13.7	84.7	<0.22	<1.1	102
BC-GP13-SS1	1-2	05/20/19	<b>13.5</b>	93.7	1.2	13.1	NA	124	137	0.32	<1.1	355
BC-SB-FD1	1-2	05/20/19	<b>17.1</b>	197	1.1	19.1	NA	68.3	150	<0.24	<1.1	339
BC-GP14-SS1	0.5-1.5	05/20/19	<b>49.2</b>	192	0.80	19.2	NA	98.1	156	<0.22	1.7	211
BC-GP15-SS1	0.5-1	05/21/19	<b>12.8</b>	29.2	<0.46	14.7	NA	27.1	20.8	<0.22	<0.93	116
RDCSL			9.5	21,000	99	100,000	4.2	4,300	400	3.1	550	32,000
IDCSL			30	100,000	980	100,000	63	47,000	800	3.1	5,800	100,000
Res MTGSL			5.9	1,700	7.5	1,000,000	0.14	920	270	2.1	5.3	7,500
EX DCSL			920	100,000	1,900	100,000	2,700	79,000	1,000	3.1	9,800	100,000

Notes:

All concentrations are reported in mg/kg. NA = Not analyzed. NE = No IDEM RCG Screening Level established for this constituent.

Unlisted compounds below laboratory detection limits for all samples.

**Bold** values indicate concentrations above the RCG Residential Soil Exposure Direct Contact Screening Levels (RDCSLs) and/or RCG Residential Soil Migration to Groundwater Screening Levels (Res MTGSLs).

**Bold outlined** values indicate concentrations above the RCG Commercial/Industrial Soil Exposure Direct Contact Screening Levels (IDCSLs).

IDEM Remediation Closure Guide (RCG), Appendix A: Screening Levels, Table A-6: Screening Level Summary Table - March 2019 Screening Levels.

**TABLE 6**  
**Summary of Soil PAH Analytical Results (mg/kg)**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Sample ID	Sample Depth in Feet	Sample Date	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Fluoranthene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
<b>PAH</b>																
BC-GP7-SB1	3-4	05/21/19	0.0081	0.015	0.011	0.011	0.017	0.013	0.017	0.024	0.012	0.079	0.11	0.10	0.043	0.027
BC-GP8-SB1	3-4	05/21/19	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063	<0.0063
BC-SB-FD3			<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	0.0071	0.019	0.0085	<0.0056
RDCSL			25,000	15	1.5	15	NE	150	1,500	3,400	15	250	340	53	NE	2,500
IDCSL			100,000	210	21	210	NE	2,100	21,000	30,000	210	390	3,000	170	NE	23,000
Res MTGSL			1,200	2.1	4.7	60	NE	590	1,800	1,800	200	1.2	3.7	0.11	NE	260
EX DCSL			100000	12000	500	12000	NE	100,000	100,000	68,000	12,000	390	6,800	3,100	NE	51,000

**Notes:**

All concentrations are reported in mg/kg. NA = Not analyzed. NE = No IDEM RCG Screening Level established for this constituent. Unlisted compounds below laboratory detection limits for all samples.

**Bold** values indicate concentrations above the RCG Residential Soil Exposure Direct Contact Screening Levels (RDCSLs) and/or RCG Residential Soil Migration to Groundwater Screening Levels (Res MTGSLs).

IDEM Remediation Closure Guide (RCG), Appendix A: Screening Levels, Table A-6: Screening Level Summary Table - March 2019 Screening Levels.

**Table 7**  
**Summary of Soil VOC and PCB Analytical Results (mg/kg)**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Sample ID	Sample Depth in Feet	Sample Date	n-Hexane	PCBs
			<b>VOC</b>	<b>PCB</b>
BC-GP7-SB1	3-4	05/21/19	0.049	<0.13
BC-GP8-SB1	3-4	05/21/19	0.071	<0.13
BC-SB-FD3			0.30	<0.11
RDCSL			140	
IDCSL			140	
Res MTGSL			210	
EX DCSL			140	

**Notes:**

All concentrations are reported in mg/kg. NA = Not analyzed.

Unlisted compounds below laboratory detection limits for all samples.

**Bold** values indicate concentrations above the RCG Residential Soil Exposure Direct Contact Screening Levels (RDCSLs) and/or RCG Residential Soil Migration to Groundwater Screening Levels (Res MTGSLs).

IDEM Remediation Closure Guide (RCG), Appendix A: Screening Levels, Table A-6: Screening Level Summary Table - March 2019 Screening Levels.



**TABLE 8**  
**Summary of XRF and Lead Analytical Results**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, Dekalb County, Indiana**  
**IBP Site No. 4170705**

<i>Sample ID</i>	<i>Sample Date</i>	<i>XRF (ppm)</i>	<i>Lead (mg/kg)</i>
BC-GP3-N5 (1-2)	06/18/19	151	51.7
BC-SB-FD4		151	228
BC-GP3-E5 (1-2)	06/18/19	101	NA
BC-GP3-E10 (1-2)	06/18/19	2,240	75.6
BC-GP3-W5 (1-2)	06/18/19	345	307
BC-GP3-W10 (1-2)	06/18/19	12	NA
BC-GP3-S5 (1-2)	06/18/19	380	NA
BC-GP3-S10 (1-2)	06/18/19	999	<b>660</b>
BC-GP16-N5 (1-2)	06/18/19	7,771	49.2
BC-GP16-N10 (1-2)	06/18/19	87	NA
BC-GP16-E5 (1-2)	06/18/19	448	NA
BC-GP16-E10 (1-2)	06/18/19	3,087	<b><i>4,470</i></b>
BC-GP16-W5 (1-2)	06/18/19	672	<b>964</b>
BC-GP16-W10 (1-2)	06/18/19	94	NA
BC-GP16-S5 (1-2)	06/18/19	141	NA
BC-GP16-S10 (1-2)	06/18/19	425	135
RDCSL		NE	400
IDCSL		NE	800
Res MTGSL		NE	270
EX DCSL		NE	1,000

**Notes:**

NA = Not analyzed.

NE = No IDEM RCG Screening Level established for this constituent.

**Bold** values indicate concentrations above the RCG Residential Soil Exposure Direct Contact Screening Levels (RDCSLs) and/or RCG Commercial/Industrial Soil Exposure Direct Contact Screening Levels (IDCSLs).

**Bold and Italicize** values indicate concentrations above the RCG Excavation Soil Exposure Direct Contact Screening Levels (ExDCSLs).

**TABLE 9**  
**Summary of Soil PFAS Analytical Results (µg/kg)**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

<i>Sample ID</i>	<i>Sample Depth in Feet</i>	<i>Sample Date</i>	<i>Perfluorooctanoic Acid (PFOA)</i>	<i>Perfluorooctanesulfonic Acid (PFOS)</i>
			<b>PFAS</b>	
BC-GP10-SS1	1-2	05/21/19	0.61	<0.24
BC-GP10-SS1(DUP)	1-2	05/21/19	0.58	<0.22
BC-GP11-SS1	0.5-1.5	05/21/19	<0.23	0.54
BC-GP12-SS1	1-2	05/20/19	<0.23	<0.23
BC-GP13-SS1	1-2	05/20/19	<0.24	0.46
BC-SB-FD1			<0.23	<0.22
BC-GP14-SS1	0.5-1.5	05/20/19	<0.24	<0.23
BC-FRB1		05/20/19	<1.8	<1.8
BC-FRB2		05/21/19	<1.9	<1.8

Notes:

All concentrations are reported in µg/kg. NA = Not analyzed.  
 Field Reagent Blank (FRB) sample results presented in nanogram per liter (ug/L).  
 Unlisted compounds below laboratory detection limits for all samples.

**TABLE 10**  
**Summary of Groundwater Metals Analytical Results (µg/L)**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

<i>Sample ID</i>	<i>Sample Date</i>	<i>Barium</i>	<i>Dissolved Barium</i>	<i>Cadmium</i>	<i>Dissolved Cadmium</i>	<i>Chromium</i>	<i>Dissolved Chromium</i>	<i>Copper</i>	<i>Dissolved Copper</i>	<i>Lead</i>	<i>Dissolved Lead</i>	<i>Zinc</i>	<i>Dissolved Zinc</i>
<b>METALS</b>													
BC-GP10-GW1	05/22/19	117	72.0	<2.0	<2.0	17.4	<10.0	14.5	<10.0	<10.0	<10.0	27.6	<10.0
BC-GP11-GW1	05/22/19	134	115	<2.0	<2.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	56.1	24.4
BC-GPGW-FD1		133	116	<2.0	<2.0	<10.0	<10.0	10.2	<10.0	<10.0	<10.0	54.4	22.8
BC-GP12-GW1	05/22/19	121	114	<2.0	<2.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<20.0	<20.0
BC-GP13-GW1	05/22/19	136	140	3.9	3.8	<10.0	<10.0	35.0	<10.0	<10.0	<10.0	1,610	1,570
BC-GP14-GW1	05/22/19	158	123	<2.0	<2.0	10.9	<10.0	12.6	<10.0	<10.0	<10.0	22.3	<20.0
BC-GP15-GW1	05/22/19	150	131	<2.0	<2.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<20.0	<20.0
Res TAP GWSLs		2,000	2,000	5	5	100	100	1,300	1,300	15	15	6,000	6,000

Notes:  
 All concentrations are reported in µg/L. NA = Not analyzed. NE = No IDEM RCG Screening Level established for this constituent.  
 Unlisted compounds below laboratory detection limits for all samples.  
**Bold** values indicate concentrations above the RCG Residential TAP Groundwater Screening Levels (Res TAP GWSLs).  
 IDEM Remediation Closure Guide (RCG), Appendix A: Screening Levels, Table A-6: Screening Level Summary Table - March 2019 Screening Levels.



**TABLE 11**  
**Summary of Groundwater PAH, VOC, and PCB Analytical Results (µg/L)**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

<i>Sample ID</i>	<i>Sample Date</i>	<i>PAH</i>	<i>VOC</i>	<i>PCB</i>
BC-GP10-GW1	05/22/19	ND	ND	ND
BC-GP11-GW1	05/22/19	ND	ND	ND
BC-GPGW-FD1		ND	ND	ND
BC-GP12-GW1	05/22/19	ND	ND	ND
BC-GP13-GW1	05/22/19	ND	ND	ND
BC-GP14-GW1	05/22/19	ND	ND	ND
BC-GP15-GW1	05/22/19	ND	ND	ND

Notes:

All concentrations are reported in µg/L. NA = Not analyzed. ND = No detection.  
 NE = No IDEM RCG Screening Level established for this constituent.

**Bold** values indicate concentrations above the RCG Residential TAP Groundwater Screening Levels (Res TAP GWSLs).

IDEM Remediation Closure Guide (RCG), Appendix A: Screening Levels, Table A-6:  
 Screening Levels Summary Table - March 2019 Screening Levels.

**TABLE 12**  
**Summary of Groundwater PFAS Analytical Results (ng/L)**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Sample ID	Sample Date	Perfluorobutanoic Acid (PFBA)	Perfluoropentanoic Acid (PFPeA)	Perfluorobutanesulfonic Acid (PFBS)	Perfluorohexanoic Acid (PFHxA)	Perfluoroheptanoic Acid (PFHpA)	Perfluorohexanesulfonic Acid (PFHxS)	Perfluorooctanoic Acid (PFOA)	Perfluorooctanesulfonic Acid (PFOS)
		PFAS							
BC-GP10-GW1	05/22/19	<2.1	<2.1	<1.8	<2.1	<2.1	<1.9	<2.1	<2.0
BC-GP11-GW1	05/22/19	<2.0	<2.0	<1.8	<2.0	<2.0	<1.9	<2.0	<1.9
BC-GPGW-FD1		<2.0	<2.0	<1.8	<2.0	<2.0	<1.9	<2.0	<1.9
BC-GP12-GW1	05/22/19	7.3	<1.9	<1.9	<1.9	<1.9	<1.8	<1.9	23
BC-GP13-GW1	05/22/19	13	6.0	3.2	6.8	3.0	6.7	5.3	4.6
BC-GP14-GW1	05/22/19	<2.0	<2.0	<1.8	<2.0	<2.0	<1.9	<2.0	<2.0
BC-FRB3	05/22/19	<2.0	<2.0	<1.7	<2.0	<2.0	<1.9	<2.0	<1.9

Notes:  
 All concentrations are reported in ng/L. NA = Not analyzed. Unlisted compounds below laboratory detection limits for all samples.



**TABLE 13**  
**Summary of Soil Gas Sampling Analytical Results (ug/m<sup>3</sup>)**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Sample ID	Screened Interval	Sample Date	Acetone	Benzene	Carbon disulfide	Chloroform	1,3-Dichlorobenzene	Dichlorodifluoromethane	Ethanol	Ethylbenzene	n-Heptane	n-Hexane	Methylene Chloride	4-Methyl-2-pentanone (MIBK)	2-Propanol	Propylene	Styrene	Tetrachloroethene	Tetrahydrofuran	Toluene	1,1,2-Trichloroethane	Trichlorofluoromethane	1,2,4-Trimethylbenzene	m&p-Xylene	o-Xylene	
<b>SOIL GAS</b>																										
BC-SG2	4-4.5	05/31/19	24.7	14.6	14.8	12.6	4.2	3.0	121	10.3	647	1,260	17.8	16.4	9.4	504	3.4	72.8	<1.1	33.5	<3.0	2.5	5.6	20.0	7.3	
BC-SG-FD1			27.8	14.4	14.5	12.9	3.8	2.7	118	9.9	629	1,230	29.3	15.2	9.3	498	3.3	70.1	23.0	41.3	2.1	<1.0	5.5	19.2	7.3	
Calculated RCG Commercial/Industrial Soil Gas Vapor Exposure Screening Levels (ug/m <sup>3</sup> )			1,400,000	160	31,000	53	NE	4,400	NE	490	18,000	31,000	26,000	130,000	8,800	130,000	44,000	1,800	88,000	220,000	9	NE	2,600	4,400	4,400	

**Notes:**

All concentrations are reported in ug/m<sup>3</sup>. Screened interval reported in feet below grade. NA = Not analyzed. NE = No IDEM RCG Screening Level established for this constituent.

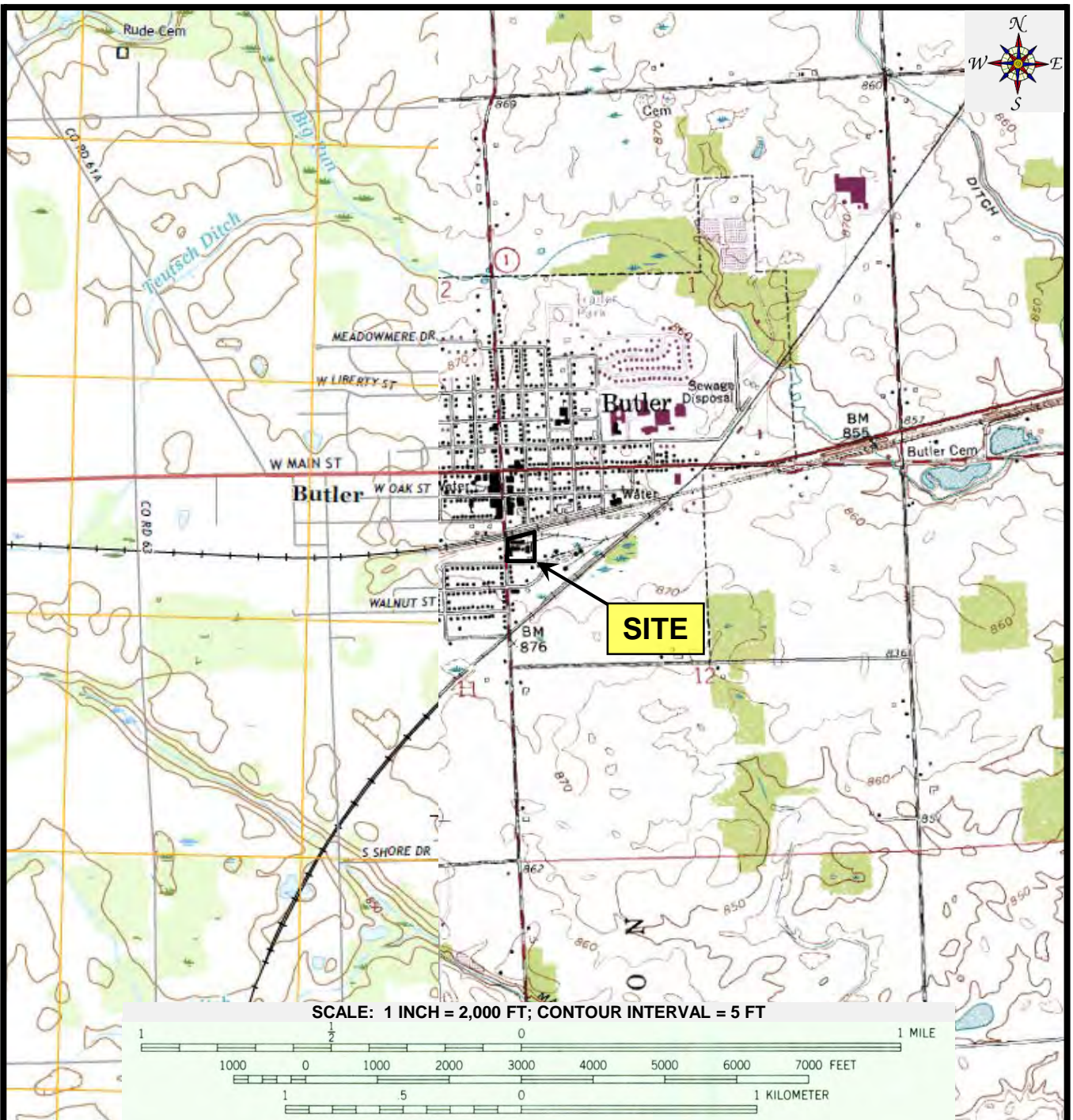
**Bold** values indicate concentrations above the RCG Commercial/Industrial Soil Gas Vapor Exposure (Indus SGe VESL).

IDEM Remediation Closure Guide (RCG), Appendix A: Screening Levels, Table A-6: Screening Level Summary Table - March 2019 Screening Levels.

Soil Gas Vapor Exposure Screening Levels were calculated by dividing the corresponding Indoor Air Screening Levels (RCG, updated March 2019) by 0.1 (exterior soil gas points shallower than 5 feet), (assumed attenuation factor) as outlined in IDEM's technical guidance document *Attenuation Factors* (September 2016).

<b>SUMMA CANISTER VACUUM MEASUREMENTS</b>		
	<b>BC-G2</b>	<b>BC-SG-FD1</b>
Initial Summa Canister Vacuum Measurement (inches Hg)	-29	-29
Final Summa Canister Vacuum Measurement (inches Hg)	-2	-2
Summa Canister Vacuum Measurement Upon Arrival at Laboratory (inches Hg)	-3	-3

## FIGURES



SOURCE: BUTLER WEST, INDIANA, USGS TOPOGRAPHIC QUADRANGLE MAP, 2016 and BUTLER EAST, INDIANA, USGS TOPOGRAPHIC QUADRANGLE MAP, 1958 (REVISED 1994)



1015 Production Road, Fort Wayne, IN 46808  
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FIGURE 1

**Site Location Map**  
**The Butler Company**  
**IBP Site No. 4170705**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**

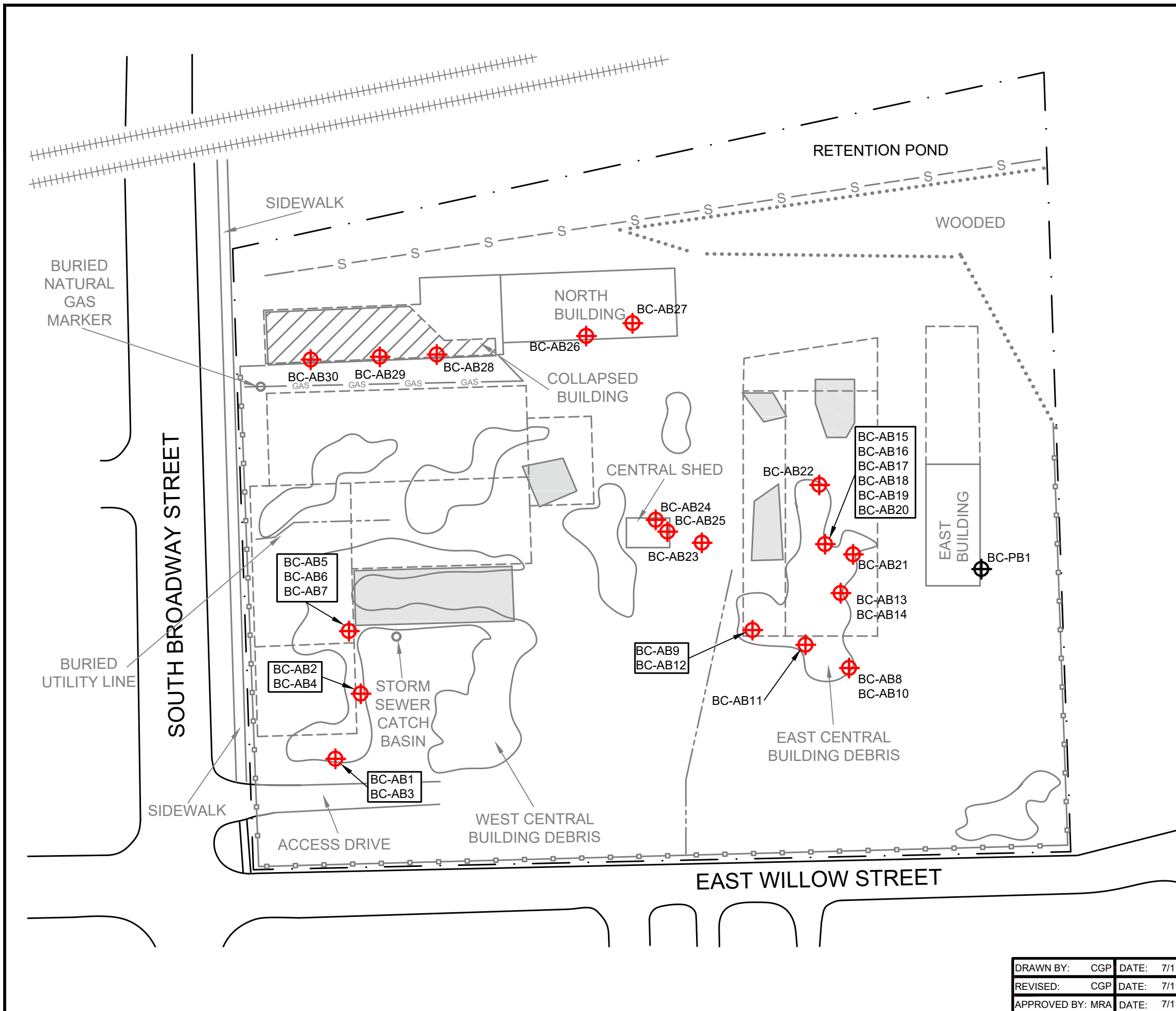
CLIENT

**INDIANA BROWNFIELDS PROGRAM**  
**INDIANAPOLIS, INDIANA**

Project	Task	Size	Date
19-716	10	A	4/11/2019



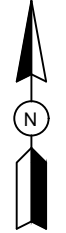
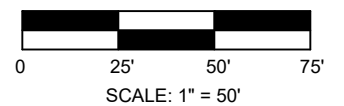




**LEGEND**

- PROPERTY BOUNDARY
- - - FORMER BUILDING FOOTPRINT
- APPARENT BUILDING DEBRIS PILE
- - - FENCE LINE
- EXPOSED CONCRETE BUILDING PAD/FOUNDATION
- - - S - SEWER
- - - BURIED UTILITY LINE
- - - GAS - RELIC BURIED NATURAL GAS LINE
- ⊕ BC-AB1 ASBESTOS SAMPLE LOCATION
- ⊕ BC-PB1 LEAD-BASED PAINT SAMPLE LOCATION

SITE FEATURES SHOWN ARE BASED ON DEKALB COUNTY GIS 2012 AND 2017 AERIAL PHOTOGRAPHS.

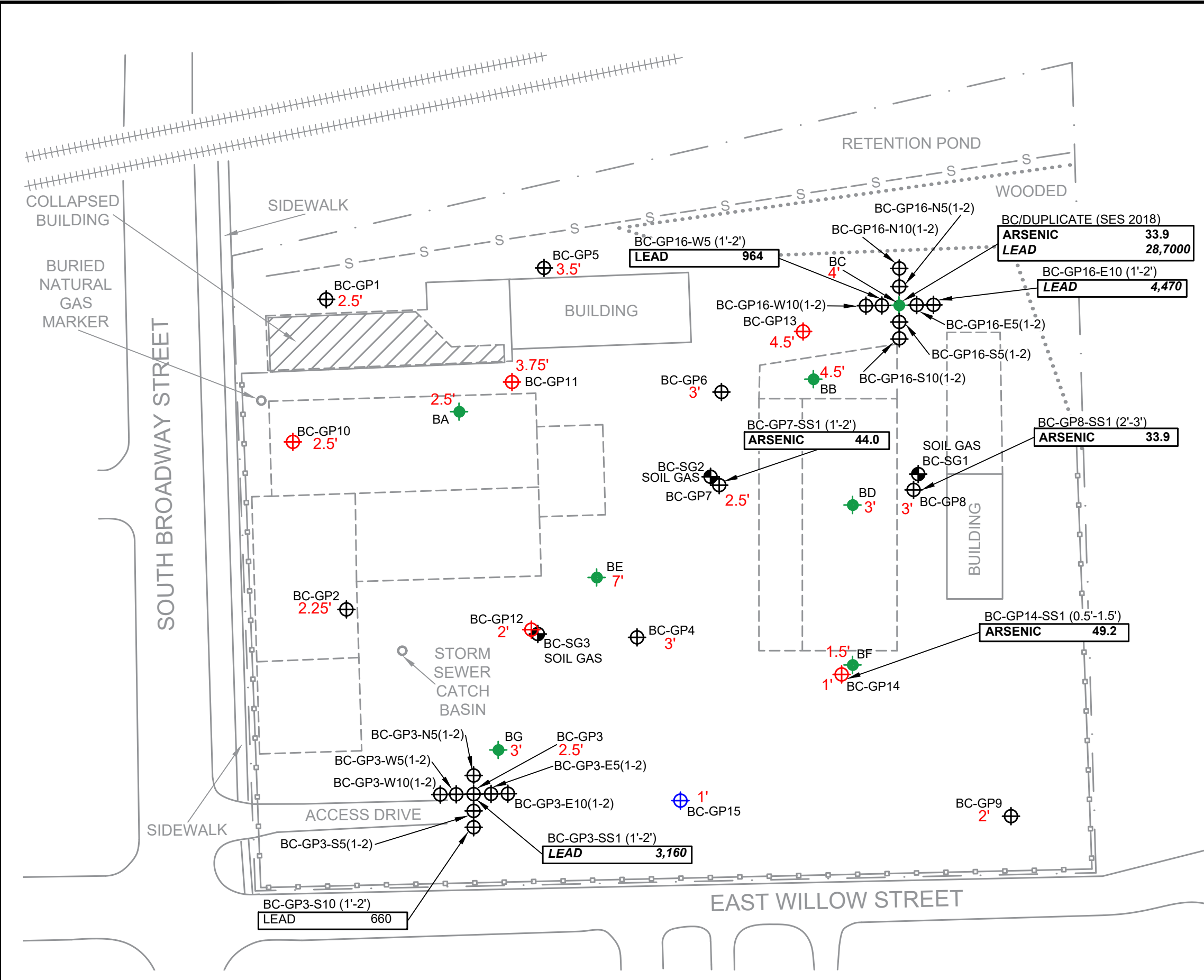


1015 Production Road, Fort Wayne, Indiana 46808  
(260)497-9620 fax: (260)471-7071 www.iwmconsult.com

TITLE:  
BULK ASBESTOS AND LEAD PAINT SAMPLE LOCATION MAP  
THE BUTLER COMPANY - IBP SITE No. 4170705  
325 SOUTH BROWWAY STREET  
BUTLER, DEKALB COUNTY, INDIANA

CLIENT:  
INDIANA BROWNFIELDS PROGRAM  
INDIANAPOLIS, INDIANA

DRAWN BY: CGP	DATE: 7/11/19	DRAWING NUMBER			
REVISD: CGP	DATE: 7/11/19	PROJECT NUMBER	TASK	SIZE	FIG. NO.
APPROVED BY: MRA	DATE: 7/11/19	19-716	10	B	3

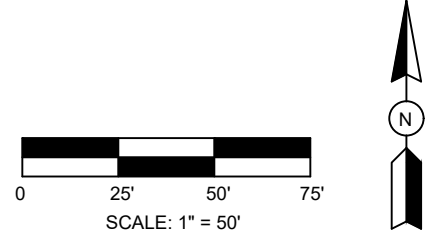


**LEGEND**

- PROPERTY BOUNDARY
- FILL SAMPLING LOCATION BORING, BC-GP1 THROUGH BC-GP9 (NINE (9) LOCATIONS)
- BORING/TEMPORARY WELL LOCATION WITH PFAS SAMPLING, BC-GP10 THROUGH BC-GP14 (FIVE (5) LOCATIONS)
- BORING/TEMPORARY WELL LOCATION, BC-GP15 (ONE (1) LOCATION)
- ATTEMPTED SOIL GAS LOCATION, BC-SG1, BC-SG2, AND BC-SG3
- THICKNESS OF FILL AS IDENTIFIED IN SOIL BORING.
- SES BORING LOCATION (2018)
- FORMER BUILDING FOOTPRINT
- FENCE LINE
- SEWER

SITE FEATURES SHOWN ARE BASED ON DEKALB COUNTY GIS 2012 AND 2017 AERIAL PHOTOGRAPHS.

ONLY SOIL ANALYTICAL RESULTS IN EXCESS OF THEIR RESPECTIVE MARCH 2019 IDEM RCG RDCSLs, **IDCSLs**, AND **ExDCSLs** ARE SHOWN ON THIS MAP.



1015 Production Road, Fort Wayne, Indiana 46808  
(260)497-9620 fax: (260)471-7071 www.iwmconsult.com

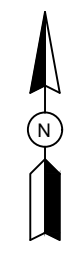
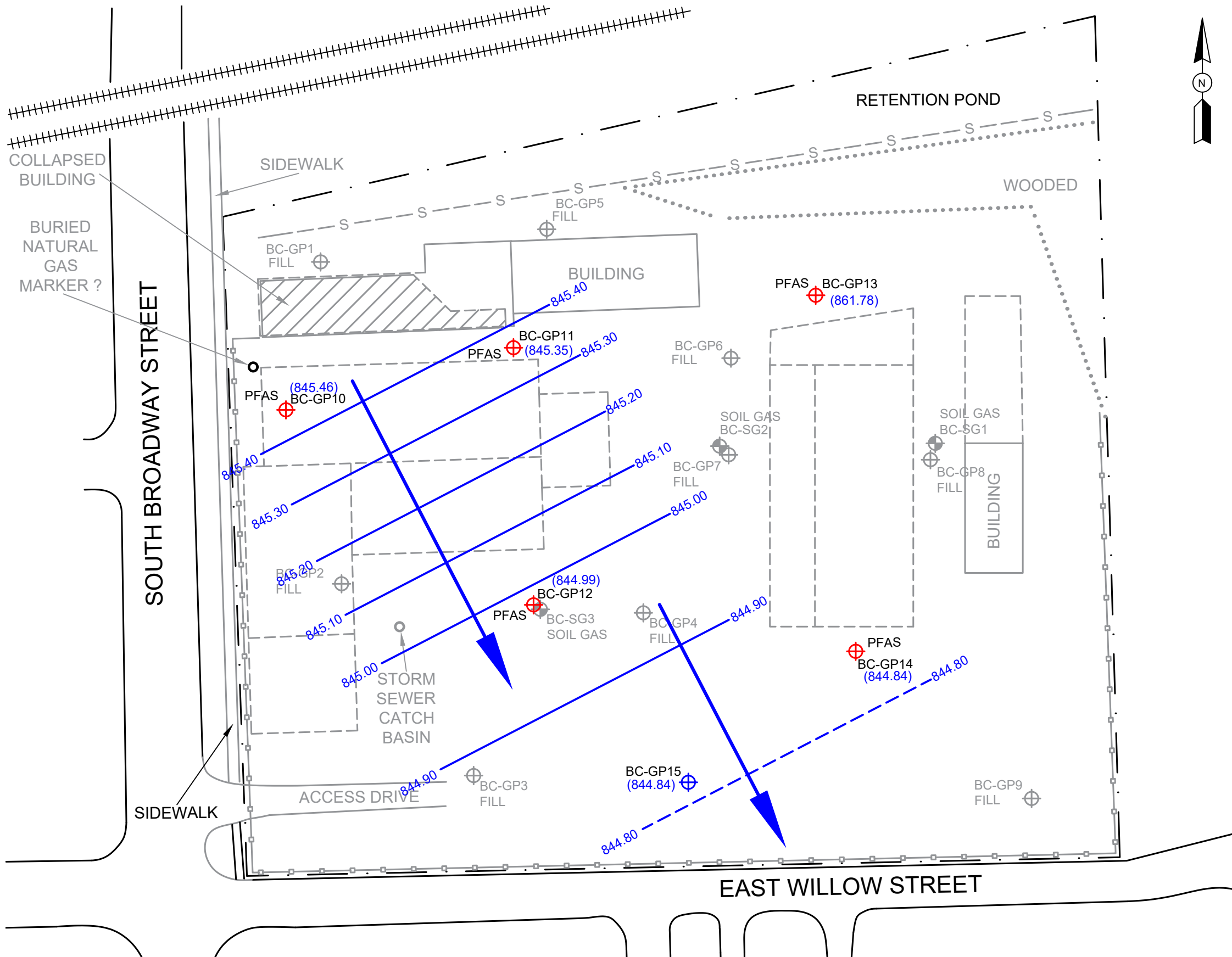
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**TITLE:**  
SOIL ANALYTICAL RESULTS MAP  
THE BUTLER COMPANY - IBP SITE No. 4170705  
325 SOUTH BROADWAY STREET  
BUTLER, DEKALB COUNTY, INDIANA

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**CLIENT:**  
INDIANA BROWNFIELDS PROGRAM  
INDIANAPOLIS, INDIANA

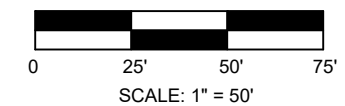
DRAWN BY: CGP	DATE: 7/11/19	DRAWING NUMBER			
REVISD: CGP	DATE: 7/11/19	PROJECT NUMBER	TASK	SIZE	FIG. NO.
APPROVED BY: MRA	DATE: 7/11/19	19-716	10	B	4



- ### LEGEND
- PROPERTY BOUNDARY
  - FILL SAMPLING LOCATION BORING, BC-GP1 THROUGH BC-GP9 (NINE (9) LOCATIONS)
  - PFAS BORING/TEMPORARY WELL LOCATION WITH PFAS SAMPLING, BC-GP10 THROUGH BC-GP14 (FIVE (5) LOCATIONS)
  - BORING/TEMPORARY WELL LOCATION, BC-GP15 (ONE (1) LOCATION)
  - ATTEMPTED SOIL GAS LOCATION, BC-SG1, BC-SG2, AND BC-SG3
  - FORMER BUILDING FOOTPRINT
  - FENCE LINE
  - SEWER
  - POTENTIOMETRIC CONTOUR
  - GROUNDWATER ELEVATION MAY 22, 2019
  - GROUNDWATER FLOW DIRECTION

NOTE: BC-GP13 WAS NOT INCLUDED IN THE GENERATION OF THE MAY 22, 2019 POTENTIOMETRIC MAP BECAUSE WELL WAS INSTALLED IN SHALLOW FILL.

WELL ELEVATIONS AND LOCATIONS SURVEYED BY MAXWELL SURVEYING AND ENGINEERING ON MAY 25, 2019.



1015 Production Road, Fort Wayne, Indiana 46808  
(260)497-9620 fax: (260)471-7071 www.iwmconsult.com

TITLE: GROUNDWATER POTENTIOMETRIC MAP  
THE BUTLER COMPANY - IBP SITE No. 4170705  
325 SOUTH BROADWAY STREET  
BUTLER, DEKALB COUNTY, INDIANA

CLIENT: INDIANA BROWNFIELDS PROGRAM  
INDIANAPOLIS, INDIANA

DRAWN BY: CGP	DATE: 7/11/19	DRAWING NUMBER			
REVISD: CGP	DATE: 7/11/19	PROJECT NUMBER	TASK	SIZE	FIG. NO.
APPROVED BY: MRA	DATE: 7/11/19	19-716	10	B	5

**APPENDIX A**

**DEKALB COUNTY ASSESSOR PROPERTY CARD AND TAX DEED**



### Summary - Auditor's Office

**Parcel ID** 23-07-12-109-001  
**Tax Bill ID** 23-07-12-109-001  
**State ID** 17-07-12-109-001.000-027  
**Map Reference #**  
**Property Address** 325 S Broadway St  
 Butler, IN, 46721  
**Brief Legal Description** In Mid Pt W1/2 NW1/4  
(Note: Not to be used on legal documents)  
**Class** COMMERCIAL WAREHOUSE  
**Tax District** Butler City 027  
**Tax Rate Code** 23065 - Advertised  
**Property Type** 67 - Commercial  
**Mortgage Co** N/A  
**Last Change Date**  
**Acreage** 3.55

### Owners - Auditor's Office

FSPI 401K EMPL Profit Sharing Plan 401  
 5200 Dallas Hwy  
 Ste 200-280  
 Powder Springs, GA 30127

### Taxing District - Assessor's Office

**County:** Dekalb  
**Township:** Wilmington Township  
**State District** 027 BUTLER CITY  
**Local District:** 023  
**School Corp:** DEKALB COUNTY EASTERN COMMUNITY  
**Neighborhood:** 234065-17027 VARIOUS C/I UNPLATTED AREAS 234065-17027

### Site Description - Assessor's Office

**Topography:** Flat  
**Public Utilities:** All  
**Street or Road:** Sidewalk , Paved  
**Area Quality**

### Land - Assessor's Office

Land Type	Soil ID	Act Front.	Eff. Depth	Size	Rate	Adj. Rate	Ext. Value	Infl. %	Value
Primary Commercial/Indust Land		0	0	2.5500	\$21,000.00	\$21,000.00	\$53,550.00	(\$75.00)	\$13,390.00
Homesite		0	0	1.00	\$9,964.00	\$9,964.00	\$9,964.00	\$0.00	\$9,960.00

### Commercial Buildings

Description	C/I Building C 05				Use Area	2,652
	SB	B	1	U	Not in Use	0
Wall Type			1		Use	Light Utility Storage
Heating					Floor	1
A/C						
Sprinkler						
Plumbing RES/CI	#	TF	#	TF		
Total	0	0	0	0		

Description	C/I Building C 06				Use Area	756	756
	SB	B	1	U	Not in Use	0	0
Wall Type		2	2		Use	Light Utility Storage	Light Utility Storage
Heating					Floor	2	1
A/C							
Sprinkler							
Plumbing RES/CI	#	TF	#	TF			
Total	0	0	0	0			

### Improvements - Assessor's Office

Descr	PC	Grade	Year Built	Eff Year	Cond	LCM	Size	Nbhd Factor	Mrkt Factor
C/I Building C 05	100	D	1900	1927	F	1.01	2652	1	0
Fencing	100	C	1960	1960	F	1.01	0	1	0
Barn, Pole (T3) 26X122	100	D	1900	1900	F	1.01	3172	1	0.65
C/I Building C 06	100	D	1900	1927	VP	1.01	1512	1	0

### Transfer History (Cama) - Auditor & Assessor's Off

Date	New Owner	Doc ID	Book/Page	Sale Price
11/9/2012	FSPI 401K EMPL PROFIT SHARING PLAN 401			\$0.00
12/29/2006	STROCK, NEIL A.			\$75,000.00
10/2/2006	PORTER, JODY L. TRUSTEE IN TRUST OF BUTLER CO., THE			\$400,016.00
				\$0.00

### Homestead Assessments - Auditor's Office

	2017 Pay 2018	2016 Pay 2017	2015 Pay 2016	2014 Pay 2015	2013 Pay 2014
Land	\$23,400.00	\$23,400.00	\$23,400.00	\$23,400.00	\$23,400.00
Res Land	\$0.00	\$0.00	\$0.00	\$10,000.00	\$10,000.00
Improve	\$12,800.00	\$30,400.00	\$71,500.00	\$66,200.00	\$67,200.00
Res Improve	\$0.00	\$0.00	\$0.00	\$6,150.00	\$6,250.00

### Transfer History (Tax)

Date	Transfer From	Instrument	Book	Page	Doc Nbr
11/9/2012	Strock, Neil A.	Tax Deed			
12/29/2006	Porter, Jody L. trustee in trust of the Helen B. Sicard trust	TRST D			
10/2/2006	Butler Co., The	SHERIFF D			
1/1/1900	Unknown At Conversion				

### Valuation - Assessor's Office

Assessment Year	2019	2018	2018 (2)	2017	2017 (2)
Reason	Annual Adjustment	Annual Adjustment	Annual Adjustment	Annual Adjustment	DESTROYED STRUCTURE
As Of Date	4/10/2019	3/28/2018	3/26/2018	3/19/2017	9/22/2016
Land	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400
Land Res (1)	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Land Non Res (2)	\$0	\$0	\$0	\$0	\$0
Land Non Res (3)	\$13,400	\$13,400	\$13,400	\$13,400	\$13,400
Improvement	\$13,400	\$13,400	\$13,400	\$12,800	\$12,700
Imp Res (1)	\$0	\$0	\$0	\$0	\$0
Imp Non Res (2)	\$0	\$0	\$0	\$0	\$0
Imp Non Res (3)	\$13,400	\$13,400	\$13,400	\$12,800	\$12,700
<b>Total</b>	<b>\$36,800</b>	<b>\$36,800</b>	<b>\$36,800</b>	<b>\$36,200</b>	<b>\$36,100</b>
<b>Total Res (1)</b>	<b>\$10,000</b>	<b>\$10,000</b>	<b>\$10,000</b>	<b>\$10,000</b>	<b>\$10,000</b>
<b>Total Non Res (2)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total Non Res (3)</b>	<b>\$26,800</b>	<b>\$26,800</b>	<b>\$26,800</b>	<b>\$26,200</b>	<b>\$26,100</b>

### Exemptions - Auditor's Office

Type	Description	2014 Pay 2015
Homestead	HOMESTEAD EX	\$9,690.00
Mortgage	MORTGAGE EX	\$3,000.00
Homestead	SUPPLEMENTAL	\$2,261.00

### Tax History - Auditor's Office

	2018 Pay 2019	2017 Pay 2018	2016 Pay 2017	2015 Pay 2016	2014 Pay 2015
+ Spring Tax	\$460.50	\$444.66	\$689.68	\$1,264.87	\$1,074.92
+ Spring Penalty	\$46.05	\$44.47	\$68.97	\$126.49	\$107.49
+ Spring Annual	\$694.83	\$605.89	\$467.96	\$214.98	\$0.00
+ Fall Tax	\$460.50	\$444.66	\$689.68	\$1,264.87	\$1,074.92
+ Fall Penalty	\$0.00	\$44.47	\$68.97	\$126.49	\$107.49
+ Fall Annual	\$0.00	\$605.89	\$467.96	\$214.98	\$0.00
+ Delq NTS Tax	\$444.66	\$689.68	\$1,264.87	\$1,074.92	\$1,029.36
+ Delq NTS Pen	\$650.36	\$536.93	\$341.47	\$107.49	\$102.94

	2018 Pay 2019	2017 Pay 2018	2016 Pay 2017	2015 Pay 2016	2014 Pay 2015
+ Delq TS Tax	\$6,503.60	\$5,369.26	\$3,414.71	\$1,074.92	\$1,029.36
+ Delq TS Pen	\$2,622.14	\$1,434.85	\$556.45	\$107.49	\$102.94
+ Other Assess	\$51.12	\$48.28	\$42.60	\$36.92	\$62.48
	0455-00-0 Big Run62223 - \$51.12	0455-00-0 Big Run62223 - \$48.28	0455-00-0 Big Run62223 - \$42.60	0455-00-0 Big Run62223 - \$36.92	0455-00-0 Big Run62223 - \$62.48
+ Advert Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
+ Tax Sale Fee	\$300.00	\$300.00	\$200.00	\$100.00	\$0.00
+ NSF Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PTRC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HMST Credit	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Circuit Breaker	\$0.00	\$0.00	\$1.24	\$9.99	\$0.00
Over 65 CB	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>= Charges</b>	<b>\$12,233.76</b>	<b>\$10,569.04</b>	<b>\$8,273.32</b>	<b>\$5,714.42</b>	<b>\$4,691.90</b>
- Surplus Transfer	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
- Credits					(\$2,295.84)
<b>= Total Due</b>	<b>\$12,233.76</b>	<b>\$10,569.04</b>	<b>\$8,273.32</b>	<b>\$5,714.42</b>	<b>\$2,396.06</b>

**Delinquent payments made after the fall due date will still show due in the year they were originally assessed.**  
**If paid, payment will show in the next tax year. Amounts shown do not include late penalties.**  
**Please call our office at 260-925-2712 for current balance information.**

#### Payments

Year	Receipt #	Transaction Date	Amount
2018 Pay 2019			\$0.00
2017 Pay 2018			\$0.00
2016 Pay 2017			\$0.00
2015 Pay 2016			\$0.00
2014 Pay 2015	1519910	3/9/2015	\$2,295.84

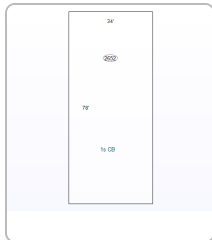
#### Property Tax Bill

[Print tax bill](#)

**Amount does not include late penalty**

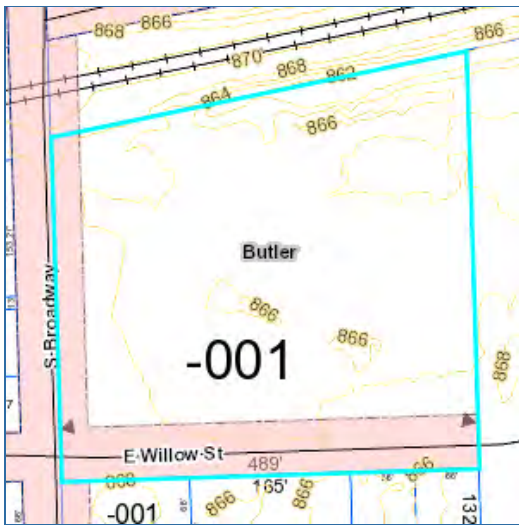
[Make a Payment Online](#)

#### Sketches - Assessor's Office





## Map



Tax and Assessment information will not show on new splits until the following taxing year.  
Please contact the Auditor or Assessor's Office for data needed.

No data available for the following modules: Residential Dwellings - Assessor's Office.

The information in this web site represents current data from a working file which is updated continuously. Information is believed reliable, but its accuracy cannot be guaranteed. No warranty, expressed or implied, is provided for the data herein, or its use.

Last Data Upload: 7/11/2019, 2:01:57 AM

Version 2.2.30

Developed by  
 Schneider  
GEOSPATIAL



8 0 1 8 7 7 3

Tx: 4013743

201206771

11/09/2012 AT 11:54 AM  
RECORDER OF DEKALB CO, IN  
JACQUELINE ROWAN  
Fee Amount: 18.00  
Pages: 2

Prescribed by the State Board of Accounts

# TAX DEED

WHEREAS FSPI 401K EMPL PROFIT SHARING PLAN 401 (k) did the 23rd day of August, 2012 produce to the undersigned, JOHN W. FETTERS Auditor of the County of Dekalb in the State of Indiana, a certificate of sale dated the 27th day of February, 2012, signed by John Fetters who, at the date of sale, was Auditor of the County, from which it appears that FSPI 401K EMPL PROFIT SHARING PLAN 401 (k) on the 27th day of February, 2012, purchased at public auction, held pursuant to law, the real property described in this indenture for the sum of \$2001 TWO THOUSAND, ONE AND 0/100 DOLLARS, being the amount due on the following tracts of land returned delinquent in the name **Strock, Neil A.** for 2010 and prior years, namely;

## SEE ATTACHED EXHIBIT A

Property ID#: 23-07-12-109-001

Such real property has been recorded in the Office of the Dekalb County Auditor as delinquent for the nonpayment of taxes and proper notice of the sale has been given. It appearing that FSPI 401K EMPL PROFIT SHARING PLAN 401 (k) yy the owner of the certificate of sale, that the time for redeeming such real property has expired, that the property has not been redeemed, that the undersigned has received a court order for the issuance of a deed for the real property described in the certificate of sale, that the records of the Dekalb County Auditor's Office state that the real property was legally liable for taxation, and the real property has been duly assessed and properly charged on the duplicate with the taxes and special assessments for 2010 and prior years.

**THEREFORE**, this indenture, made this 8<sup>th</sup> day of November 2012 between the State of Indiana by JOHN W. FETTERS Auditor of Dekalb County, of the first part, and FSPI 401K EMPL PROFIT SHARING PLAN 401 (k) of the second part, witnesseth; That the party of the first part, for and in consideration of the premises, has granted and bargained and sold to the party of the second part, their heirs and assigns, the real property described in the certificate of sale, situated in the County of Dekalb, and State of Indiana, namely and more particularly described as follows:

## SEE ATTACHED EXHIBIT A

Property ID#: 23-07-12-109-001

to have and to hold such real property, with the appurtenances belonging thereto, in as full and ample a manner as the Auditor of said County is empowered by law to convey the same.

In testimony whereof, JOHN W. FETTERS, Auditor of Dekalb County, has hereunto set his/her hand, and affixed the seal of the Board of County Commissioners, the day and year last above mentioned.

Holly Albright  
Attest: HOLLY ALBRIGHT  
Treasurer: Dekalb County

Witness: John W. Fetters (L.S.)  
JOHN W. FETTERS, Auditor of Dekalb County

State of Indiana                    )  
  ) SS.  
County of Dekalb                 )

Before me, the undersigned, MARTHA GRIMM, in and for said County, this day, personally came the ~~above named~~ JOHN W. FETTERS, Auditor of said County, and acknowledged that he/she signed and sealed the foregoing deed for the ~~uses and purposes~~ therein mentioned.

In witness whereof, I have hereunto set my hand and seal this 9<sup>th</sup> day of November 2012  
Marttha Grimm  
MARTHA GRIMM, Clerk of Dekalb County



This instrument prepared by JOHN W. FETTERS, Auditor  
I affirm, under the penalties for perjury, that I have taken reasonable care to redact each Social Security number on this document, unless required by law. JOHN W. FETTERS, Auditor

Post Office address of grantee: FSPI 401K EMPL PROFIT SHARING PLAN 401 (k)  
5200 Dallas Hwy; Ste 200-280  
Powder Springs, GA 30127

DULY ENTERED  
FOR TAXATION

NOV 09 2012

John W. Fetters  
AUDITOR DEKALB COUNTY

### **EXHIBIT A – LEGAL DESCRIPTION**

Property ID#: 23-07-12-109-001

**Part of the West Half of the Northwest Quarter of Section 12, Township 34 North, Range 14 East in DeKalb County, Indiana, bounded by a line commencing at a point on the west line of said Section at the south boundary line of the right-of-way of the Wabash Railroad Company and running thence South 4 chains; thence East 6 chains and 50 links; thence North to the south boundary of said Railroad right-of-way and thence Southwesterly along said boundary of said Railroad to the point of beginning.**

More commonly known as: 325 S Broadway St.

**APPENDIX B**  
**WASTE DISPOSAL DOCUMENTATION**

**APPENDIX C**  
**GPRS JOB SUMMARY**



# Job Summary

Job Date : 5/15/2019

<b>Customer</b>	IWM Consulting Group	<b>Phone Number</b>	(206) 497-9620
<b>Billing Address</b>	<b>City</b>	<b>State</b>	<b>Zip</b>
1015 Production Rd	Fort Wayne	IN	46808
<b>Job Details</b>			
<b>Jobsite Location</b>	325 S Broadway St		
<b>City</b>	Butler		
<b>State</b>	IN		
<b>WA Number</b>	127306		
<b>Job Num</b>	10716-10		
<b>PO Num</b>	FW19716-10		
<b>Lead Technician</b>	COOK, BEN	<b>Phone</b>	260-205-0278
		<b>Email</b>	ben.cook@gprsinc.com
Thank you for using Ground Penetrating Radar Systems on your project. We appreciate the opportunity to work with you. If you have questions regarding the results of this scanning, please contact the lead GPRS technician on this project.			
<b>EQUIPMENT USED</b>			
The following equipment was used on this project:			
<ul style="list-style-type: none"><li>• 400 MHz GPR antenna. Typically capable of detecting objects several feet deep. Maximum effective depth depends on site and soil conditions.</li><li>• RD 7000/8000 Radio Frequency detector. Detects electromagnetic fields. Used to actively trace metallic pipes and tracer wires, or passively detect electric, communications and other lines.</li><li>• GSSI EMP-400 Electromagnetic Profiler. This system generates an electromagnetic field around the user, records interactions between the EM field and the soil, and maps the results. Most sensitive to large metallic objects such as underground storage tanks or reinforced concrete foundations.</li></ul>			
<b>Work Performed</b>			
Ground Penetrating Radar Systems performed the following work on this project:			
<b><u>Underground Utility</u></b>			
Scanning the specified area to locate underground utilities and other significant anomalies. A tracer signal was sent along any accessible metallic utility or tracer wire, and the area was scanned with GPR to locate any additional targets. The locations of any detected utilities and anomalies were marked directly at the site with paint, flags, stakes, or other appropriate means, and results were reviewed with onsite personnel.			
<ul style="list-style-type: none"><li>• The total area scanned was approximately 154,638 square feet.</li><li>• The total area scanned was approximately 3.55 acres.</li><li>• Scanning the areas around proposed soil borings. Typically a 10' radius around each proposed soil boring will be scanned. A total of 15 boring locations were scanned.</li><li>• Entire area in the SOW provided by client's map will be searched for unknown utilities and clear 15 soil borings. The EMI will also be used in locations where it can be used effectively away from building debris and obstructions.</li></ul>			

# Job Summary

Job Date : 5/15/2019

- The effective depth of GPR will vary throughout a site depending on surface and soil conditions. In this area, the maximum effective GPR depth was approximately 3 feet.
- The perimeter of the property was scanned for any utilities entering the site. Only one location was found to have this. It was marked on the surface with red paint and flags. Two other interior locations gave reactions that were marked with the red as well. A gas line off Broadway St was marked with yellow paint and flags to a valve near the old railway. A short section of another line was marked there as well. The only other utility seen was either a water or gas line in the middle of the property off of Broadway that went approximately 100' to the E and stopped. It was marked with yellow and blue paint and flags since it's utility was not known for sure. Fifteen specific location were cleared for soil borings. These were marked with wooden stakes by the client. Corners of these areas were marked with white paint. Not all of these could be scanned with the GPR due to debris from the demolished buildings. All were checked with the RD though.

## Pictures



Utility Limitations

## TERMS & CONDITIONS

<http://www.gprsinc.com/termsandconditions.html>

## SIGNATURE

## Contact Name

A/P Mark Anderson (206) 497-9620 manderson@iwmconsult.com

## **APPENDIX D**

### **LABORATORY ANALYTICAL REPORT – BULK ASBESTOS**





# EMSL Analytical, Inc.

6340 CastlePlace Dr. Indianapolis, IN 46250

Tel/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com> / [indianapolislab@emsl.com](mailto:indianapolislab@emsl.com)

EMSL Order: 161909340

Customer ID: IWMC25

Customer PO:

Project ID:

**Attention:** Mark Anderson  
IWM Consulting Group  
1015 Production Road  
Fort Wayne, IN 46808

**Phone:** (260) 497-9620

**Fax:**

**Received Date:** 05/16/2019 11:12 AM

**Analysis Date:** 05/22/2019 - 05/23/2019

**Collected Date:** 05/15/2019

**Project:** 19-716-10 Butler Co.

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
BC-AB1-Roofing <small>161909340-0001</small>	W Central Building - Roofing (multi-layer) (2)	Gray/Black Fibrous Heterogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
BC-AB1-Felt <small>161909340-0001A</small>	W Central Building - Roofing (multi-layer) (2)	Brown/Black Fibrous Heterogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
BC-AB2-Roofing <small>161909340-0002</small>	W Central Building - Roofing (multi-layer) (2)	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
BC-AB2-Felt <small>161909340-0002A</small>	W Central Building - Roofing (multi-layer) (2)	Brown Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
BC-AB3 <small>161909340-0003</small>	W Central Building - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
BC-AB4 <small>161909340-0004</small>	W Central Building - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
BC-AB5 <small>161909340-0005</small>	W Central Building - Mortar	Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB6 <small>161909340-0006</small>	W Central Building - Electrical Wire Insulation	Gray/Black Fibrous Heterogeneous	70% Cellulose 5% Glass	25% Non-fibrous (Other)	None Detected
BC-AB7-Insulation <small>161909340-0007</small>	W Central Building - Electrical Wire Insulation	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
BC-AB7-Insulation <small>161909340-0007A</small>	W Central Building - Electrical Wire Insulation	Black Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
BC-AB8-Roofing <small>161909340-0008</small>	E Central Building - Roofing (multi-layer) (2)	Black Fibrous Heterogeneous	40% Cellulose	58% Non-fibrous (Other)	2% Chrysotile
BC-AB8-Shingle <small>161909340-0008A</small>	E Central Building - Roofing (multi-layer) (2)	White/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	<1% Chrysotile
BC-AB9-Roofing <small>161909340-0009</small>	E Central Building - Roofing (multi-layer) (2)	Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
BC-AB9-Shingle <small>161909340-0009A</small>	E Central Building - Roofing (multi-layer) (2)	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
BC-AB10 <small>161909340-0010</small>	E Central Building - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
BC-AB11 <small>161909340-0011</small>	E Central Building - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected

Initial report from: 05/23/2019 15:16:20



# EMSL Analytical, Inc.

6340 CastlePlace Dr. Indianapolis, IN 46250

Tel/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com> / [indianapolislab@emsl.com](mailto:indianapolislab@emsl.com)

**EMSL Order:** 161909340  
**Customer ID:** IWMC25  
**Customer PO:**  
**Project ID:**

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
BC-AB12 <small>161909340-0012</small>	E Central Building - Mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB13 <small>161909340-0013</small>	E Central Building - Transite Panels	Gray Fibrous Homogeneous		80% Non-fibrous (Other)	20% Chrysotile
BC-AB14 <small>161909340-0014</small>	E Central Building - Transite Panels	Gray Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
BC-AB15 <small>161909340-0015</small>	E Central Building - Fire Brick Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
BC-AB16 <small>161909340-0016</small>	E Central Building - Fire Brick Mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB17 <small>161909340-0017</small>	E Central Building - Fire Brick	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB18 <small>161909340-0018</small>	E Central Building - Fire Brick	Tan/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB19 <small>161909340-0019</small>	E Central Building - Fire Brick Interior Glazing (1)	Brown/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB20 <small>161909340-0020</small>	E Central Building - Fire Brick Interior Glazing (1)	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB21 <small>161909340-0021</small>	E Central Building - Paper Backing	Gray Fibrous Homogeneous	40% Cellulose	20% Non-fibrous (Other)	40% Chrysotile
BC-AB22 <small>161909340-0022</small>	E Central Building - Window Sealant	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB23 <small>161909340-0023</small>	E Central Building - Window Sealant	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB24 <small>161909340-0024</small>	Central Shed - Window Sealant	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB25 <small>161909340-0025</small>	Central Shed - Window Sealant	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB26-Roofing <small>161909340-0026</small>	N Building - Roofing (multi-layer)(2)	White/Black Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
BC-AB26-Felt <small>161909340-0026A</small>	N Building - Roofing (multi-layer)(2)	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
BC-AB26-Tar <small>161909340-0026B</small>	N Building - Roofing (multi-layer)(2)	Black Non-Fibrous Homogeneous	10% Cellulose	88% Non-fibrous (Other)	2% Chrysotile
BC-AB27-Tar <small>161909340-0027</small>	N Building - Roofing (multi-layer)(2)	Black Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
BC-AB27-Shingle <small>161909340-0027A</small>	N Building - Roofing (multi-layer)(2)	White/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/23/2019 15:16:20



# EMSL Analytical, Inc.

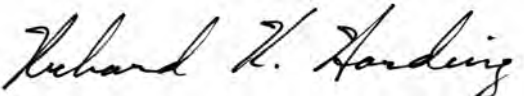
6340 CastlePlace Dr. Indianapolis, IN 46250  
Tel/Fax: (317) 803-2997 / (317) 803-3047  
<http://www.EMSL.com> / [indianapolislaboratory@emsl.com](mailto:indianapolislaboratory@emsl.com)

**EMSL Order:** 161909340  
**Customer ID:** IWMC25  
**Customer PO:**  
**Project ID:**

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
BC-AB27-Felt <i>161909340-0027B</i>	N Building - Roofing (multi-layer)(2)	Black Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
BC-AB28 <i>161909340-0028</i>	N Building - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
BC-AB29 <i>161909340-0029</i>	N Building - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
BC-AB30 <i>161909340-0030</i>	N Building - Mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BC-AB-DUP1 <i>161909340-0031</i>	Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
BC-AB-DUP2 <i>161909340-0032</i>	Mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s) \_\_\_\_\_  
*Crystal Oshurak (19)*  
*Paul Rihm (22)*

  
Richard Harding, Laboratory Manager  
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.  
Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262, LA 04135

Initial report from: 05/23/2019 15:16:20



EMSL ANALYTICAL, INC.  
LABORATORY • PRODUCTS • TRAINING

# Asbestos Bulk Building Material Chain of Custody

**EMSL Order Number (Lab Use Only):**

161909340

EMSL ANALYTICAL, INC.  
200 ROUTE 130 NORTH  
CINNAMINSON, NJ 08077  
PHONE: (800) 220-3675  
FAX: (856) 786-5974

Company: <u>IWM Consulting</u>		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: <u>1015 Production Rd</u>		<small>Third Party Billing requires written authorization from third party</small>	
City: <u>Elmwood, IN 46808</u>	State/Province: <u>IN</u>	Zip/Postal Code: <u>46808</u>	Country: <u>U.S.A.</u>
Report To (Name): <u>Mark Anderson</u>		Telephone #: <u>(260) 497-9620 / (260) 442-3017</u>	
Email Address: <u>m.anderson@iwmconsult.com</u>		Fax #:	Purchase Order:
Project Name/Number: <u>19716-10 Butler Co.</u>		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
U.S. State Samples Taken: <u>IN</u>		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

**Turnaround Time (TAT) Options\* - Please Check**

3 Hour   
  6 Hour   
  24 Hour   
  48 Hour   
  72 Hour   
  96 Hour   
  1 Week   
  2 Week

\*For TEM Air 3 hr through 6 hr, please call ahead to schedule. There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

<p><b>PLM - Bulk (reporting limit)</b></p> <p><input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (&lt;1%)</p> <p><input type="checkbox"/> PLM EPA NOB (&lt;1%)</p> <p>Point Count <input type="checkbox"/> 400 (&lt;0.25%) <input type="checkbox"/> 1000 (&lt;0.1%)</p> <p>Point Count w/Gravimetric <input type="checkbox"/> 400 (&lt;0.25%) <input type="checkbox"/> 1000 (&lt;0.1%)</p> <p><input type="checkbox"/> NIOSH 9002 (&lt;1%)</p> <p><input type="checkbox"/> NY ELAP Method 198.1 (friable in NY)</p> <p><input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)</p> <p><input type="checkbox"/> OSHA ID-191 Modified</p> <p><input type="checkbox"/> Standard Addition Method</p>	<p><b>TEM - Bulk</b></p> <p><input type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1</p> <p><input type="checkbox"/> NY ELAP Method 198.4 (TEM)</p> <p><input type="checkbox"/> Chatfield Protocol (semi-quantitative)</p> <p><input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2</p> <p><input type="checkbox"/> TEM Qualitative via Filtration Prep Technique</p> <p><input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique</p> <p style="text-align: center;"><b>Other</b></p> <p><input type="checkbox"/></p>
---	--

Check For Positive Stop - Clearly Identify Homogenous Group    Date Sampled: 5/15/19

Samplers Name: Ashley Peppo    Samplers Signature:

Sample #	HA #	Sample Location	Material Description
BC-AB1	1	W. Central Building	Roofing (Multi-layer) ②
BC-AB2	1	W. Central Building	Roofing (Multi-layer) ②
BC-AB3	2	W. Central Building	Mortar
BC-AB4	2	W. Central Building	Mortar
BC-AB5	2	W. Central Building	Mortar
BC-AB6	3	W. Central Building	Electrical Wire Insulation
BC-AB7	3	W. Central Building	Electrical Wire Insulation
BC-AB8	4	E. Central Building	Roofing (Multi-layer) ②
BC-AB9	4	E. Central Building	Roofing (Multi-layer) ②
BC-AB10	5	E. Central Building	Mortar

Client Sample # (s): BC-AB1 - BC-AB30, BC-AB-DUP1, BC-AB-DUP2    Total # of Samples: 32

Relinquished (Client):    Date: 5-16-19    Time: 11:12

Received (Lab):    Date: 5-16-19    Time: 11:12 am

Comments/Special Instructions:  
 ① Analyze Brown/Black Layer only    ② Analyze each roofing Layer



EMSL ANALYTICAL, INC.  
LABORATORY • PRODUCTS • TRAINING

## Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

9340

EMSL ANALYTICAL, INC.  
200 ROUTE 130 NORTH  
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675  
FAX: (856) 786-5974

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
BC-AB11	5	E. Central Building	Mortar
BC-AB12	5	E. Central Building	Mortar
BC-AB13	6	E. Central Building	Transite Panels
BC-AB14	6	E. Central Building	Transite Panels
BC-AB15	7	E. Central Building	Fire Brick Mortar
BC-AB16	7	E. Central Building	Fire Brick Mortar
BC-AB17	8	E. central Building	Fire Brick
BC-AB18	8	E. Central Building	Fire Brick
BC-AB19	9	E. Central Building	Fire Brick Interior Glazing <sup>①</sup>
BC-AB20	9	E. Central Building	Fire Brick Interior Glazing <sup>①</sup>
BC-AB21	10	E. Central Building	Paper Backing
BC-AB22	11	E. Central Building	Window Sealant
BC-AB23	11	E. Central Building	Window Sealant
BC-AB24	12	Central Shed	Window Sealant
BC-AB25	12	Central Shed	Window Sealant
BC-AB26	13	N. Building	Roofing (Multi-Layer) <sup>②</sup>
BC-AB27	13	N. Building	Roofing (Multi-Layer) <sup>②</sup>
BC-AB28	14	N. Building	Mortar
BC-AB29	14	N. Building	Mortar
BC-AB30	14	N. Building	Mortar
BC-AB-DUP1	-	_____	Mortar
BC-AB-DUP2	-	_____	Mortar

\*Comments/Special Instructions:

- ① Analyze Brown/Black Layer only
- ② Analyze each Roofing Layer

## **APPENDIX E**

### **LABORATORY ANALYTICAL REPORT – LEAD PAINT**



# EMSL Analytical, Inc.

6340 CastlePlace Dr., Indianapolis, IN 46250

Phone/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com>

[indianapolislab@emsl.com](mailto:indianapolislab@emsl.com)

EMSL Order:	161909357
CustomerID:	IWMC25
CustomerPO:	
ProjectID:	

Attn: **Mark Anderson**  
**IWM Consulting Group**  
**1015 Production Road**  
**Fort Wayne, IN 46808**

Phone: (260) 497-9620  
 Fax:  
 Received: 05/16/19 11:11 AM  
 Collected: 5/15/2019

Project: 19216-10 / BUTLER CO. / IN

## Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\*

<i>Client SampleDescription</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
BC-PB1 161909357-0001	5/15/2019	5/22/2019 Site: E BUILDING	0.2311 g	2200 ppm	18000 ppm

Doug Wiegand, Laboratory Manager  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC--ELLAP 157245, OH E10040

Initial report from 05/22/2019 15:21:35



EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS TRAINING

# Lead (Pb) Chain of Custody

## EMSL Order ID (Lab Use Only):

PHONE: ( )  
FAX: ( )

161909357

Company: <u>IWM Consulting</u>		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: <u>1015 Production Rd</u>		Third Party Billing requires written authorization from third party	
City: <u>Fort Wayne</u>	State/Province: <u>IN</u>	Zip/Postal Code: <u>46808</u>	Country: <u>U.S.A.</u>
Report To (Name): <u>Mark Anderson</u>		Telephone #: <u>(260) 497-9620 / (260) 442-5017</u>	
Email Address: <u>m.anderson@iwmconsult.com</u>		Fax #:	Purchase Order:
Project Name/Number: <u>19716-10 Butler Co.</u>		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
U.S. State Samples Taken: <u>IN</u>		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

**Turnaround Time (TAT) Options\* - Please Check**

3 Hour   
  6 Hour   
  24 Hour   
  48 Hour   
  72 Hour   
  96 Hour   
  1 Week   
  2 Week

\*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide

Matrix	Method	Instrument	Reporting Limit	Check
Chips <input type="checkbox"/> % by wt. <input type="checkbox"/> mg/cm <sup>2</sup> <input checked="" type="checkbox"/> ppm (mg/kg)	SW846-7000B	Flame Atomic Absorption	0.01%	<input checked="" type="checkbox"/>
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	<input type="checkbox"/>
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	<input type="checkbox"/>
	NIOSH 7300M/NIOSH 7303	ICP-OES	0.5 µg/filter	<input type="checkbox"/>
Wipe*      ASTM <input type="checkbox"/> non ASTM <input type="checkbox"/> <small>*if no box checked, non-ASTM Wipe assumed</small>	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	<input type="checkbox"/>
	SW846-6010B or C	ICP-OES	1.0 µg/wipe	<input type="checkbox"/>
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-1311/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
SPLP	SW846-1312/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-1312/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
TTLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	<input type="checkbox"/>
STLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	<input type="checkbox"/>
Wastewater    Unpreserved <input type="checkbox"/> Preserved with HNO <sub>3</sub> pH < 2 <input type="checkbox"/>	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	<input type="checkbox"/>
Drinking Water    Unpreserved <input type="checkbox"/> Preserved with HNO <sub>3</sub> pH < 2 <input type="checkbox"/>	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	<input type="checkbox"/>
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	<input type="checkbox"/>
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	<input type="checkbox"/>
Other:				<input type="checkbox"/>

Name of Sampler: <u>Ashley Pepple</u>		Signature of Sampler:	
Sample #	Location	Volume/Area	Date/Time Sampled
<u>BC-PBI</u>	<u>E. Building</u>	<u>3" x 4"</u>	<u>5/15/19</u>

Client Sample #s	Total # of Samples: <u>1</u>	
Relinquished (Client):	Date: <u>5/16/19</u>	Time: <u>11:11</u>
Received (Lab):	Date: <u>5-16-19</u>	Time: <u>11:11 am</u>
Comments:		



**APPENDIX F**  
**CHEMICAL INVENTORY PHOTOGRAPHS**



Photograph No. 1: Approximate 200-gallon plastic totes on east side of site adjacent to property line. No labels.



Photograph No. 2: Inside of plastic tote in Photograph No. 1. Appears to show the tote as re-used as a filter for water treatment. Residue in both totes, no apparent liquids.



Photograph No. 3: One of numerous empty plastic, 55-gallon drums which formerly contained ferric chloride.



Photograph No. 4: Tote inside North Building with several inches of residue in the bottom, no liquids. Tote labeled as formerly containing ferric chloride.



Photograph No. 5: Approx. 200-gallon totes with several inches of residue, no liquids. No labels, except for diesel (1993) label.



Photograph No. 6: Approximate 200-gallon tote labeled as ferric chloride (empty) and half full, with liquid, 55-gallon drum (no label).



Photograph No. 7: Fluorescent light ballasts (4-foot and 8-foot) inside North Building. Possible PCB transformers and mercury vapor light bulbs.



Photograph No. 8: Various paints, stains, putty, cleaners, and solvents on plastic shelves in North Building. Containers appeared in good condition.



Photograph No. 9: Unlabeled containers, paint stripper, polyurethane, and metal cleaner.



Photograph No. 10: Solvent, thinner, pipe thread compound, and latex paint.



Photograph No. 11: Pipe thread compound, metal polish, ink dyes, aerosol paint cans.



Photograph No. 12: Wood filler, automotive body filler, and metal polish.

## **APPENDIX G**

### **SOIL BORING LOGS, TEMPORARROY WELL DIAGRAMS, AND SOIL VAPOR PROBE LOGS**



# Soil Boring: BC-GP1

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -4'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0			FILL	FILL: gravel, cinders, slag, wood debris.	1.1		Analyzed soil sample -1 to -2 feet.
2			CL	Tan, gray mottling, SILTY CLAY: dense, slightly moist.	0.3		Analyzed soil sample -3 to -4 feet.
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							



# Soil Boring: BC-GP2

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS



Total Depth of Boring (ft): -4'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0			FILL	Dark brown, FILL: brick, wood and cinders present, moist.	0.2		Analyzed soil sample -0.5 to -1.5 feet.
2			CL	Gray, FILL: sandy gravel, slightly moist, no odor.		100%	
4				Gray, orange mottling, SILTY CLAY: trace gravel, slightly moist, no odor.	0.2		Analyzed soil sample -3 to -4 feet.
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							



# Soil Boring: BC-GP3

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -4'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0			GW Fill	TOPSOIL: fill.			
2			SP Fill	Tan, FILL: sand and gravel, poorly sorted, slightly moist.	0.7		Analyzed soil sample -1 to -2 feet.
4			CL	Dark brown, SAND: fill, with some gravel and cinders.	0.3	60%	Analyzed soil sample -3 to -4 feet.
6				Gray, orange mottling, SILTY CLAY: trace gravel, slightly moist, no odor.			
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							





# Soil Boring: BC GP3-N5

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -2'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

	0		OL	TOPSOIL: organics present, moist, no odor.			<p>Soil sample analyzed between -1 and -2 feet.</p>
			SP	Brown, GRAVELLY, CLAYEY SAND: moist, no odor.			
			SP	Brown, GRAVELLY, CLAYEY SAND: some bricks, moist, no odor.			
			CL	Gray, brown mottling, SILTY CLAY: slightly dense, slightly moist, no odor.			
	2						



# Soil Boring: BC GP3-E5

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -2'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0		OL		TOPSOIL: organics present, moist, no odor.			
				Brown, GRAVELLY, CLAYEY SAND: medium to large grained, slightly moist, no odor.			
			SP	Black, SAND: foundry sand and slag, clay at -2 feet.			Soil sample analyzed between -1 and -2 feet.
2							



# Soil Boring: BC GP3-S5

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -1.25

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

	0		OL	TOPSOIL: organics present, moist, no odor.			
				Brown, GRAVELLY, CLAYEY SAND: medium to large grained, slightly moist, no odor.			
			SP	Black, SAND: foundry sand and slag.			Soil sample analyzed between -1 and -1.25 feet.
			Refusal at -14 inches.				
2							



# Soil Boring: BC GP3-W5

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -1.5

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				Brown, GRAVELLY, CLAYEY SAND: organics present between 0 to -0.5 feet, slightly moist, no odor.			
		SP		Dark brown, GRAVELLY, CLAYEY SAND: slightly moist, no odor.			
				Brown, GRAVELLY SAND: slightly moist, no odor.			
2							Soil sample analyzed between -1 and -1.75 feet.



# Soil Boring: BC GP3-E10

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -2'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0		SP		Brown, GRAVELLY SAND: medium to large grained, with cobbles, slightly moist, no odor.			
2				Black, SAND: foundry sand, some slag, clay at -2 feet, slightly moist, no odor.			Soil sample analyzed between -1 and -2 feet.



# Soil Boring: BC GP3-S10

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -2'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0		SP		Brown, GRAVELLY SAND: medium to large grained, with cobbles, slightly moist, no odor.			
2				Black, SAND: foundry sand and slag.			Soil sample analyzed between -1 and -2 feet.



# Soil Boring: BC GP3-W10

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -1.75

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				Brown, GRAVELLY, CLAYEY SAND: organics present between 0 to -0.5 feet, slightly moist, no odor.			
		SP		Dark brown, GRAVELLY, CLAYEY SAND: slightly moist, no odor.			
				Brown, GRAVELLY SAND: slightly moist, no odor.			
2							Soil sample analyzed between -1 and -1.75 feet.



# Soil Boring: BC-GP4

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS




Total Depth of Boring (ft): -4'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				TOPSOIL: organics present.	0.3		Analyzed soil sample -1 to -2 feet.
2			FILL	Dark brown, SANDY FILL: slag, cinders, wood debris present.		60%	
4			CL	Gray, orange mottling, SILTY CLAY: trace gravel, slightly moist, no odor.	0.2		Analyzed soil sample -3 to -4 feet.
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							





# Soil Boring: BC-GP5

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -4'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				Tan, FILL: silty clay, brick and some gravel present, slag present at -3 feet.	0.3		
2		FILL CL		Gray, orange mottling, SILTY CLAY: plastic, moist, no odor.		100%	Analyzed soil sample -2 to -3 feet.
4		CL			0.3		Analyzed soil sample -3.5 to -4 feet.
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							



# Soil Boring: BC-GP6

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -4'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0		TOPSOIL: organics present.			0.3		Analyzed soil sample -1 to -2 feet.
2	FILL	Dark brown, FILL: some sand and some gravel present, slag, cinders, wood debris, brick, one inch of black, fine, foundry sand at -2 feet bsg present, slightly moist, no odor.			0.3	60%	Analyzed soil sample -3 to -4 feet.
4	CL	Gray, SILTY CLAY: plastic, moist, no odor.					
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							



# Soil Boring: BC-GP7

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -6'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				TOPSOIL: organics present.	0.3		Analyzed soil sample -1 to -2 feet.
2		FILL		Dark brown, FILL: wood, slag, cinder present, some gravel, no odor.	4.5	90%	
4		CL		Gray, orange/brown mottling, SILTY CLAY: dense, slightly moist, no odor.	0.3	90%	Analyzed soil sample -3 to -4 feet.
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							



# Soil Boring: BC-GP8

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -4'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				TOPSOIL: organics present.	0.3		
2			FILL	Dark brown, FILL: slag, wood, slag, cinder present some gravel, no odor.		70%	Analyzed soil sample -2 to -3 feet.
4			CL	Gray, orange mottling, SILTY CLAY: dense, slightly moist, no odor.	32.0		Analyzed soil sample -3 to -4 feet.
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							



# Soil Boring: BC-GP9

Logged By: CGP

Date Drilled: 5/21/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -4'

Sample Tool: Dual Tube

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				TOPSOIL: organics present.			
2			FILL	Dark brown, SANDY FILL: cinders, slag, wood debris present, slightly moist.	0.3		Analyzed soil sample -1 to -2 feet.
4			CL	Gray, orange mottling, SILTY CLAY: trace gravel, slightly moist, no odor.	0.3	100%	Analyzed soil sample -3 to -4 feet.
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							



# Temporary Well: BC-GP10

Logged By: CGP

Initial Water Level (ft): -24'

Date Drilled: 5/21/19

Final Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -28"

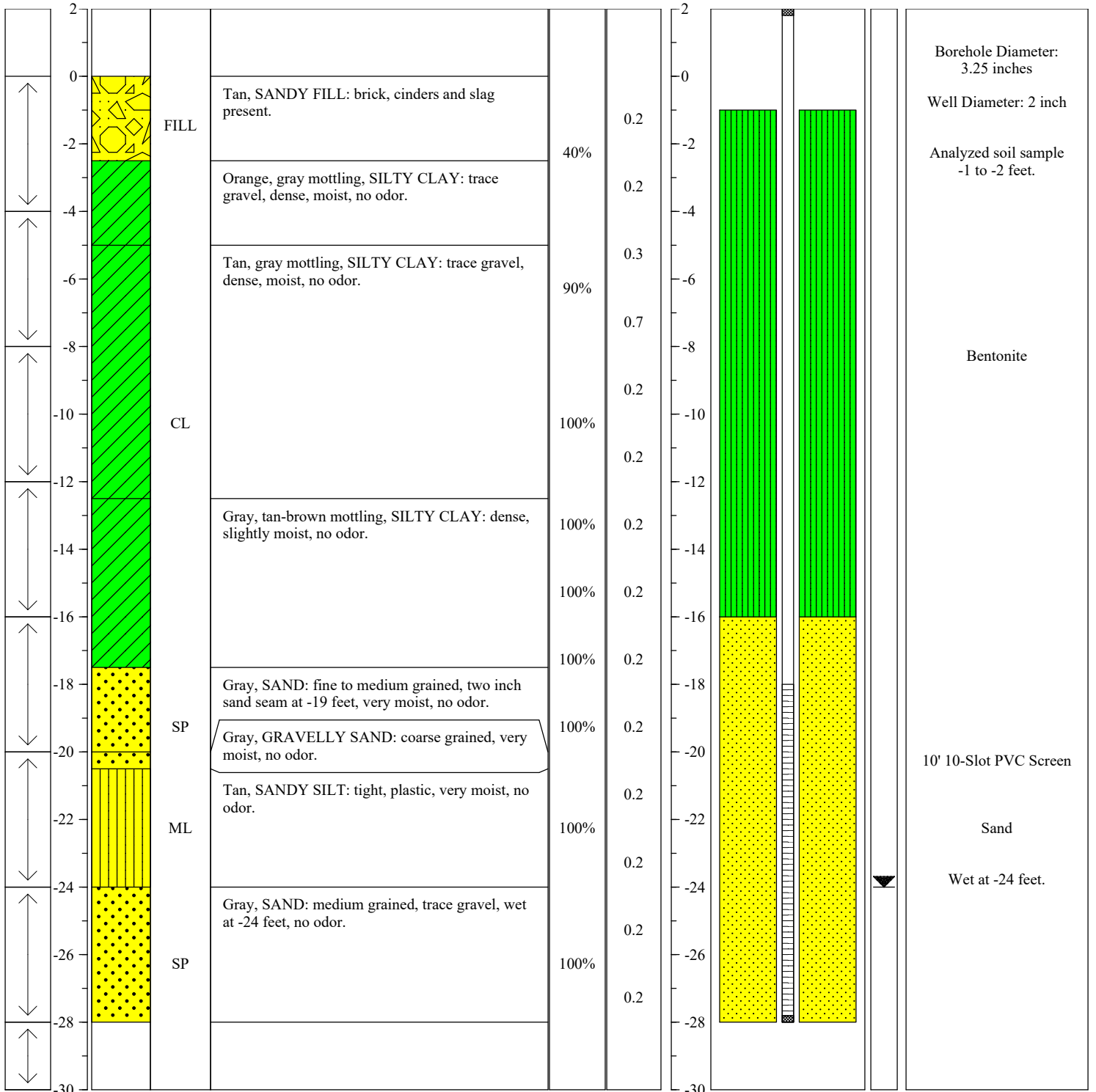
Sample Tool: Dual Tube

Top of Casing Elevation (ft):

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
--------	-------	-------------	------	-----------	-----------	---------	-------	-------------------	-------





# Temporary Well: BC-GP11

Logged By: CGP

Initial Water Level (ft): -24'

Date Drilled: 5/21/19

Final Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -28'

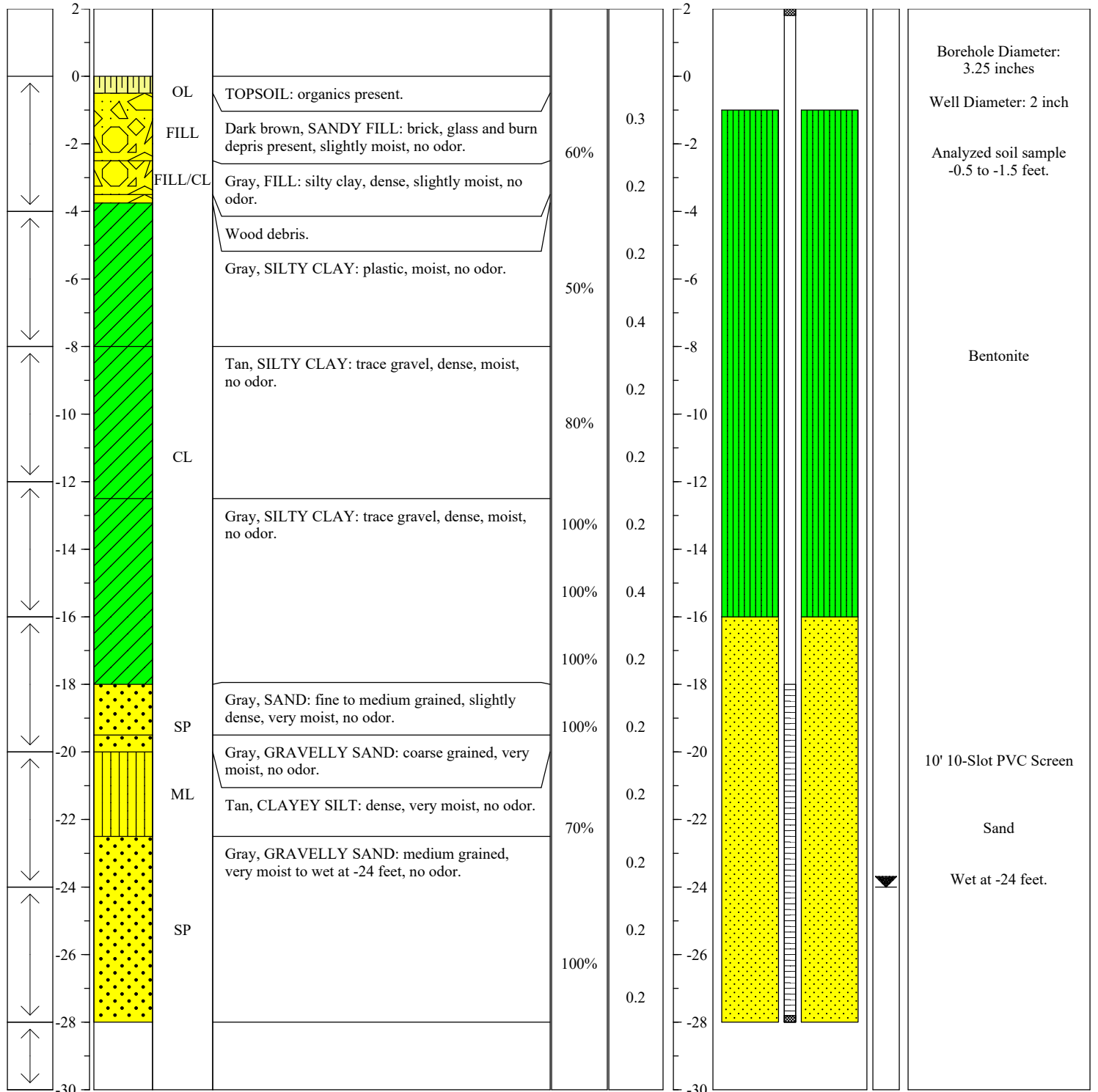
Sample Tool: Dual Tube

Top of Casing Elevation (ft):

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
--------	-------	-------------	------	-----------	-----------	---------	-------	-------------------	-------





# Temporary Well: BC-GP12

Logged By: CGP

Initial Water Level (ft): -22'

Date Drilled: 5/20/19

Final Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -28'

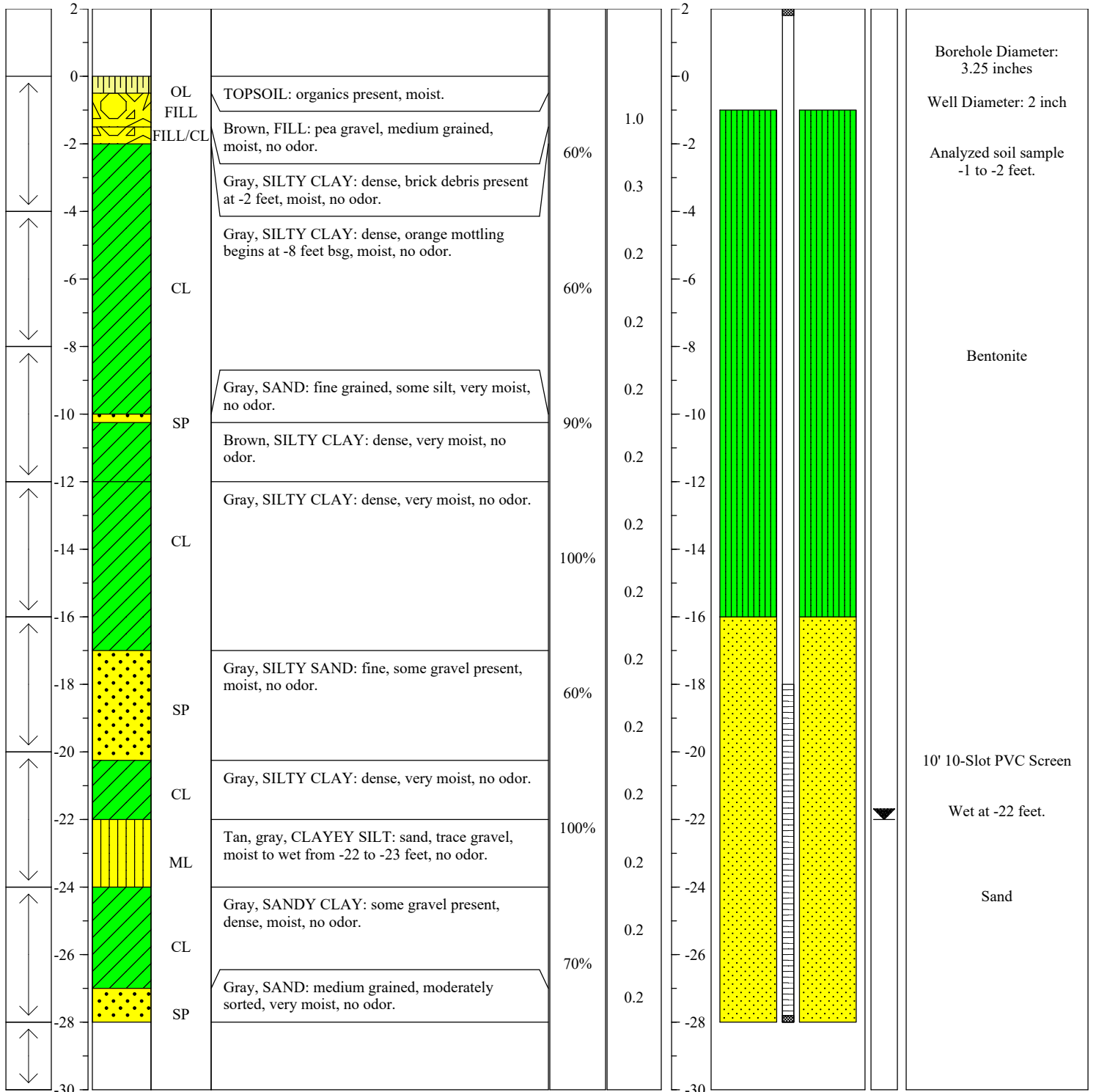
Sample Tool: Dual Tube

Top of Casing Elevation (ft):

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
--------	-------	-------------	------	-----------	-----------	---------	-------	-------------------	-------







# Temporary Well: BC-GP13

Logged By: CGP

Initial Water Level (ft): -4'

Date Drilled: 5/20/19

Final Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -16'

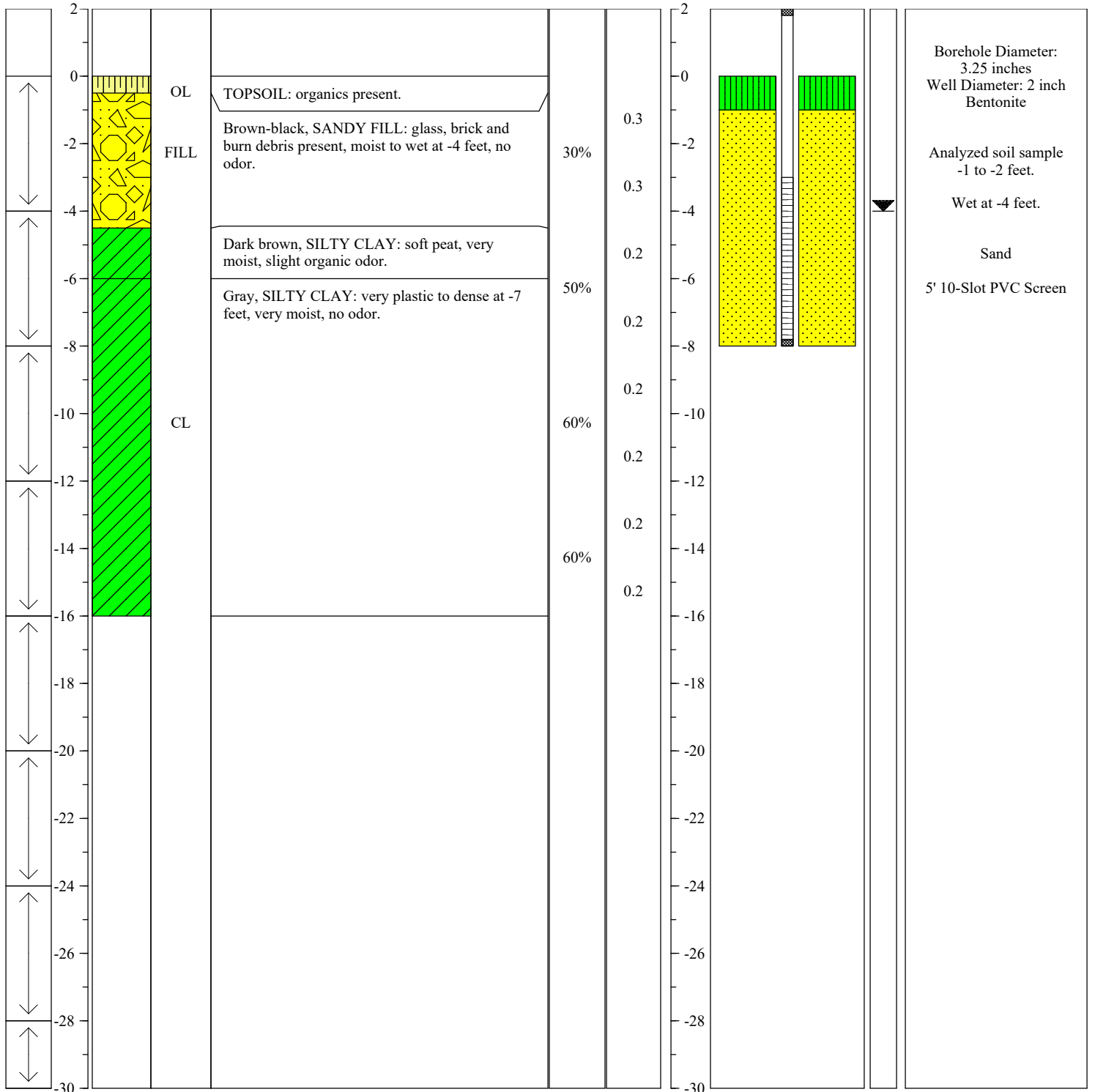
Sample Tool: Dual Tube

Top of Casing Elevation (ft):

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
--------	-------	-------------	------	-----------	-----------	---------	-------	-------------------	-------





# Temporary Well: BC-GP14

Logged By: CGP

Initial Water Level (ft): -28'

Date Drilled: 5/20/19

Final Water Level (ft):

Drilled By: SCS

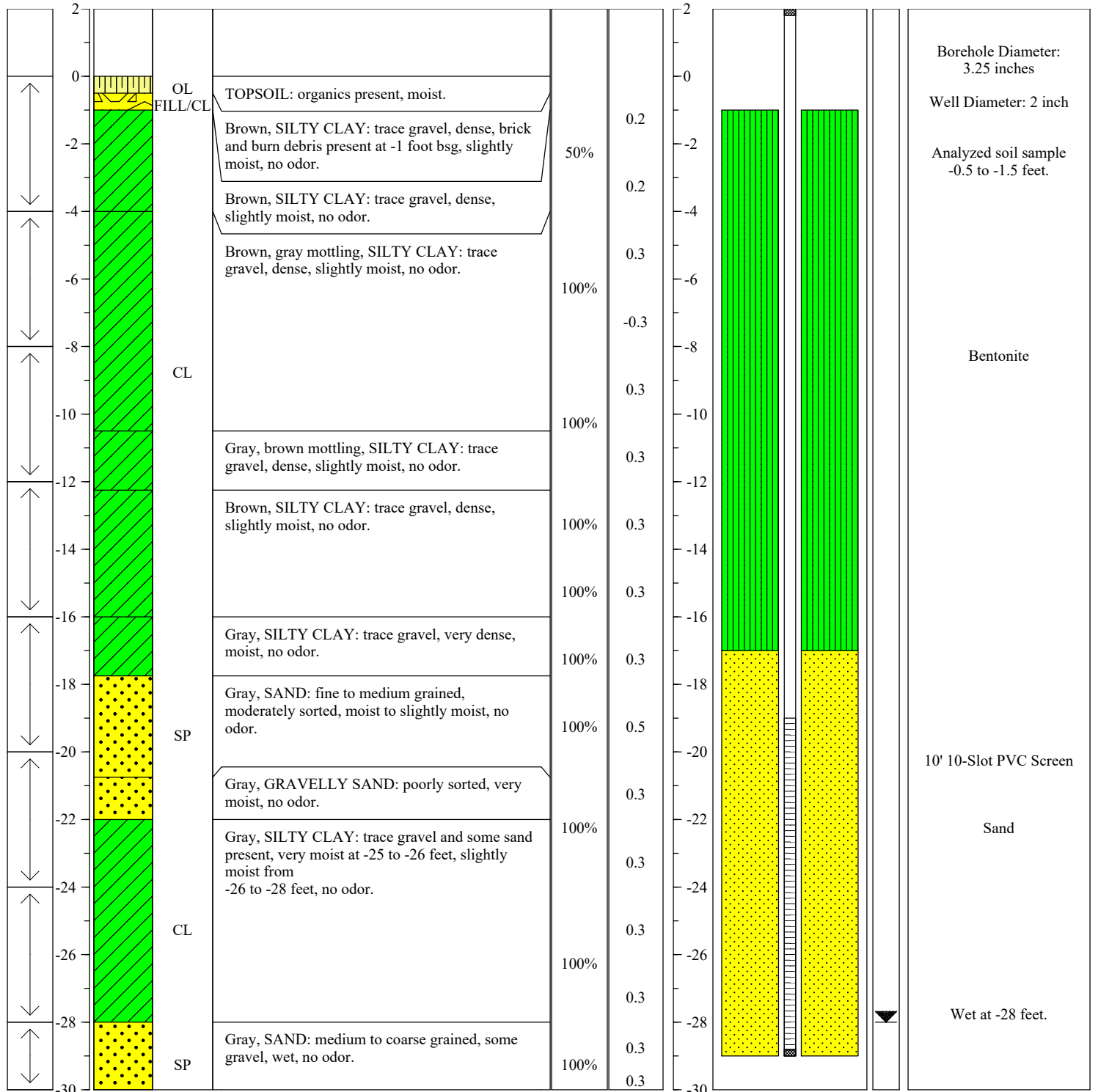
Total Depth of Boring (ft): -30'

Sample Tool: Dual Tube

Top of Casing Elevation (ft):

Project Name: Butler  
Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
--------	-------	-------------	------	-----------	-----------	---------	-------	-------------------	-------





# Temporary Well: BC-GP15

Logged By: CGP

Initial Water Level (ft): -27'

Date Drilled: 5/21/19

Final Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -30'

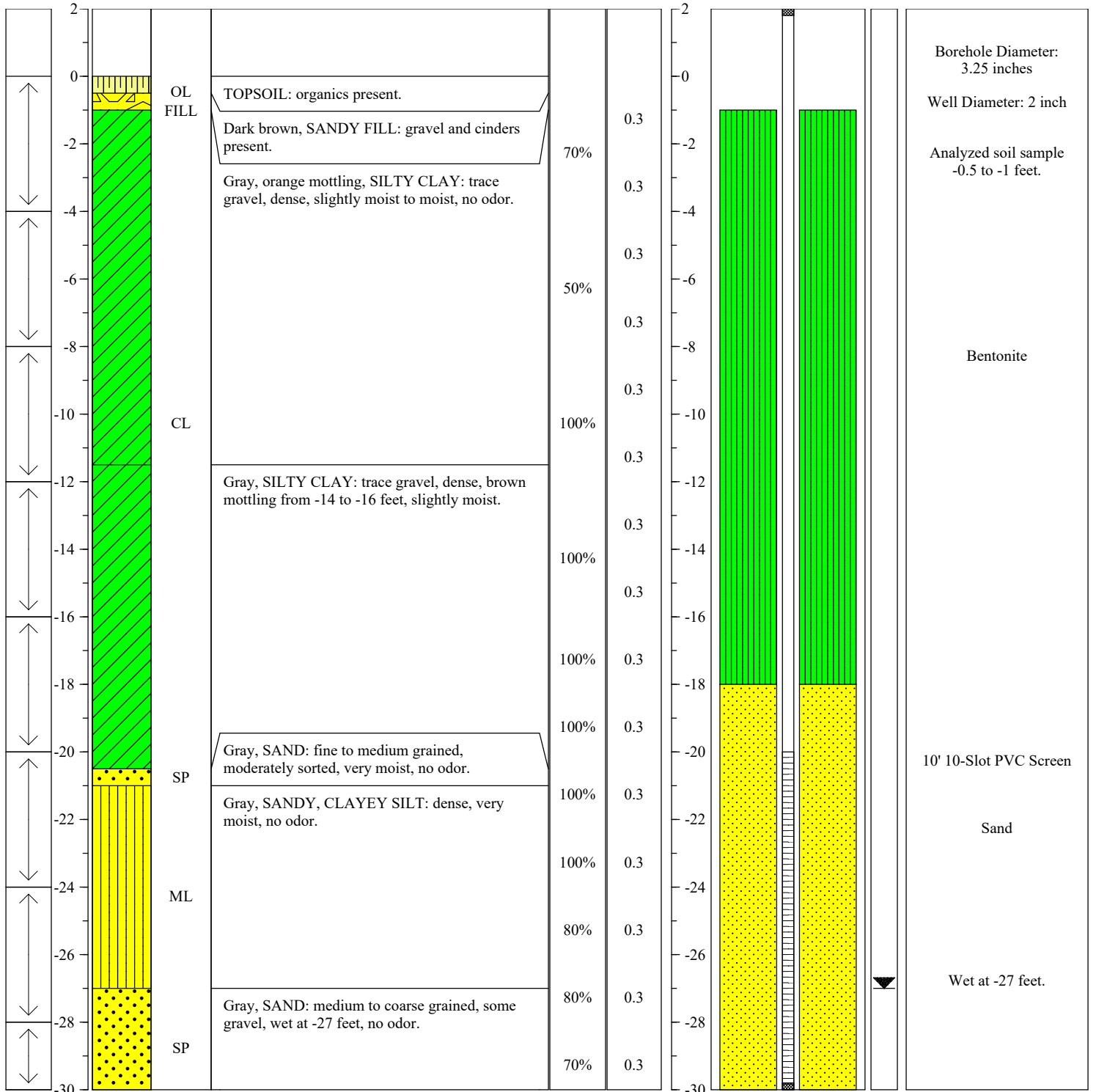
Sample Tool: Dual Tube

Top of Casing Elevation (ft):

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
--------	-------	-------------	------	-----------	-----------	---------	-------	-------------------	-------





# Soil Boring: BC GP16-N5

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -2'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				Black, SAND: foundry sand and slag present, slightly moist, no odor.			
2		SP		Brown, SAND: fine to medium grained, brick present, moist, no odor.			Soil sample analyzed between -1 and -2 feet.



# Soil Boring: BC GP16-E5

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -1.75

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0		SP	Black, SAND: foundry sand and slag present, slightly moist, no odor.				Soil sample analyzed between -1 and -1.75 feet.
2			Brown, SAND: fine to medium grained, brick present, moist, no odor.				



# Soil Boring: BC GP16-S5

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -1.5'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

			SP	Black, SAND: foundry sand, some slag, slightly moist, no odor.			Soil sample analyzed between -1 and -1.5 feet.
--	--	--	----	--	--	--	--



# Soil Boring: BC GP16-W5

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -1.5'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

		SP	<p>Black, SAND: foundry sand, some slag, slightly moist, no odor.</p>				<p>Soil sample analyzed between -1 and -1.5 feet.</p>
--	--	----	---	--	--	--	---



# Soil Boring: BC GP16-N10

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -2'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				Black, SAND: foundry sand and slag present, slightly moist, no odor.			
SP				Brown, SAND: fine to medium grained, brick present, moist, no odor.			Soil sample analyzed between -1 and -2 feet.
2							





# Soil Boring: BC GP16-E10

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -1.5'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0		SP	<p>Black, SAND: foundry sand, some slag and brick, slightly moist, no odor.</p>				
2							



# Soil Boring: BC GP16-S10

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -2'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

		SP	<p>Black, SAND: foundry sand, some slag, slightly moist, no odor.</p>				<p>Soil sample analyzed between -1 and -2 feet.</p>
--	--	----	---	--	--	--	---



# Soil Boring: BC GP16-W10

Logged By: CGP

Date Drilled: 6/18/19

Initial Water Level (ft):

Drilled By: SCS

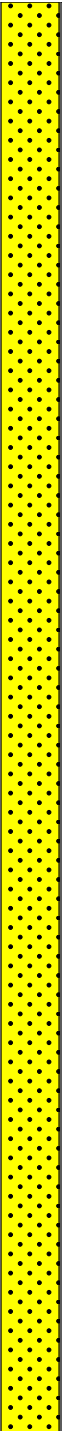
Total Depth of Boring (ft): -2'

Sample Tool: Hand Auger

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	PID/FID (ppmv)	%Recovery	Notes
--------	-------	-------------	------	-----------	----------------	-----------	-------

0				Black, SAND: foundry sand, some slag, slightly moist, no odor.			
			SP				Soil sample analyzed between -1 and -2 feet.
2							



# Soil Vapor Probe:BC-SG1

Logged By: CGP

Initial Water Level (ft):

Date Drilled: 5/21/19

Final Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -7

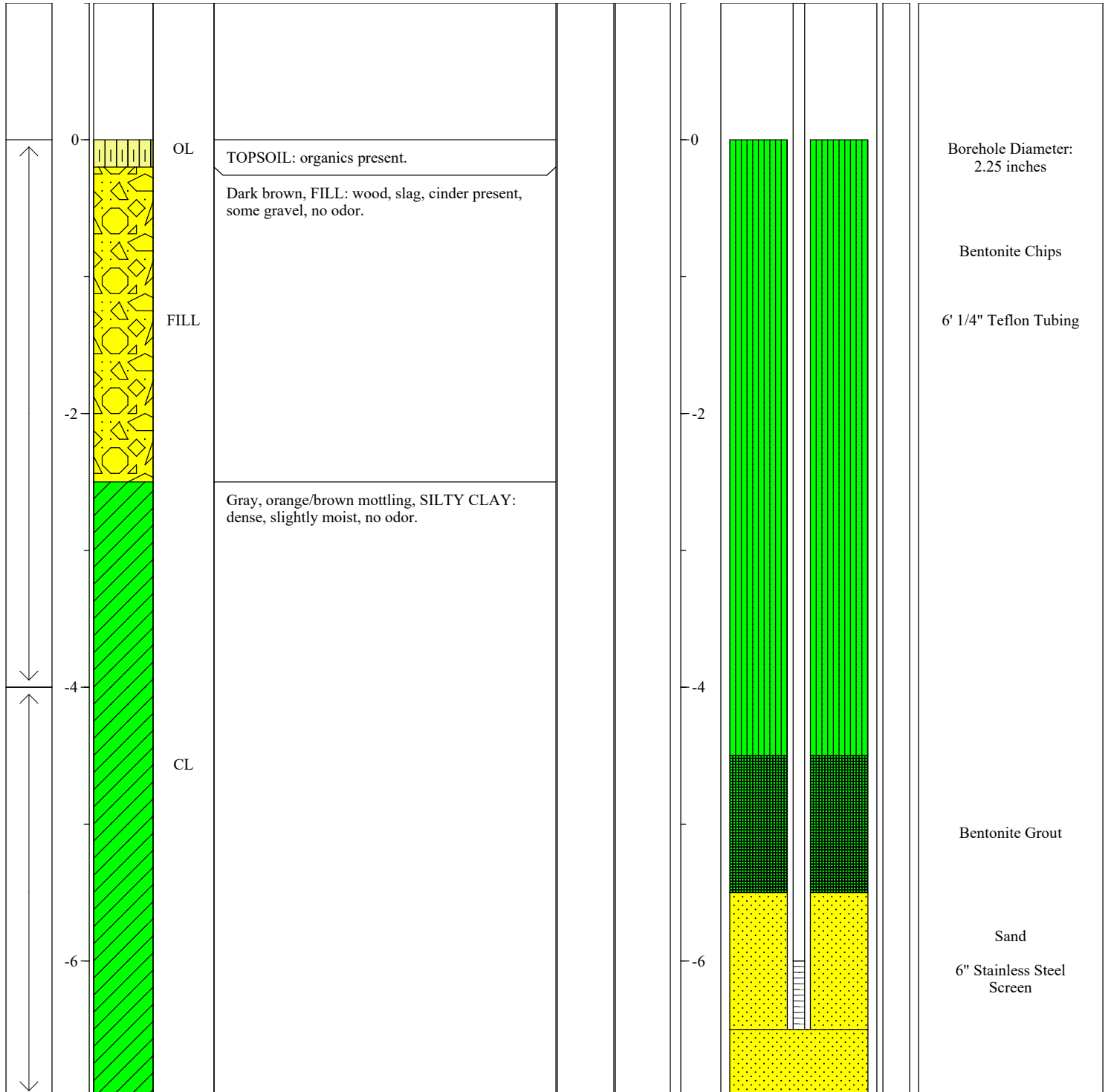
Sample Tool: Dual Tube

Top of Casing Elevation (ft):

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
--------	-------	-------------	------	-----------	-----------	---------	-------	-------------------	-------





# Soil Vapor Probe:BC-SG2

Logged By: CGP

Initial Water Level (ft):

Date Drilled: 5/21/19

Final Water Level (ft):

Drilled By: SCS

Total Depth of Boring (ft): -5

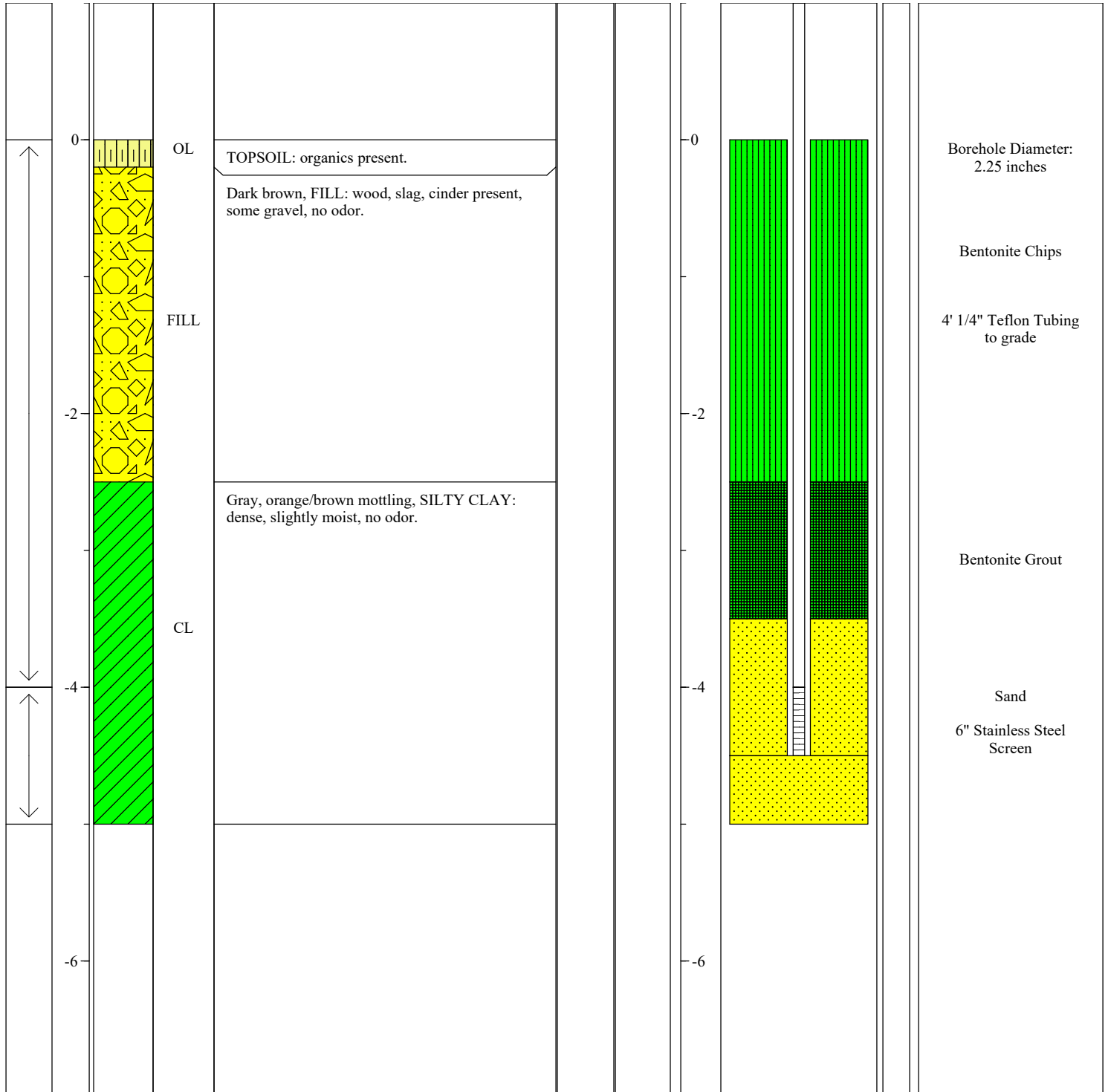
Sample Tool: Dual Tube

Top of Casing Elevation (ft):

Project Name: Butler

Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
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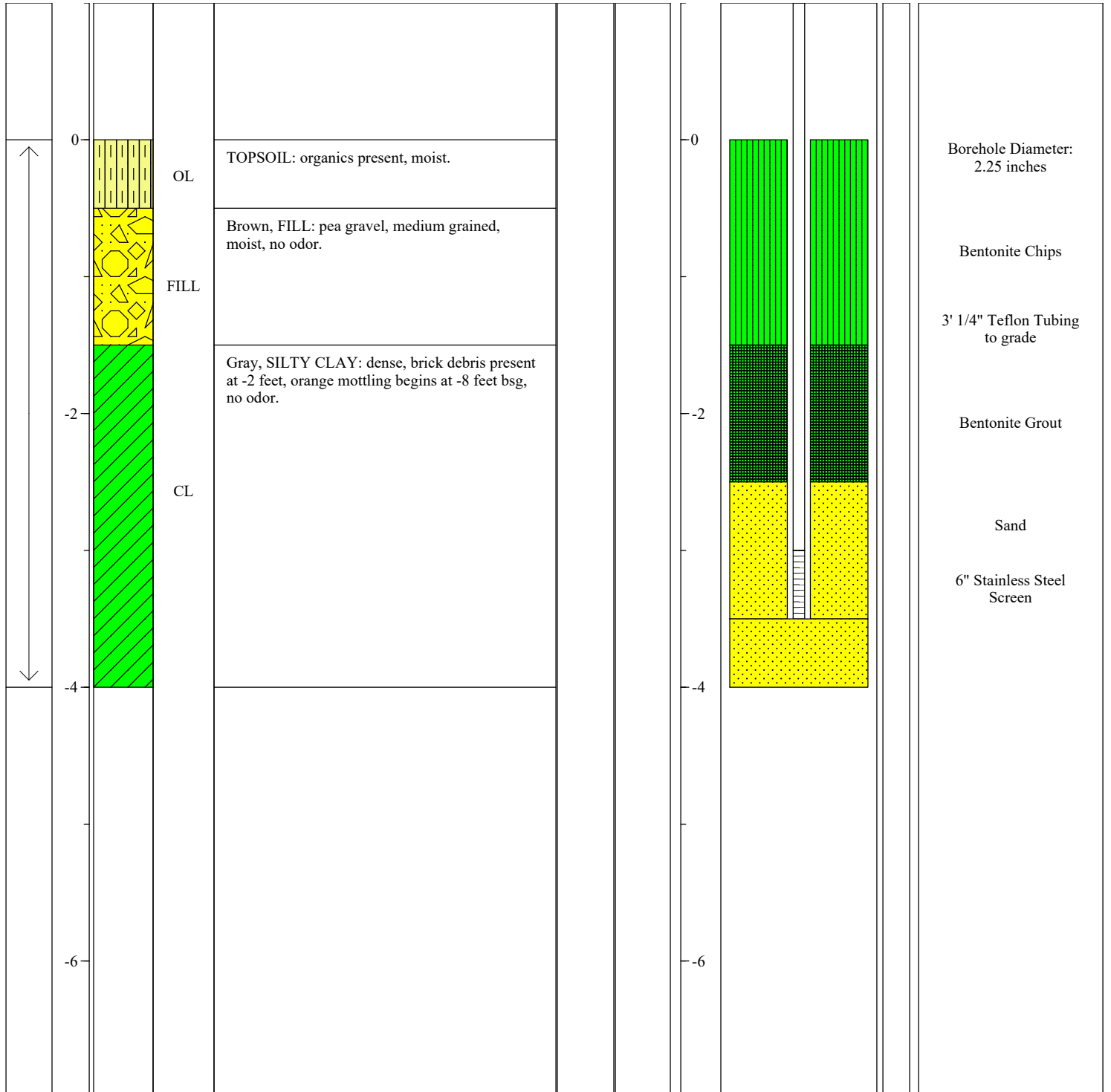
# Soil Vapor Probe:BC-SG3

Logged By: CGP  
 Date Drilled: 5/21/19  
 Drilled By: SCS  
 Sample Tool: Dual Tube

Initial Water Level (ft):  
 Final Water Level (ft):  
 Total Depth of Boring (ft): -4  
 Top of Casing Elevation (ft):

Project Name: Butler  
 Project Number: 19-716-10

Sample	Scale	Graphic Log	USCS	Lithology	%Recovery	PID/FID	Scale	Well Construction	Notes
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**APPENDIX H**  
**WATER PARAMETER MONITORING FORMS**



## Water Parameter Monitoring Form

PROJECT No.: 19716-10 PROJECT NAME: Butler WELL No.: GP-10  
 DATE: 05/22/19 SAMPLERS: ARS WEATHER: 72° F P-cloudy

WELL INFORMATION:  
 REF. POINT: JOC TOTAL DEPTH: 28.00 + 2 ft = 30 ft B.G. SCREEN LENGTH (Ft): \_\_\_\_\_ DEPTH (BGL): \_\_\_\_\_ TO \_\_\_\_\_  
 WELL DIA.: (In) 2 WATER DEPTH: 22.76 HEIGHT OF TOC ABOVE/BELOW GRADE (Ft): 2  
 HEIGHT OF WATER COLUMN (Ft.): 7.24 DEPTH TO SCREEN BELOW TOC (Ft): \_\_\_\_\_ TO \_\_\_\_\_  
 FREE PRODUCT PRESENT (Ft): \_\_\_\_\_ TO \_\_\_\_\_ WELL HEADSPACE READING IN ppm (PID/FID): \_\_\_\_\_  
 INTAKE DEPTH (Ft. BELOW TOC): 26.50

**EQUIPMENT, METERS & METHODS UTILIZED:**

- SUBMERSIBLE PUMP
- BLADDER PUMP
- PERISTALTIC
- BAILER
- DOWN-HOLE METER
- FLOW-THRU CELL
- OPEN CONTAINER AT SURFACE
- MICROTWPW TURBIDIMETER
- INTERFACE PROBE
- WL METER
- YSI 556
- LOW-FLOW
- 3 WELL VOLUMES
- WELL PURGED DRY
- 2.0 TOTAL VOL. PURGED (GAL.)

OTHER: \_\_\_\_\_

Time	Temp. (°C)	Sp. Cond. (mS/cm) Or Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turbidity (NTU) Or (VIS.)	Rate (mL/Min)	DTW (Ft.)	Comments
15:53		Started Pumping				high	175	22.66	
16:05	12.57	1.353	0.55	7.25	-452.1	↓	↓	23.14	
16:08	12.40	1.354	0.49	7.23	-458.9	↓	↓	23.20	
16:11	12.45	1.354	0.40	7.22	-473.5	↓	↓	23.25	
16:14	12.47	1.355	0.37	7.21	-456.5	↓	↓	23.27	
16:17	12.56	1.356	0.36	7.21	-477.8	Mod.	↓	↓	
16:20	12.59	1.357	0.35	7.20	-489.8	↓	↓	23.28	
16:23	12.48	1.360	0.34	7.20	-493.7	↓	↓	23.29	
16:26	12.60	1.358	0.32	7.19	-501.5	↓	↓	↓	
16:29	12.68	1.361	0.29	7.19	-498.0	↓	↓	23.30	
16:32	12.50	1.367	0.30	7.19	-506.9	↓	↓	↓	
	✓	✓	✓	✓	✓	✓	✓	✓	Stable
16:35	Sampled GP-10								

Sampling Observations: Brn, Mod, T, NO<sub>2</sub>, NO<sub>3</sub>.





## Water Parameter Monitoring Form

PROJECT No.: 19716-10 PROJECT NAME: Butler WELL No.: GP-11  
 DATE: 05/22/19 SAMPLERS: APS WEATHER: 63° F P-Cloudy

**WELL INFORMATION:**

REF. POINT: TOC TOTAL DEPTH: 28.00 + 2ft = 30.00 SCREEN LENGTH (Ft): \_\_\_\_\_ DEPTH (BGL): \_\_\_\_\_ TO \_\_\_\_\_  
 WELL DIA.: (In) 2 WATER DEPTH: 21.81 HEIGHT OF TOC ABOVE/BELOW GRADE (Ft): 2  
 HEIGHT OF WATER COLUMN (Ft.): 8.19 DEPTH TO SCREEN BELOW TOC (Ft): \_\_\_\_\_ TO \_\_\_\_\_  
 FREE PRODUCT PRESENT (Ft): \_\_\_\_\_ TO \_\_\_\_\_ WELL HEADSPACE READING IN ppm (PID/FID): \_\_\_\_\_  
 INTAKE DEPTH (Ft. BELOW TOC): 26.00

**EQUIPMENT, METERS & METHODS UTILIZED:**

- SUBMERSIBLE PUMP       BLADDER PUMP       PERISTALTIC       BAILER
- DOWN-HOLE METER       FLOW-THRU CELL       OPEN CONTAINER AT SURFACE
- MICROTPW TURBIDIMETER       INTERFACE PROBE       WL METER       YSI 556
- FLOW-FLOW       3 WELL VOLUMES       WELL PURGED DRY 26 TOTAL VOL. PURGED (GAL.)

OTHER: \_\_\_\_\_

Time	Temp. (°C)	Sp. Cond. (mS/cm) Or Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turbidity (NTU) Or (VIS.)	Rate (mL/Min)	DTW (Ft.)	Comments
13:56						High	175	21.83	
14:17	11.96	1.261	0.81	7.01	-69.9	Med.	↓	21.87	
14:20	12.14	1.260	0.97	7.00	-51.5	↓	↓	↓	
14:23	12.19	1.262	0.80	6.99	-52.2	Slight	↓	↓	
14:26	12.20	1.263	0.75	6.98	-52.6	↓	↓	↓	
14:29	12.24	1.265	0.69	6.99	-59.2	↓	↓	↓	
14:32	12.11	1.266	0.64	6.98	-61.4	↓	↓	↓	
14:35	11.92	1.267	0.62	6.98	-60.8	↓	↓	↓	
14:38	11.80	1.265	0.66	6.97	-62.5	↓	↓	↓	
	✓	✓	✓	✓	✓	✓	✓	✓	Stable
14:41									sampled GP-11

Sampling Observations: Brn., V.S.I.T, NOO, NOS.  
DUPW (BU-GRGW-FDI) taken @ GP-11



## Water Parameter Monitoring Form

PROJECT No.: 19716-10 PROJECT NAME: Butler WELL No.: GP-12  
 DATE: 05/22/19 SAMPLERS: APS WEATHER: 50° Rain

WELL INFORMATION:  
 REF. POINT: TOC TOTAL DEPTH: 28.00 SCREEN LENGTH (Ft): \_\_\_\_\_ DEPTH (BGL): \_\_\_\_\_ TO \_\_\_\_\_  
 WELL DIA.: (In) 2 WATER DEPTH: 21.68 HEIGHT OF TOC ABOVE/BELOW GRADE (Ft): 2  
 HEIGHT OF WATER COLUMN (Ft.): 8.32 DEPTH TO SCREEN BELOW TOC (Ft): \_\_\_\_\_ TO \_\_\_\_\_  
 FREE PRODUCT PRESENT (Ft): \_\_\_\_\_ TO \_\_\_\_\_ WELL HEADSPACE READING IN ppm (PID/FID): \_\_\_\_\_  
 INTAKE DEPTH (Ft. BELOW TOC): 25.84

EQUIPMENT, METERS & METHODS UTILIZED:

- SUBMERSIBLE PUMP       BLADDER PUMP       PERISTALTIC       BAILER  
 DOWN-HOLE METER       FLOW-THRU CELL       OPEN CONTAINER AT SURFACE  
 MICROTPW TURBIDIMETER       INTERFACE PROBE       WL METER       YSI 556  
 LOW-FLOW       3 WELL VOLUMES       WELL PURGED DRY      20 TOTAL VOL. PURGED (GAL.)

OTHER: \_\_\_\_\_

Time	Temp. (°C)	Sp. Cond. (mS/cm) Or Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turbidity (NTU) Or (VIS.)	Rate (mL/Min)	DTW (Ft.)	Comments
10:04		Started Pumping				mod.	175	21.67	
10:19	10.17	0.877	1.17	7.23	-414.5	↓	↓	21.70	
10:22	10.15	0.877	0.87	7.22	-416.9	Slight ↓	↓	↓	
10:25	10.17	0.873	0.71	7.21	-419.0	↓	↓	↓	
10:28	10.18	0.872	0.64	7.21	-414.7	↓	↓	↓	
10:31	10.15	0.872	0.57	7.21	-412.5	↓	↓	↓	
10:34	10.18	0.873	0.53	7.20	-413.1	↓	↓	↓	
10:37	10.18	0.872	0.54	7.21	-414.6	↓	↓	↓	
		✓	✓	✓	✓	✓	✓	✓	
10:40		Sampled							GP-12

Sampling Observations: light Brn. VISIT No O No S.  
 Equipmnt blank (BC-EB-GWI) taken after decontaminating bladder pump  
 GP-12 @ 11:20



## Water Parameter Monitoring Form

PROJECT No.: 19716-10 PROJECT NAME: Butler WELL No.: GP-13  
 DATE: 05/22/19 SAMPLERS: APS WEATHER: 55° Cloudy → p-cloudy

**WELL INFORMATION:**

REF. POINT: TOC TOTAL DEPTH: 8.00<sup>BGL</sup> + 2 = 10.00 SCREEN LENGTH (Ft): \_\_\_\_\_ DEPTH (BGL): \_\_\_\_\_ TO \_\_\_\_\_  
 WELL DIA.: (In): 2 WATER DEPTH: 4.88 HEIGHT OF TOC ABOVE/BELOW GRADE (Ft): 2 ft.  
 HEIGHT OF WATER COLUMN (Ft.): 5.12 DEPTH TO SCREEN BELOW TOC (Ft): \_\_\_\_\_ TO \_\_\_\_\_  
 FREE PRODUCT PRESENT (Ft): — TO \_\_\_\_\_ WELL HEADSPACE READING IN ppm (PID/FID): \_\_\_\_\_  
 INTAKE DEPTH (Ft. BELOW TOC): 7.50

**EQUIPMENT, METERS & METHODS UTILIZED:**

- SUBMERSIBLE PUMP
- BLADDER PUMP
- PERISTALTIC
- BAILER
- DOWN-HOLE METER
- FLOW-THRU CELL
- OPEN CONTAINER AT SURFACE
- MICROTPW TURBIDIMETER
- INTERFACE PROBE
- WL METER
- YSI 556
- LOW-FLOW
- 3 WELL VOLUMES
- WELL PURGED DRY
- 1.9 TOTAL VOL. PURGED (GAL.)

OTHER: \_\_\_\_\_

Time	Temp. (°C)	Sp. Cond. (mS/cm) Or Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turbidity (NTU) Or (VIS.)	Rate (mL/Min)	DTW (Ft.)	Comments
12:31						Mod	175	4.87	
12:45	9.50	0.592	1.02	7.11	1.9	Slight	↓	↓	
12:48	9.57	0.595	0.79	7.10	-21.8	v. slight	↓	↓	
12:51	9.69	0.594	0.72	7.09	-32.0	↓	↓	↓	
12:54	9.82	0.595	0.64	7.09	-36.9	↓	↓	↓	
12:57	10.05	0.594	0.58	7.10	-35.7	↓	↓	↓	
13:00	10.19	0.593	0.62	7.10	-28.5	↓	↓	↓	
	✓	✓	✓	✓	✓	✓	✓	✓	Stable
13:03									

Sampling Observations: Cl, V.G., T, NOO, No 5  
PFAS Reagent sample collected @ 13:04. (BFRB3)



### Water Parameter Monitoring Form

PROJECT No.: 19714-10 PROJECT NAME: Butler WELL No.: GP-14  
 DATE: 05/22/19 SAMPLERS: APS WEATHER: 52° cloudy

WELL INFORMATION:  
 REF. POINT: TOC TOTAL DEPTH: 29.00 + 0.5 B.G. SCREEN LENGTH (Ft): \_\_\_\_\_ DEPTH (BGL): \_\_\_\_\_ TO \_\_\_\_\_  
 WELL DIA.: (In): 2 WATER DEPTH: 21.52 HEIGHT OF TOC ABOVE/BELOW GRADE (Ft): 0.5  
 HEIGHT OF WATER COLUMN (Ft.): 7.98 DEPTH TO SCREEN BELOW TOC (Ft): \_\_\_\_\_ TO \_\_\_\_\_  
 FREE PRODUCT PRESENT (Ft): \_\_\_\_\_ TO \_\_\_\_\_ WELL HEADSPACE READING IN ppm (PID/FID): \_\_\_\_\_  
 INTAKE DEPTH (Ft. BELOW TOC): 25.50

EQUIPMENT, METERS & METHODS UTILIZED:  
 SUBMERSIBLE PUMP       BLADDER PUMP       PERISTALTIC       BAILER  
 DOWN-HOLE METER       FLOW-THRU CELL       OPEN CONTAINER AT SURFACE  
 MICROTPW TURBIDIMETER       INTERFACE PROBE       OWL METER       YSI 556  
 LOW-FLOW       3 WELL VOLUMES       WELL PURGED DRY      1.6 TOTAL VOL. PURGED (GAL.)  
 OTHER: \_\_\_\_\_

Time	Temp. (°C)	Sp. Cond. (mS/cm) Or Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turbidity (NTU) Or (VIS.)	Rate (mL/Min)	DTW (Ft.)	Comments
11:14						High	175	21.51	
11:32	10.54	1.119	0.57	7.21	-456.5	↓	↓	21.54	
11:35	10.48	1.121	0.53	7.21	-454.5	↓	↓	↓	
11:38	10.39	1.123	0.50	7.21	-453.5	↓	↓	↓	
11:41	10.35	1.123	0.54	7.21	-448.6	↓	↓	↓	
11:44	✓	✓	✓	✓	✓	✓	✓	✓	Stable

Sampling Observations: H Br, Si, T, NO<sub>3</sub>, NO<sub>2</sub>



## Water Parameter Monitoring Form

PROJECT No.: 1971610 PROJECT NAME: Butler WELL No.: GP-15  
 DATE: 05/22/19 SAMPLERS: ABS WEATHER: 75°F Mostly Sunny

**WELL INFORMATION:**

REF. POINT: TOC TOTAL DEPTH: 30 + 0.3 SCREEN LENGTH (Ft.): 30.30 DEPTH (BGL):      TO       
 WELL DIA.: (In): 2 WATER DEPTH: 20.94 HEIGHT OF TOC ABOVE/BELOW GRADE (Ft.): 0.3  
 HEIGHT OF WATER COLUMN (Ft.): 9.36 DEPTH TO SCREEN BELOW TOC (Ft.):      TO       
 FREE PRODUCT PRESENT (Ft.): — TO — WELL HEADSPACE READING IN ppm (PID/FID):       
 INTAKE DEPTH (Ft. BELOW TOC): 25.50

**EQUIPMENT, METERS & METHODS UTILIZED:**

- SUBMERSIBLE PUMP
- BLADDER PUMP
- PERISTALTIC
- BAILER
- DOWN-HOLE METER
- FLOW-THRU CELL
- OPEN CONTAINER AT SURFACE
- MICROTPW TURBIDIMETER
- INTERFACE PROBE
- WL METER
- YSI 556
- LOW-FLOW
- 3 WELL VOLUMES
- WELL PURGED DRY
- 30 TOTAL VOL. PURGED (GAL.)

OTHER: \_\_\_\_\_

Time	Temp. (°C)	Sp. Cond. (mS/cm) Or Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turbidity (NTU) Or (VIS.)	Rate (mL/Min)	DTW (Ft.)	Comments
17:20						high	175	20.91	
17:41	12.95	1.058	0.70	7.33	-458.9	↓	↓	21.01	
17:44	12.97	1.059	0.61	7.32	-466.8	↓	↓	↓	
17:47	12.90	1.063	0.60	7.31	-392.7	↓	↓	↓	
17:50	12.92	1.065	0.56	7.30	-437.5	MOD.	↓	↓	
17:53	13:00	1.065	0.45	7.30	-456.9	↓	↓	↓	
17:56	12.93	1.069	0.46	7.29	-429.0	↓	↓	↓	
17:59	12.97	1.068	0.40	7.29	-405.0	↓	↓	↓	
18:02	12.92	1.070	0.40	7.28	-402.3	↓	↓	↓	
18:05	12.87	1.070	0.39	7.28	-403.2	↓	↓	↓	
18:08	✓	✓	✓	✓	✓	✓	✓	✓	Stable

Sampling Observations: Bin, S.T, No 0, No 5,  
MS (MSD) taken @ GP-15



## YSI 556 Calibration Form

Date: 05/22/19  
 Personnel: Shirmer  
The Butler Co.

Parameter	Calibration Standard Value	Instrument Reading Before Calibration	Instrument Reading After Calibration	Calibration Accepted
ORP <u>19°</u>	<u>240.1 mV<sup>1</sup></u>	<u>240.0</u>	<u>240.1</u>	<u>Yes/No</u>
Sp Conductance	4.45 mS/cm			Yes/No
Sp Conductance	1413 µS/cm	<u>1406</u>	<u>1413</u>	<u>Yes/No</u>
pH	4.00 s.u.	<u>3.97</u>	<u>4.00</u>	<u>Yes/No</u>
pH	7.00 s.u.	<u>7.02</u>	<u>7.00</u>	<u>Yes/No</u>
pH	10.00 s.u.	<u>9.91</u>	<u>9.99</u>	<u>Yes/No</u>
DO	% O <sub>2</sub>	<u>97.8%</u>	<u>97.3%</u>	<u>Yes/No</u>

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

<sup>1</sup>Temperature Effects On Redox Potential Measurements Of Zobell Solution ORP Standard

Temperature (°C)	ORP Value (mV)	Temperature (°C)	ORP Value (mV)
10	250.5	23	233.6
11	249.2	24	232.3
12	247.9	25	231.0
13	246.6	26	229.7
14	245.3	27	228.4
15	244.0	28	227.1
16	242.7	29	225.8
17	241.4	30	224.5
18	240.1	31	223.2
19	238.8	32	221.9
20	237.5	33	220.6
21	236.2	34	219.3
22	234.9	35	218.0



# Post Sample Cal. Check

## YSI 556 Calibration Form

Started @ 19:50

Date: 05/22/19  
 Personnel: Shirmeyer  
The Butler Co.

Parameter	Calibration Standard Value	Instrument Reading Before Calibration	Instrument Reading After Calibration	Calibration Accepted
ORP <u>23°</u>	<u>233.6</u> mV <sup>1</sup>	<u>228.9</u>	<del>X</del>	<input checked="" type="radio"/> Yes/ <input type="radio"/> No
Sp Conductance	4.45 mS/cm			<input type="radio"/> Yes/ <input type="radio"/> No
Sp Conductance	1413 µS/cm	<u>1407</u>		<input checked="" type="radio"/> Yes/ <input type="radio"/> No
pH	4.00 s.u.	<u>4.06</u>		<input checked="" type="radio"/> Yes/ <input type="radio"/> No
pH	7.00 s.u.	<u>7.08</u>		<input checked="" type="radio"/> Yes/ <input type="radio"/> No
pH	10.00 s.u.	<u>9.93</u>		<input checked="" type="radio"/> Yes/ <input type="radio"/> No
DO	% O <sub>2</sub>	<u>97.6%</u>		<input checked="" type="radio"/> Yes/ <input type="radio"/> No

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

<sup>1</sup>Temperature Effects On Redox Potential Measurements Of Zobell Solution ORP Standard

Temperature (°C)	ORP Value (mV)	Temperature (°C)	ORP Value (mV)
<b>10</b>	<b>250.5</b>	<u>23</u>	<u>233.6</u>
11	249.2	24	232.3
12	247.9	<b>25</b>	<b>231.0</b>
13	246.6	26	229.7
14	245.3	27	228.4
<b>15</b>	<b>244.0</b>	28	227.1
16	242.7	29	225.8
17	241.4	<b>30</b>	<b>224.5</b>
18	240.1	31	223.2
19	238.8	32	221.9
<b>20</b>	<b>237.5</b>	33	220.6
21	236.2	34	219.3
22	234.9	<b>35</b>	<b>218.0</b>

## **APPENDIX I**

**MAXWELL SURVEYING & ENGINEERING SURVEY DATA, MAY 24, 2019**





# Maxwell Surveying & Engineering

STEVEN A. MAXWELL P.E. & R.L.S.  
R.L.S. NO. 29900007

P.O BOX 5068  
HUNTINGTON, IN 46750  
260-224-6813

Date: May 25, 2019 - 8:22am



SOUTH BROADWAY STREET

⊕ 866.0  
GP\_10  
MW  
868.22

⊕ 865.0  
GP\_11  
MW  
867.16

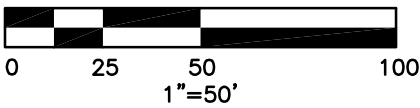
⊕ 864.3  
GP\_13  
MW  
866.66

⊕ 864.6  
GP\_12  
MW  
866.67

⊕ 866.0  
GP\_14  
MW  
866.36

⊕ 865.4  
GP\_15  
MW  
865.78

EAST WILLOW STREET

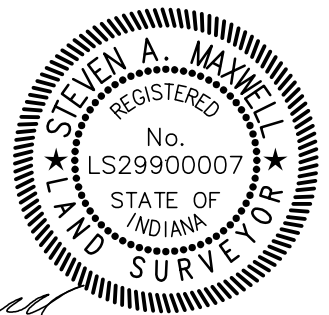


File: F:\active-surveys\1905-016-IWM-Butler\dwg\1905-016.dwg

Monitoring Well  
Location & Elevation Data  
The Butler Company  
IBP Site No. 4170705  
325 South Broadway Street  
Butler, DeKalb County, Indiana  
Indiana East State Plane

CERTIFIED BY:

*Steven A. Maxwell*  
STEVEN A. MAXWELL P.E. & R.L.S.  
FIELD DATE: 5/24/19, CERT DATE: 5/25/19



**Maxwell Surveying and Engineering Survey Data**  
**The Butler Company**  
**325 South Broadway Street**  
**Butler, DeKalb County, Indiana**  
**IBP Site No. 4170705**

Point	Northing	Easting	Elevation	Description
BC-GP10	2251539.32	546270.92	868.22	mw
BC-GP10GRD	2251539.63	546270.87	865.99	el
BC-GP11	2251569.26	546379.07	867.16	mw
BC-GP11GRD	2251569.58	546379.09	864.98	el
BC-GP12	2251446.91	546388.18	866.67	mw
BC-GP12GRD	2251447.28	546388.14	864.64	el
BC-GP13	2251593.94	546521.92	866.66	mw
BC-GP13GRD	2251594.41	546521.90	864.28	el
BC-GP14	2251424.77	546541.05	866.36	mw
BC-GP14GRD	2251424.87	546540.95	866.03	el
BC-GP15	2251363.09	546461.29	865.78	mw
BC-GP15GRD	2251363.18	546461.30	865.42	el

**APPENDIX J**  
**SOIL GAS SAMPLING DATA SHEET**

## Soil Gas Sampling Data Sheet

VI Sampling Event Date: 05/31/19  
 Project: The Butler Co.

Weather Conditions: 70°F Overcast  
 Sampling Personnel: Andrew Shirmeyer

Sample ID	Sampling Location	Sampling Time		Vacuum (in Hg)		Canister Details	
		Start	End	Initial	Final	Canister ID #	Flow Controller #
BC-561	Near BC-5P8. <del>East</del> side of site Not Sampled	Start	N.S.	Initial		Canister ID #	N/A
		End	N.S.	Final		Flow Controller #	
Time							
Vacuum (in Hg)							

Sample Type: Soil-Gas  Sewer Backfill Material Gas  Timeframe: 24-Hr  8-Hr  Grab  Canister Type: 6L Summa  1L Summa  Other   
 Helium Test: Shroud: \_\_\_\_\_ %; Sample Train \_\_\_\_\_ ppm Bottom of Screen Depth (ft.): 6.5 Analytical Method: TO-15  TO-15 SIM  Shortlist \_\_\_\_\_  
 Notes: Sample point failed purge test. 15 in. Hg vac held > 3 min., 60 mL syringe pulled back in - vacuum

Sample ID	Sampling Location	Sampling Time		Vacuum (in Hg)		Canister Details	
		Start	End	Initial	Final	Canister ID #	Flow Controller #
BC-562	Near BC-6P7. Central area on site.	Start	10:35	Initial	29	Canister ID #	2934
		End	10:47	Final	2	Flow Controller #	FC2207
Time							
Vacuum (in Hg)							

Sample Type: Soil-Gas  Sewer Backfill Material Gas  Timeframe: 24-Hr  8-Hr  Grab  Canister Type: 6L Summa  1L Summa  Other   
 Helium Test: Shroud: 96 %; Sample Train 0.0 ppm Bottom of Screen Depth (ft.): 4.5 Analytical Method: TO-15  TO-15 SIM  Shortlist \_\_\_\_\_  
 Notes: Purge test passed ✓ Duplicate also taken: BC-56-FD1; canister 2460, Dup-T w/ FC2207 regulator.

Sample ID	Sampling Location	Sampling Time		Vacuum (in Hg)		Canister Details	
		Start	End	Initial	Final	Canister ID #	Flow Controller #
BC-563	Near BC-6P12. Central-West side of site Not Sampled	Start	N.S.	Initial		Canister ID #	
		End	N.S.	Final		Flow Controller #	
Time							
Vacuum (in Hg)							

Sample Type: Soil-Gas  Sewer Backfill Material Gas  Timeframe: 24-Hr  8-Hr  Grab  Canister Type: 6L Summa  1L Summa  Other   
 Helium Test: Shroud: \_\_\_\_\_ %; Sample Train \_\_\_\_\_ ppm Bottom of Screen Depth (ft.): \_\_\_\_\_ Analytical Method: TO-15  TO-15 SIM  Shortlist \_\_\_\_\_  
 Notes: Sample point failed purge test. 15 in. Hg vac. held > 3 min. 60 mL Syringe pulled back in - vacuum present.

## **APPENDIX K**

### **LABORATORY ANALYTICAL REPORTS - SOIL**

July 08, 2019

Mr. Mark Anderson  
IWM Consulting Group LLC  
1015 Production Drive  
Fort Wayne, IN 46808

RE: Project: The Butler Co.  
Pace Project No.: 50225929

Dear Mr. Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on May 23, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revised report replaces the one issued on 05/31/19 and 06/20/19

Hexachrome and TCLP lead added to select samples. ccb 06/12/19

Sample ID's fixed for -011 and -012. ccb 07/08/19

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Chris Boyle  
chris.boyle@pacelabs.com  
(317)228-3100  
Project Manager

Enclosures

cc: Cassidy Heltzel, IWM Consulting Group, LLC



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: The Butler Co.

Pace Project No.: 50225929

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### Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268

Illinois Certification #: 200074

Indiana Certification #: C-49-06

Kansas/NELAP Certification #: E-10177

Kentucky UST Certification #: 80226

Kentucky WW Certification #: 98019

Michigan Department of Environmental Quality, Laboratory  
#9050

Ohio VAP Certification #: CL0065

Oklahoma Certification #: 2018-101

Texas Certification #: T104704355

West Virginia Certification #: 330

Wisconsin Certification #: 999788130

USDA Soil Permit #: P330-16-00257

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: The Butler Co.

Pace Project No.: 50225929

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50225929001	BC-GP1-SS1 (1-2)	Solid	05/21/19 15:37	05/23/19 08:35
50225929002	BC-GP1-SB1 (3-4)	Solid	05/21/19 15:40	05/23/19 08:35
50225929003	BC-GP2-SS1 (0.5-1.5)	Solid	05/21/19 16:23	05/23/19 08:35
50225929004	BC-GP2-SB1 (3-4)	Solid	05/21/19 16:26	05/23/19 08:35
50225929005	BC-GP3-SS1 (1-2)	Solid	05/21/19 15:56	05/23/19 08:35
50225929006	BC-GP3-SB1 (3-4)	Solid	05/21/19 16:00	05/23/19 08:35
50225929007	BC-GP4-SS1 (1-2)	Solid	05/21/19 16:16	05/23/19 08:35
50225929008	BC-GP4-SB1 (3-4)	Solid	05/21/19 16:20	05/23/19 08:35
50225929009	BC-GP5-SS1 (2-3)	Solid	05/21/19 15:47	05/23/19 08:35
50225929010	BC-GP5-SB1 (3.5-4)	Solid	05/21/19 15:50	05/23/19 08:35
50225929011	BC-GP6-SS1 (1-2)	Solid	05/21/19 17:09	05/23/19 08:35
50225929012	BC-GP6-SB1 (3-4)	Solid	05/21/19 17:11	05/23/19 08:35
50225929013	BC-GP7-SS1 (1-2)	Solid	05/21/19 16:59	05/23/19 08:35
50225929014	BC-GP7-SB1 (3-4)	Solid	05/21/19 17:01	05/23/19 08:35
50225929015	BC-GP8-SS1 (2-3)	Solid	05/21/19 17:19	05/23/19 08:35
50225929016	BC-GP8-SB1 (3-4)	Solid	05/21/19 17:21	05/23/19 08:35
50225929017	BC-GP9-SS1 (1-2)	Solid	05/21/19 16:31	05/23/19 08:35
50225929018	BC-GP9-SB1 (3-4)	Solid	05/21/19 16:37	05/23/19 08:35
50225929019	BC-GP10-SS1 (1-2)	Solid	05/21/19 12:11	05/23/19 08:35
50225929020	BC-GP11-SS1 (0.5-1.5)	Solid	05/21/19 09:51	05/23/19 08:35
50225929021	BC-GP12-SS1 (1-2)	Solid	05/20/19 09:55	05/23/19 08:35
50225929022	BC-GP13-SS1 (1-2)	Solid	05/20/19 17:10	05/23/19 08:35
50225929023	BC-GP14-SS1 (0.5-1.5)	Solid	05/20/19 12:07	05/23/19 08:35
50225929024	BC-GP15-SS1 (0.5-1)	Solid	05/21/19 14:50	05/23/19 08:35
50225929025	BC-SB-FD1	Solid	05/20/19 00:00	05/23/19 08:35
50225929026	BC-SB-FD2	Solid	05/21/19 00:00	05/23/19 08:35
50225929027	BC-SB-FD3	Solid	05/21/19 00:00	05/23/19 08:35
50225929028	BC-EB-SB1	Water	05/20/19 09:45	05/23/19 08:35
50225929029	BC-TB1	Water	05/21/19 08:00	05/23/19 08:35

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: The Butler Co.

Pace Project No.: 50225929

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50225929001	BC-GP1-SS1 (1-2)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929002	BC-GP1-SB1 (3-4)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929003	BC-GP2-SS1 (0.5-1.5)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929004	BC-GP2-SB1 (3-4)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929005	BC-GP3-SS1 (1-2)	EPA 6010	JPK	9	PASI-I
		EPA 6010	JPK	1	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929006	BC-GP3-SB1 (3-4)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929007	BC-GP4-SS1 (1-2)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929008	BC-GP4-SB1 (3-4)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929009	BC-GP5-SS1 (2-3)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929010	BC-GP5-SB1 (3.5-4)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929011	BC-GP6-SS1 (1-2)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929012	BC-GP6-SB1 (3-4)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I

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### SAMPLE ANALYTE COUNT

Project: The Butler Co.

Pace Project No.: 50225929

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50225929013	BC-GP7-SS1 (1-2)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929014	BC-GP7-SB1 (3-4)	EPA 8082	RID	8	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		EPA 8270 by SIM	JCM	20	PASI-I
		EPA 8260	RSW	72	PASI-I
50225929015	BC-GP8-SS1 (2-3)	SM 2540G	RM1	1	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
50225929016	BC-GP8-SB1 (3-4)	SM 2540G	RM1	1	PASI-I
		EPA 8082	RID	8	PASI-I
		EPA 6010	JPK	9	PASI-I
50225929017	BC-GP9-SS1 (1-2)	EPA 7471	ILP	1	PASI-I
		EPA 8270 by SIM	JCM	20	PASI-I
		EPA 8260	RSW	72	PASI-I
		SM 2540G	RM1	1	PASI-I
		EPA 6010	JPK	9	PASI-I
50225929018	BC-GP9-SB1 (3-4)	EPA 7471	ILP	1	PASI-I
		EPA 6010	JPK	9	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929019	BC-GP10-SS1 (1-2)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929020	BC-GP11-SS1 (0.5-1.5)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929021	BC-GP12-SS1 (1-2)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929022	BC-GP13-SS1 (1-2)	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929023	BC-GP14-SS1 (0.5-1.5)	EPA 6010	JPK	9	PASI-I

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### SAMPLE ANALYTE COUNT

Project: The Butler Co.

Pace Project No.: 50225929

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50225929024	BC-GP15-SS1 (0.5-1)	EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
50225929025	BC-SB-FD1	SM 2540G	RM1	1	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50225929026	BC-SB-FD2	EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
		EPA 6010	JPK	9	PASI-I
50225929027	BC-SB-FD3	EPA 7471	ILP	1	PASI-I
		SM 2540G	RM1	1	PASI-I
		EPA 8082	RID	8	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7471	ILP	1	PASI-I
		EPA 8270 by SIM	JCM	20	PASI-I
50225929028	BC-EB-SB1	EPA 8260	RSW	72	PASI-I
		SM 2540G	RM1	1	PASI-I
		EPA 8082	KAV	8	PASI-I
		EPA 6010	KJE	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 8270 by SIM LVE	GRM	20	PASI-I
50225929029	BC-TB1	EPA 8260	RSW	72	PASI-I
		EPA 8260	RSW	72	PASI-I

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: The Butler Co.

Pace Project No.: 50225929

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>50225929001</b>	<b>BC-GP1-SS1 (1-2)</b>					
EPA 6010	Arsenic	14.0	mg/kg	1.1	05/26/19 00:14	
EPA 6010	Barium	80.2	mg/kg	1.1	05/26/19 00:14	
EPA 6010	Chromium	19.1	mg/kg	1.1	05/26/19 00:14	
EPA 6010	Copper	55.6	mg/kg	1.1	05/26/19 00:14	
EPA 6010	Lead	61.6	mg/kg	1.1	05/26/19 00:14	
EPA 6010	Zinc	101	mg/kg	1.1	05/26/19 00:14	
EPA 7471	Mercury	0.92	mg/kg	0.24	05/29/19 11:32	
SM 2540G	Percent Moisture	20.8	%	0.10	05/28/19 10:36	
<b>50225929002</b>	<b>BC-GP1-SB1 (3-4)</b>					
EPA 6010	Arsenic	2.6	mg/kg	1.1	05/26/19 00:16	
EPA 6010	Barium	127	mg/kg	1.1	05/26/19 00:16	
EPA 6010	Chromium	24.1	mg/kg	1.1	05/26/19 00:16	
EPA 6010	Copper	15.2	mg/kg	1.1	05/26/19 00:16	
EPA 6010	Lead	11.3	mg/kg	1.1	05/26/19 00:16	
EPA 6010	Zinc	58.8	mg/kg	1.1	05/26/19 00:16	
SM 2540G	Percent Moisture	18.0	%	0.10	05/28/19 10:37	
<b>50225929003</b>	<b>BC-GP2-SS1 (0.5-1.5)</b>					
EPA 6010	Arsenic	8.6	mg/kg	1.0	05/26/19 00:18	
EPA 6010	Barium	81.1	mg/kg	1.0	05/26/19 00:18	
EPA 6010	Cadmium	4.3	mg/kg	0.52	05/26/19 00:18	
EPA 6010	Chromium	13.3	mg/kg	1.0	05/26/19 00:18	
EPA 6010	Copper	127	mg/kg	1.0	05/26/19 00:18	
EPA 6010	Lead	97.7	mg/kg	1.0	05/26/19 00:18	
EPA 6010	Zinc	290	mg/kg	1.0	05/26/19 00:18	
EPA 7471	Mercury	0.58	mg/kg	0.22	05/29/19 11:37	
SM 2540G	Percent Moisture	13.8	%	0.10	05/28/19 10:37	
<b>50225929004</b>	<b>BC-GP2-SB1 (3-4)</b>					
EPA 6010	Arsenic	9.3	mg/kg	1.2	05/26/19 00:21	
EPA 6010	Barium	87.5	mg/kg	1.2	05/26/19 00:21	
EPA 6010	Chromium	22.8	mg/kg	1.2	05/26/19 00:21	
EPA 6010	Copper	21.7	mg/kg	1.2	05/26/19 00:21	
EPA 6010	Lead	9.4	mg/kg	1.2	05/26/19 00:21	
EPA 6010	Zinc	57.7	mg/kg	1.2	05/26/19 00:21	
SM 2540G	Percent Moisture	19.4	%	0.10	05/28/19 10:37	
<b>50225929005</b>	<b>BC-GP3-SS1 (1-2)</b>					
EPA 6010	Arsenic	6.7	mg/kg	1.1	05/26/19 00:36	
EPA 6010	Barium	651	mg/kg	1.1	05/26/19 00:36	
EPA 6010	Cadmium	1.2	mg/kg	0.57	05/26/19 00:36	
EPA 6010	Chromium	15.3	mg/kg	1.1	05/26/19 00:36	
EPA 6010	Copper	90.0	mg/kg	1.1	05/26/19 00:36	
EPA 6010	Lead	3160	mg/kg	1.1	05/26/19 00:36	
EPA 6010	Zinc	446	mg/kg	1.1	05/26/19 00:36	
EPA 6010	Lead	30.6	mg/L	0.10	06/15/19 01:41	
EPA 7471	Mercury	0.46	mg/kg	0.25	05/29/19 11:46	
SM 2540G	Percent Moisture	19.4	%	0.10	05/28/19 10:38	

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: The Butler Co.

Pace Project No.: 50225929

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>50225929006</b>	<b>BC-GP3-SB1 (3-4)</b>					
EPA 6010	Arsenic	5.5	mg/kg	1.2	05/26/19 00:38	
EPA 6010	Barium	136	mg/kg	1.2	05/26/19 00:38	
EPA 6010	Chromium	27.3	mg/kg	1.2	05/26/19 00:38	
EPA 6010	Copper	17.0	mg/kg	1.2	05/26/19 00:38	
EPA 6010	Lead	11.5	mg/kg	1.2	05/26/19 00:38	
EPA 6010	Zinc	72.5	mg/kg	1.2	05/26/19 00:38	
SM 2540G	Percent Moisture	20.4	%	0.10	05/28/19 10:38	
<b>50225929007</b>	<b>BC-GP4-SS1 (1-2)</b>					
EPA 6010	Arsenic	12.0	mg/kg	1.3	05/26/19 00:40	
EPA 6010	Barium	269	mg/kg	1.3	05/26/19 00:40	
EPA 6010	Cadmium	1.9	mg/kg	0.63	05/26/19 00:40	
EPA 6010	Chromium	16.6	mg/kg	1.3	05/26/19 00:40	
EPA 6010	Copper	88.1	mg/kg	1.3	05/26/19 00:40	
EPA 6010	Lead	395	mg/kg	1.3	05/26/19 00:40	
EPA 6010	Selenium	1.4	mg/kg	1.3	05/26/19 00:40	
EPA 6010	Zinc	837	mg/kg	1.3	05/26/19 00:40	
SM 2540G	Percent Moisture	21.9	%	0.10	05/28/19 10:38	
<b>50225929008</b>	<b>BC-GP4-SB1 (3-4)</b>					
EPA 6010	Arsenic	3.0	mg/kg	1.1	05/26/19 00:42	
EPA 6010	Barium	76.4	mg/kg	1.1	05/26/19 00:42	
EPA 6010	Chromium	22.0	mg/kg	1.1	05/26/19 00:42	
EPA 6010	Copper	15.4	mg/kg	1.1	05/26/19 00:42	
EPA 6010	Lead	11.3	mg/kg	1.1	05/26/19 00:42	
EPA 6010	Zinc	71.6	mg/kg	1.1	05/26/19 00:42	
SM 2540G	Percent Moisture	22.5	%	0.10	05/28/19 10:38	
<b>50225929009</b>	<b>BC-GP5-SS1 (2-3)</b>					
EPA 6010	Arsenic	10.4	mg/kg	1.2	05/26/19 00:45	
EPA 6010	Barium	57.7	mg/kg	1.2	05/26/19 00:45	
EPA 6010	Chromium	10.9	mg/kg	1.2	05/26/19 00:45	
EPA 6010	Copper	62.5	mg/kg	1.2	05/26/19 00:45	
EPA 6010	Lead	63.1	mg/kg	1.2	05/26/19 00:45	
EPA 6010	Zinc	73.1	mg/kg	1.2	05/26/19 00:45	
SM 2540G	Percent Moisture	20.2	%	0.10	05/28/19 10:39	
<b>50225929010</b>	<b>BC-GP5-SB1 (3.5-4)</b>					
EPA 6010	Arsenic	5.9	mg/kg	1.1	05/26/19 00:47	
EPA 6010	Barium	81.8	mg/kg	1.1	05/26/19 00:47	
EPA 6010	Cadmium	0.73	mg/kg	0.55	05/26/19 00:47	
EPA 6010	Chromium	19.6	mg/kg	1.1	05/26/19 00:47	
EPA 6010	Copper	29.1	mg/kg	1.1	05/26/19 00:47	
EPA 6010	Lead	13.6	mg/kg	1.1	05/26/19 00:47	
EPA 6010	Zinc	57.8	mg/kg	1.1	05/26/19 00:47	
SM 2540G	Percent Moisture	19.4	%	0.10	05/28/19 10:39	
<b>50225929011</b>	<b>BC-GP6-SS1 (1-2)</b>					
EPA 6010	Arsenic	13.2	mg/kg	1.0	05/26/19 00:49	

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### SUMMARY OF DETECTION

Project: The Butler Co.

Pace Project No.: 50225929

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>50225929011</b>	<b>BC-GP6-SS1 (1-2)</b>					
EPA 6010	Barium	55.8	mg/kg	1.0	05/26/19 00:49	
EPA 6010	Cadmium	0.77	mg/kg	0.52	05/26/19 00:49	
EPA 6010	Chromium	19.7	mg/kg	1.0	05/26/19 00:49	
EPA 6010	Copper	90.1	mg/kg	1.0	05/26/19 00:49	
EPA 6010	Lead	62.5	mg/kg	1.0	05/26/19 00:49	
EPA 6010	Zinc	241	mg/kg	1.0	05/26/19 00:49	
SM 2540G	Percent Moisture	15.9	%	0.10	05/28/19 10:39	
<b>50225929012</b>	<b>BC-GP6-SB1 (3-4)</b>					
EPA 6010	Arsenic	5.5	mg/kg	1.6	05/26/19 00:51	
EPA 6010	Barium	250	mg/kg	1.6	05/26/19 00:51	
EPA 6010	Cadmium	2.8	mg/kg	0.79	05/26/19 00:51	
EPA 6010	Chromium	32.7	mg/kg	1.6	05/26/19 00:51	
EPA 6010	Copper	128	mg/kg	1.6	05/26/19 00:51	
EPA 6010	Lead	15.6	mg/kg	1.6	05/26/19 00:51	
EPA 6010	Selenium	2.3	mg/kg	1.6	05/26/19 00:51	
EPA 6010	Zinc	77.6	mg/kg	1.6	05/26/19 00:51	
SM 2540G	Percent Moisture	38.2	%	0.10	05/28/19 10:39	
<b>50225929013</b>	<b>BC-GP7-SS1 (1-2)</b>					
EPA 6010	Arsenic	44.0	mg/kg	1.3	05/26/19 00:53	
EPA 6010	Barium	694	mg/kg	1.3	05/26/19 00:53	
EPA 6010	Cadmium	1.2	mg/kg	0.63	05/26/19 00:53	
EPA 6010	Chromium	24.2	mg/kg	1.3	05/26/19 00:53	
EPA 6010	Copper	222	mg/kg	1.3	05/26/19 00:53	
EPA 6010	Lead	159	mg/kg	1.3	05/26/19 00:53	
EPA 6010	Zinc	273	mg/kg	1.3	05/26/19 00:53	
SM 2540G	Percent Moisture	24.7	%	0.10	05/28/19 10:39	
<b>50225929014</b>	<b>BC-GP7-SB1 (3-4)</b>					
EPA 6010	Arsenic	28.2	mg/kg	1.1	05/26/19 00:55	
EPA 6010	Barium	116	mg/kg	1.1	05/26/19 00:55	
EPA 6010	Cadmium	1.2	mg/kg	0.56	05/26/19 00:55	
EPA 6010	Chromium	17.3	mg/kg	1.1	05/26/19 00:55	
EPA 6010	Copper	52.9	mg/kg	1.1	05/26/19 00:55	
EPA 6010	Lead	198	mg/kg	1.1	05/26/19 00:55	
EPA 6010	Selenium	1.3	mg/kg	1.1	05/26/19 00:55	
EPA 6010	Zinc	203	mg/kg	1.1	05/26/19 00:55	
EPA 8270 by SIM	Anthracene	0.0081	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Benzo(a)anthracene	0.015	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Benzo(a)pyrene	0.011	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Benzo(b)fluoranthene	0.011	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Benzo(g,h,i)perylene	0.017	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Benzo(k)fluoranthene	0.013	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Chrysene	0.017	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Fluoranthene	0.024	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Indeno(1,2,3-cd)pyrene	0.012	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	1-Methylnaphthalene	0.079	mg/kg	0.0064	05/30/19 18:55	N2
EPA 8270 by SIM	2-Methylnaphthalene	0.11	mg/kg	0.0064	05/30/19 18:55	

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: The Butler Co.

Pace Project No.: 50225929

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
<b>50225929014</b>	<b>BC-GP7-SB1 (3-4)</b>					
EPA 8270 by SIM	Naphthalene	0.10	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Phenanthrene	0.043	mg/kg	0.0064	05/30/19 18:55	
EPA 8270 by SIM	Pyrene	0.027	mg/kg	0.0064	05/30/19 18:55	
EPA 8260	n-Hexane	0.049	mg/kg	0.0063	05/31/19 08:57	CL,H7
SM 2540G	Percent Moisture	22.4	%	0.10	05/28/19 10:40	
<b>50225929015</b>	<b>BC-GP8-SS1 (2-3)</b>					
EPA 6010	Arsenic	33.9	mg/kg	1.1	05/26/19 01:02	
EPA 6010	Barium	46.2	mg/kg	1.1	05/26/19 01:02	
EPA 6010	Chromium	38.4	mg/kg	1.1	05/26/19 01:02	
EPA 6010	Copper	39.7	mg/kg	1.1	05/26/19 01:02	
EPA 6010	Lead	25.4	mg/kg	1.1	05/26/19 01:02	
EPA 6010	Zinc	91.5	mg/kg	1.1	05/26/19 01:02	
SM 2540G	Percent Moisture	10.9	%	0.10	05/28/19 10:40	
<b>50225929016</b>	<b>BC-GP8-SB1 (3-4)</b>					
EPA 6010	Arsenic	2.8	mg/kg	1.1	05/26/19 01:04	
EPA 6010	Barium	116	mg/kg	1.1	05/26/19 01:04	
EPA 6010	Chromium	25.6	mg/kg	1.1	05/26/19 01:04	
EPA 6010	Copper	15.8	mg/kg	1.1	05/26/19 01:04	
EPA 6010	Lead	10.7	mg/kg	1.1	05/26/19 01:04	
EPA 6010	Zinc	66.3	mg/kg	1.1	05/26/19 01:04	
EPA 8260	n-Hexane	0.071	mg/kg	0.0068	05/31/19 09:32	CL,H7
SM 2540G	Percent Moisture	21.6	%	0.10	05/28/19 10:41	
<b>50225929017</b>	<b>BC-GP9-SS1 (1-2)</b>					
EPA 6010	Arsenic	25.5	mg/kg	1.1	05/26/19 01:06	
EPA 6010	Barium	169	mg/kg	1.1	05/26/19 01:06	
EPA 6010	Cadmium	2.4	mg/kg	0.56	05/26/19 01:06	
EPA 6010	Chromium	44.0	mg/kg	1.1	05/26/19 01:06	
EPA 6010	Copper	688	mg/kg	1.1	05/26/19 01:06	
EPA 6010	Lead	448	mg/kg	1.1	05/26/19 01:06	
EPA 6010	Zinc	745	mg/kg	1.1	05/26/19 01:06	
SM 2540G	Percent Moisture	21.1	%	0.10	05/28/19 13:27	
<b>50225929018</b>	<b>BC-GP9-SB1 (3-4)</b>					
EPA 6010	Arsenic	13.8	mg/kg	1.2	05/26/19 02:11	
EPA 6010	Barium	85.2	mg/kg	1.2	05/26/19 02:11	
EPA 6010	Chromium	23.5	mg/kg	1.2	05/26/19 02:11	
EPA 6010	Copper	25.9	mg/kg	1.2	05/26/19 02:11	
EPA 6010	Lead	12.6	mg/kg	1.2	05/26/19 02:11	
EPA 6010	Zinc	77.6	mg/kg	1.2	05/26/19 02:11	
SM 2540G	Percent Moisture	16.9	%	0.10	05/28/19 13:27	
<b>50225929019</b>	<b>BC-GP10-SS1 (1-2)</b>					
EPA 6010	Arsenic	11.6	mg/kg	1.2	05/26/19 01:09	
EPA 6010	Barium	228	mg/kg	1.2	05/26/19 01:09	
EPA 6010	Cadmium	0.60	mg/kg	0.58	05/26/19 01:09	
EPA 6010	Chromium	32.2	mg/kg	1.2	05/26/19 01:09	

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: The Butler Co.

Pace Project No.: 50225929

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>50225929019</b>	<b>BC-GP10-SS1 (1-2)</b>					
EPA 6010	Copper	212	mg/kg	1.2	05/26/19 01:09	
EPA 6010	Lead	158	mg/kg	1.2	05/26/19 01:09	
EPA 6010	Zinc	159	mg/kg	1.2	05/26/19 01:09	
EPA 7471	Mercury	0.54	mg/kg	0.25	05/29/19 12:30	
SM 2540G	Percent Moisture	23.3	%	0.10	05/28/19 13:27	
<b>50225929020</b>	<b>BC-GP11-SS1 (0.5-1.5)</b>					
EPA 6010	Arsenic	15.0	mg/kg	1.2	05/26/19 01:11	
EPA 6010	Barium	323	mg/kg	1.2	05/26/19 01:11	
EPA 6010	Cadmium	5.3	mg/kg	0.60	05/26/19 01:11	
EPA 6010	Chromium	16.7	mg/kg	1.2	05/26/19 01:11	
EPA 6010	Copper	385	mg/kg	1.2	05/26/19 01:11	
EPA 6010	Lead	282	mg/kg	1.2	05/26/19 01:11	
EPA 6010	Selenium	1.8	mg/kg	1.2	05/26/19 01:11	
EPA 6010	Zinc	1230	mg/kg	1.2	05/26/19 01:11	
SM 2540G	Percent Moisture	20.1	%	0.10	05/28/19 13:27	
<b>50225929021</b>	<b>BC-GP12-SS1 (1-2)</b>					
EPA 6010	Arsenic	3.1	mg/kg	1.1	05/26/19 01:13	
EPA 6010	Barium	131	mg/kg	1.1	05/26/19 01:13	
EPA 6010	Chromium	21.2	mg/kg	1.1	05/26/19 01:13	
EPA 6010	Copper	13.7	mg/kg	1.1	05/26/19 01:13	
EPA 6010	Lead	84.7	mg/kg	1.1	05/26/19 01:13	
EPA 6010	Zinc	102	mg/kg	1.1	05/26/19 01:13	
SM 2540G	Percent Moisture	18.5	%	0.10	05/28/19 13:28	
<b>50225929022</b>	<b>BC-GP13-SS1 (1-2)</b>					
EPA 6010	Arsenic	13.5	mg/kg	1.1	05/26/19 02:17	
EPA 6010	Barium	93.7	mg/kg	1.1	05/26/19 02:17	
EPA 6010	Cadmium	1.2	mg/kg	0.56	05/26/19 02:17	
EPA 6010	Chromium	13.1	mg/kg	1.1	05/26/19 02:17	
EPA 6010	Copper	124	mg/kg	1.1	05/26/19 02:17	
EPA 6010	Lead	137	mg/kg	1.1	05/26/19 02:17	
EPA 6010	Zinc	355	mg/kg	1.1	05/26/19 02:17	
EPA 7471	Mercury	0.32	mg/kg	0.21	05/29/19 14:13	
SM 2540G	Percent Moisture	13.9	%	0.10	05/28/19 13:28	
<b>50225929023</b>	<b>BC-GP14-SS1 (0.5-1.5)</b>					
EPA 6010	Arsenic	49.2	mg/kg	1.1	05/26/19 02:19	
EPA 6010	Barium	192	mg/kg	1.1	05/26/19 02:19	
EPA 6010	Cadmium	0.80	mg/kg	0.54	05/26/19 02:19	
EPA 6010	Chromium	19.2	mg/kg	1.1	05/26/19 02:19	
EPA 6010	Copper	98.1	mg/kg	1.1	05/26/19 02:19	
EPA 6010	Lead	156	mg/kg	1.1	05/26/19 02:19	
EPA 6010	Selenium	1.7	mg/kg	1.1	05/26/19 02:19	
EPA 6010	Zinc	211	mg/kg	1.1	05/26/19 02:19	
SM 2540G	Percent Moisture	16.5	%	0.10	05/28/19 13:28	

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### SUMMARY OF DETECTION

Project: The Butler Co.

Pace Project No.: 50225929

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
<b>50225929024</b>	<b>BC-GP15-SS1 (0.5-1)</b>					
EPA 6010	Arsenic	12.8	mg/kg	0.93	05/26/19 02:21	
EPA 6010	Barium	29.2	mg/kg	0.93	05/26/19 02:21	
EPA 6010	Chromium	14.7	mg/kg	0.93	05/26/19 02:21	
EPA 6010	Copper	27.1	mg/kg	0.93	05/26/19 02:21	
EPA 6010	Lead	20.8	mg/kg	0.93	05/26/19 02:21	
EPA 6010	Zinc	116	mg/kg	0.93	05/26/19 02:21	
SM 2540G	Percent Moisture	7.0	%	0.10	05/28/19 13:28	
<b>50225929025</b>	<b>BC-SB-FD1</b>					
EPA 6010	Arsenic	17.1	mg/kg	1.1	05/26/19 02:28	
EPA 6010	Barium	197	mg/kg	1.1	05/26/19 02:28	
EPA 6010	Cadmium	1.1	mg/kg	0.55	05/26/19 02:28	
EPA 6010	Chromium	19.1	mg/kg	1.1	05/26/19 02:28	
EPA 6010	Copper	68.3	mg/kg	1.1	05/26/19 02:28	
EPA 6010	Lead	150	mg/kg	1.1	05/26/19 02:28	
EPA 6010	Zinc	339	mg/kg	1.1	05/26/19 02:28	
SM 2540G	Percent Moisture	16.1	%	0.10	05/28/19 13:29	
<b>50225929026</b>	<b>BC-SB-FD2</b>					
EPA 6010	Arsenic	11.5	mg/kg	1.2	05/26/19 02:30	
EPA 6010	Barium	416	mg/kg	1.2	05/26/19 02:30	
EPA 6010	Cadmium	1.5	mg/kg	0.59	05/26/19 02:30	
EPA 6010	Chromium	15.2	mg/kg	1.2	05/26/19 02:30	
EPA 6010	Copper	59.2	mg/kg	1.2	05/26/19 02:30	
EPA 6010	Lead	691	mg/kg	1.2	05/26/19 02:30	
EPA 6010	Selenium	1.4	mg/kg	1.2	05/26/19 02:30	
EPA 6010	Zinc	684	mg/kg	1.2	05/26/19 02:30	
SM 2540G	Percent Moisture	24.4	%	0.10	05/28/19 13:29	
<b>50225929027</b>	<b>BC-SB-FD3</b>					
EPA 6010	Arsenic	27.7	mg/kg	1.0	05/26/19 02:32	
EPA 6010	Barium	35.9	mg/kg	1.0	05/26/19 02:32	
EPA 6010	Chromium	32.5	mg/kg	1.0	05/26/19 02:32	
EPA 6010	Copper	35.6	mg/kg	1.0	05/26/19 02:32	
EPA 6010	Lead	27.0	mg/kg	1.0	05/26/19 02:32	
EPA 6010	Zinc	63.0	mg/kg	1.0	05/26/19 02:32	
EPA 8270 by SIM	2-Methylnaphthalene	0.0071	mg/kg	0.0056	05/29/19 16:43	
EPA 8270 by SIM	Naphthalene	0.019	mg/kg	0.0056	05/29/19 16:43	
EPA 8270 by SIM	Phenanthrene	0.0085	mg/kg	0.0056	05/29/19 16:43	
EPA 8260	n-Hexane	0.30	mg/kg	0.0059	05/31/19 10:06	CL,H7
SM 2540G	Percent Moisture	11.1	%	0.10	05/28/19 13:29	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP1-SS1 (1-2)**      **Lab ID: 50225929001**      Collected: 05/21/19 15:37      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>14.0</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:14	7440-38-2	
Barium	<b>80.2</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:14	7440-39-3	
Cadmium	ND	mg/kg	0.54	1	05/24/19 06:34	05/26/19 00:14	7440-43-9	
Chromium	<b>19.1</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:14	7440-47-3	
Copper	<b>55.6</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:14	7440-50-8	
Lead	<b>61.6</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:14	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:14	7782-49-2	
Silver	ND	mg/kg	0.54	1	05/24/19 06:34	05/26/19 00:14	7440-22-4	
Zinc	<b>101</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:14	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	<b>0.92</b>	mg/kg	0.24	1	05/28/19 23:10	05/29/19 11:32	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>20.8</b>	%	0.10	1		05/28/19 10:36		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP1-SB1 (3-4)**      **Lab ID: 50225929002**      Collected: 05/21/19 15:40      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>2.6</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:16	7440-38-2	
Barium	<b>127</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:16	7440-39-3	
Cadmium	ND	mg/kg	0.54	1	05/24/19 06:34	05/26/19 00:16	7440-43-9	
Chromium	<b>24.1</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:16	7440-47-3	
Copper	<b>15.2</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:16	7440-50-8	
Lead	<b>11.3</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:16	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:16	7782-49-2	
Silver	ND	mg/kg	0.54	1	05/24/19 06:34	05/26/19 00:16	7440-22-4	
Zinc	<b>58.8</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:16	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.24	1	05/28/19 23:10	05/29/19 11:34	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>18.0</b>	%	0.10	1		05/28/19 10:37		

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP2-SS1 (0.5-1.5)**      **Lab ID: 50225929003**      Collected: 05/21/19 16:23      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>8.6</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:18	7440-38-2	
Barium	<b>81.1</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:18	7440-39-3	
Cadmium	<b>4.3</b>	mg/kg	0.52	1	05/24/19 06:34	05/26/19 00:18	7440-43-9	
Chromium	<b>13.3</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:18	7440-47-3	
Copper	<b>127</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:18	7440-50-8	
Lead	<b>97.7</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:18	7439-92-1	
Selenium	ND	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:18	7782-49-2	
Silver	ND	mg/kg	0.52	1	05/24/19 06:34	05/26/19 00:18	7440-22-4	
Zinc	<b>290</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:18	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	<b>0.58</b>	mg/kg	0.22	1	05/28/19 23:10	05/29/19 11:37	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>13.8</b>	%	0.10	1		05/28/19 10:37		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP2-SB1 (3-4)**      **Lab ID: 50225929004**      Collected: 05/21/19 16:26      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>9.3</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:21	7440-38-2	
Barium	<b>87.5</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:21	7440-39-3	
Cadmium	ND	mg/kg	0.60	1	05/24/19 06:34	05/26/19 00:21	7440-43-9	
Chromium	<b>22.8</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:21	7440-47-3	
Copper	<b>21.7</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:21	7440-50-8	
Lead	<b>9.4</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:21	7439-92-1	
Selenium	ND	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:21	7782-49-2	
Silver	ND	mg/kg	0.60	1	05/24/19 06:34	05/26/19 00:21	7440-22-4	
Zinc	<b>57.7</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:21	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.24	1	05/28/19 23:10	05/29/19 11:39	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>19.4</b>	%	0.10	1		05/28/19 10:37		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP3-SS1 (1-2)**      **Lab ID: 50225929005**      Collected: 05/21/19 15:56      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>6.7</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:36	7440-38-2	
Barium	<b>651</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:36	7440-39-3	
Cadmium	<b>1.2</b>	mg/kg	0.57	1	05/24/19 06:34	05/26/19 00:36	7440-43-9	
Chromium	<b>15.3</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:36	7440-47-3	
Copper	<b>90.0</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:36	7440-50-8	
Lead	<b>3160</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:36	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:36	7782-49-2	
Silver	ND	mg/kg	0.57	1	05/24/19 06:34	05/26/19 00:36	7440-22-4	
Zinc	<b>446</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:36	7440-66-6	
<b>6010 MET ICP, TCLP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3010						
Leachate Method/Date: EPA 1311; 06/13/19 13:35    Initial pH: 8.07; Final pH: 5.85								
Lead	<b>30.6</b>	mg/L	0.10	1	06/14/19 13:20	06/15/19 01:41	7439-92-1	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	<b>0.46</b>	mg/kg	0.25	1	05/28/19 23:10	05/29/19 11:46	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>19.4</b>	%	0.10	1		05/28/19 10:38		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP3-SB1 (3-4)**      **Lab ID: 50225929006**      Collected: 05/21/19 16:00      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>5.5</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:38	7440-38-2	
Barium	<b>136</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:38	7440-39-3	
Cadmium	ND	mg/kg	0.59	1	05/24/19 06:34	05/26/19 00:38	7440-43-9	
Chromium	<b>27.3</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:38	7440-47-3	
Copper	<b>17.0</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:38	7440-50-8	
Lead	<b>11.5</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:38	7439-92-1	
Selenium	ND	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:38	7782-49-2	
Silver	ND	mg/kg	0.59	1	05/24/19 06:34	05/26/19 00:38	7440-22-4	
Zinc	<b>72.5</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:38	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.24	1	05/28/19 23:10	05/29/19 11:49	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>20.4</b>	%	0.10	1		05/28/19 10:38		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP4-SS1 (1-2)**      **Lab ID: 50225929007**      Collected: 05/21/19 16:16      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>12.0</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:40	7440-38-2	
Barium	<b>269</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:40	7440-39-3	
Cadmium	<b>1.9</b>	mg/kg	0.63	1	05/24/19 06:34	05/26/19 00:40	7440-43-9	
Chromium	<b>16.6</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:40	7440-47-3	
Copper	<b>88.1</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:40	7440-50-8	
Lead	<b>395</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:40	7439-92-1	
Selenium	<b>1.4</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:40	7782-49-2	
Silver	ND	mg/kg	0.63	1	05/24/19 06:34	05/26/19 00:40	7440-22-4	
Zinc	<b>837</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:40	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.24	1	05/28/19 23:10	05/29/19 11:56	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>21.9</b>	%	0.10	1		05/28/19 10:38		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP4-SB1 (3-4)**      **Lab ID: 50225929008**      Collected: 05/21/19 16:20      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>3.0</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:42	7440-38-2	
Barium	<b>76.4</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:42	7440-39-3	
Cadmium	ND	mg/kg	0.57	1	05/24/19 06:34	05/26/19 00:42	7440-43-9	
Chromium	<b>22.0</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:42	7440-47-3	
Copper	<b>15.4</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:42	7440-50-8	
Lead	<b>11.3</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:42	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:42	7782-49-2	
Silver	ND	mg/kg	0.57	1	05/24/19 06:34	05/26/19 00:42	7440-22-4	
Zinc	<b>71.6</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:42	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.26	1	05/28/19 23:10	05/29/19 11:59	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>22.5</b>	%	0.10	1		05/28/19 10:38		

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP5-SS1 (2-3)**      **Lab ID: 50225929009**      Collected: 05/21/19 15:47      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>10.4</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:45	7440-38-2	
Barium	<b>57.7</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:45	7440-39-3	
Cadmium	ND	mg/kg	0.58	1	05/24/19 06:34	05/26/19 00:45	7440-43-9	
Chromium	<b>10.9</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:45	7440-47-3	
Copper	<b>62.5</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:45	7440-50-8	
Lead	<b>63.1</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:45	7439-92-1	
Selenium	ND	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:45	7782-49-2	
Silver	ND	mg/kg	0.58	1	05/24/19 06:34	05/26/19 00:45	7440-22-4	
Zinc	<b>73.1</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 00:45	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.24	1	05/28/19 23:10	05/29/19 12:01	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>20.2</b>	%	0.10	1		05/28/19 10:39		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP5-SB1 (3.5-4)**      **Lab ID: 50225929010**      Collected: 05/21/19 15:50      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>5.9</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:47	7440-38-2	
Barium	<b>81.8</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:47	7440-39-3	
Cadmium	<b>0.73</b>	mg/kg	0.55	1	05/24/19 06:34	05/26/19 00:47	7440-43-9	
Chromium	<b>19.6</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:47	7440-47-3	
Copper	<b>29.1</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:47	7440-50-8	
Lead	<b>13.6</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:47	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:47	7782-49-2	
Silver	ND	mg/kg	0.55	1	05/24/19 06:34	05/26/19 00:47	7440-22-4	
Zinc	<b>57.8</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:47	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.23	1	05/28/19 23:10	05/29/19 12:04	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>19.4</b>	%	0.10	1		05/28/19 10:39		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP6-SS1 (1-2)**      **Lab ID: 50225929011**      Collected: 05/21/19 17:09      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>13.2</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:49	7440-38-2	
Barium	<b>55.8</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:49	7440-39-3	
Cadmium	<b>0.77</b>	mg/kg	0.52	1	05/24/19 06:34	05/26/19 00:49	7440-43-9	
Chromium	<b>19.7</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:49	7440-47-3	
Copper	<b>90.1</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:49	7440-50-8	
Lead	<b>62.5</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:49	7439-92-1	
Selenium	ND	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:49	7782-49-2	
Silver	ND	mg/kg	0.52	1	05/24/19 06:34	05/26/19 00:49	7440-22-4	
Zinc	<b>241</b>	mg/kg	1.0	1	05/24/19 06:34	05/26/19 00:49	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.22	1	05/28/19 23:10	05/29/19 12:06	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>15.9</b>	%	0.10	1		05/28/19 10:39		

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP6-SB1 (3-4)**      **Lab ID: 50225929012**      Collected: 05/21/19 17:11      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>5.5</b>	mg/kg	1.6	1	05/24/19 06:34	05/26/19 00:51	7440-38-2	
Barium	<b>250</b>	mg/kg	1.6	1	05/24/19 06:34	05/26/19 00:51	7440-39-3	
Cadmium	<b>2.8</b>	mg/kg	0.79	1	05/24/19 06:34	05/26/19 00:51	7440-43-9	
Chromium	<b>32.7</b>	mg/kg	1.6	1	05/24/19 06:34	05/26/19 00:51	7440-47-3	
Copper	<b>128</b>	mg/kg	1.6	1	05/24/19 06:34	05/26/19 00:51	7440-50-8	
Lead	<b>15.6</b>	mg/kg	1.6	1	05/24/19 06:34	05/26/19 00:51	7439-92-1	
Selenium	<b>2.3</b>	mg/kg	1.6	1	05/24/19 06:34	05/26/19 00:51	7782-49-2	
Silver	ND	mg/kg	0.79	1	05/24/19 06:34	05/26/19 00:51	7440-22-4	
Zinc	<b>77.6</b>	mg/kg	1.6	1	05/24/19 06:34	05/26/19 00:51	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.32	1	05/28/19 23:10	05/29/19 12:08	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>38.2</b>	%	0.10	1		05/28/19 10:39		

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP7-SS1 (1-2)**      **Lab ID: 50225929013**      Collected: 05/21/19 16:59      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>44.0</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:53	7440-38-2	
Barium	<b>694</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:53	7440-39-3	
Cadmium	<b>1.2</b>	mg/kg	0.63	1	05/24/19 06:34	05/26/19 00:53	7440-43-9	
Chromium	<b>24.2</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:53	7440-47-3	
Copper	<b>222</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:53	7440-50-8	
Lead	<b>159</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:53	7439-92-1	
Selenium	ND	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:53	7782-49-2	
Silver	ND	mg/kg	0.63	1	05/24/19 06:34	05/26/19 00:53	7440-22-4	
Zinc	<b>273</b>	mg/kg	1.3	1	05/24/19 06:34	05/26/19 00:53	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.26	1	05/28/19 23:10	05/29/19 12:11	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>24.7</b>	%	0.10	1		05/28/19 10:39		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP7-SB1 (3-4)**      **Lab ID: 50225929014**      Collected: 05/21/19 17:01      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB Solids</b>								
Analytical Method: EPA 8082    Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:29	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:29	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:29	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:29	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:29	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:29	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:29	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	61	%	26-140	1	05/27/19 13:30	05/29/19 07:29	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Arsenic	<b>28.2</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:55	7440-38-2	
Barium	<b>116</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:55	7440-39-3	
Cadmium	<b>1.2</b>	mg/kg	0.56	1	05/24/19 06:34	05/26/19 00:55	7440-43-9	
Chromium	<b>17.3</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:55	7440-47-3	
Copper	<b>52.9</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:55	7440-50-8	
Lead	<b>198</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:55	7439-92-1	
Selenium	<b>1.3</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:55	7782-49-2	
Silver	ND	mg/kg	0.56	1	05/24/19 06:34	05/26/19 00:55	7440-22-4	
Zinc	<b>203</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 00:55	7440-66-6	
<b>7471 Mercury</b>								
Analytical Method: EPA 7471    Preparation Method: EPA 7471								
Mercury	ND	mg/kg	0.25	1	05/28/19 23:10	05/29/19 12:13	7439-97-6	
<b>8270 PAH Soil</b>								
Analytical Method: EPA 8270 by SIM    Preparation Method: EPA 3546								
Acenaphthene	ND	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	83-32-9	
Acenaphthylene	ND	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	208-96-8	
Anthracene	<b>0.0081</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	120-12-7	
Benzo(a)anthracene	<b>0.015</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	56-55-3	
Benzo(a)pyrene	<b>0.011</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	50-32-8	
Benzo(b)fluoranthene	<b>0.011</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	205-99-2	
Benzo(g,h,i)perylene	<b>0.017</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	191-24-2	
Benzo(k)fluoranthene	<b>0.013</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	207-08-9	
Chrysene	<b>0.017</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	53-70-3	
Fluoranthene	<b>0.024</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	206-44-0	
Fluorene	ND	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.012</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	193-39-5	
1-Methylnaphthalene	<b>0.079</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	90-12-0	N2
2-Methylnaphthalene	<b>0.11</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	91-57-6	
Naphthalene	<b>0.10</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	91-20-3	
Phenanthrene	<b>0.043</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	85-01-8	
Pyrene	<b>0.027</b>	mg/kg	0.0064	1	05/28/19 10:10	05/30/19 18:55	129-00-0	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	65	%	23-107	1	05/28/19 10:10	05/30/19 18:55	321-60-8	
p-Terphenyl-d14 (S)	63	%	16-117	1	05/28/19 10:10	05/30/19 18:55	1718-51-0	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: **BC-GP7-SB1 (3-4)** Lab ID: **50225929014** Collected: 05/21/19 17:01 Received: 05/23/19 08:35 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5035A VOA</b>		Analytical Method: EPA 8260						
Acetone	ND	mg/kg	0.13	1		05/31/19 08:57	67-64-1	
Acrolein	ND	mg/kg	0.13	1		05/31/19 08:57	107-02-8	
Acrylonitrile	ND	mg/kg	0.13	1		05/31/19 08:57	107-13-1	
Benzene	ND	mg/kg	0.0063	1		05/31/19 08:57	71-43-2	
Bromobenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	108-86-1	
Bromochloromethane	ND	mg/kg	0.0063	1		05/31/19 08:57	74-97-5	
Bromodichloromethane	ND	mg/kg	0.0063	1		05/31/19 08:57	75-27-4	
Bromoform	ND	mg/kg	0.0063	1		05/31/19 08:57	75-25-2	
Bromomethane	ND	mg/kg	0.0063	1		05/31/19 08:57	74-83-9	
2-Butanone (MEK)	ND	mg/kg	0.031	1		05/31/19 08:57	78-93-3	
n-Butylbenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	104-51-8	
sec-Butylbenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	135-98-8	
tert-Butylbenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	98-06-6	
Carbon disulfide	ND	mg/kg	0.013	1		05/31/19 08:57	75-15-0	
Carbon tetrachloride	ND	mg/kg	0.0063	1		05/31/19 08:57	56-23-5	
Chlorobenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	108-90-7	
Chloroethane	ND	mg/kg	0.0063	1		05/31/19 08:57	75-00-3	
Chloroform	ND	mg/kg	0.0063	1		05/31/19 08:57	67-66-3	
Chloromethane	ND	mg/kg	0.0063	1		05/31/19 08:57	74-87-3	
2-Chlorotoluene	ND	mg/kg	0.0063	1		05/31/19 08:57	95-49-8	
4-Chlorotoluene	ND	mg/kg	0.0063	1		05/31/19 08:57	106-43-4	
Dibromochloromethane	ND	mg/kg	0.0063	1		05/31/19 08:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	mg/kg	0.0063	1		05/31/19 08:57	106-93-4	
Dibromomethane	ND	mg/kg	0.0063	1		05/31/19 08:57	74-95-3	
1,2-Dichlorobenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	95-50-1	
1,3-Dichlorobenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	541-73-1	
1,4-Dichlorobenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	106-46-7	
trans-1,4-Dichloro-2-butene	ND	mg/kg	0.13	1		05/31/19 08:57	110-57-6	
Dichlorodifluoromethane	ND	mg/kg	0.0063	1		05/31/19 08:57	75-71-8	
1,1-Dichloroethane	ND	mg/kg	0.0063	1		05/31/19 08:57	75-34-3	
1,2-Dichloroethane	ND	mg/kg	0.0063	1		05/31/19 08:57	107-06-2	
1,1-Dichloroethene	ND	mg/kg	0.0063	1		05/31/19 08:57	75-35-4	
cis-1,2-Dichloroethene	ND	mg/kg	0.0063	1		05/31/19 08:57	156-59-2	
trans-1,2-Dichloroethene	ND	mg/kg	0.0063	1		05/31/19 08:57	156-60-5	
1,2-Dichloropropane	ND	mg/kg	0.0063	1		05/31/19 08:57	78-87-5	
1,3-Dichloropropane	ND	mg/kg	0.0063	1		05/31/19 08:57	142-28-9	
2,2-Dichloropropane	ND	mg/kg	0.0063	1		05/31/19 08:57	594-20-7	
1,1-Dichloropropene	ND	mg/kg	0.0063	1		05/31/19 08:57	563-58-6	
cis-1,3-Dichloropropene	ND	mg/kg	0.0063	1		05/31/19 08:57	10061-01-5	
trans-1,3-Dichloropropene	ND	mg/kg	0.0063	1		05/31/19 08:57	10061-02-6	
Ethylbenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	100-41-4	
Ethyl methacrylate	ND	mg/kg	0.13	1		05/31/19 08:57	97-63-2	
Hexachloro-1,3-butadiene	ND	mg/kg	0.0063	1		05/31/19 08:57	87-68-3	
n-Hexane	<b>0.049</b>	mg/kg	0.0063	1		05/31/19 08:57	110-54-3	CL,H7
2-Hexanone	ND	mg/kg	0.13	1		05/31/19 08:57	591-78-6	
Iodomethane	ND	mg/kg	0.13	1		05/31/19 08:57	74-88-4	

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: **BC-GP7-SB1 (3-4)** Lab ID: **50225929014** Collected: 05/21/19 17:01 Received: 05/23/19 08:35 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5035A VOA</b>		Analytical Method: EPA 8260						
Isopropylbenzene (Cumene)	ND	mg/kg	0.0063	1		05/31/19 08:57	98-82-8	
p-Isopropyltoluene	ND	mg/kg	0.0063	1		05/31/19 08:57	99-87-6	
Methylene Chloride	ND	mg/kg	0.025	1		05/31/19 08:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	mg/kg	0.031	1		05/31/19 08:57	108-10-1	
Methyl-tert-butyl ether	ND	mg/kg	0.0063	1		05/31/19 08:57	1634-04-4	
n-Propylbenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	103-65-1	
Styrene	ND	mg/kg	0.0063	1		05/31/19 08:57	100-42-5	
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0063	1		05/31/19 08:57	630-20-6	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0063	1		05/31/19 08:57	79-34-5	
Tetrachloroethene	ND	mg/kg	0.0063	1		05/31/19 08:57	127-18-4	
Toluene	ND	mg/kg	0.0063	1		05/31/19 08:57	108-88-3	
1,2,3-Trichlorobenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	87-61-6	
1,2,4-Trichlorobenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	120-82-1	
1,1,1-Trichloroethane	ND	mg/kg	0.0063	1		05/31/19 08:57	71-55-6	
1,1,2-Trichloroethane	ND	mg/kg	0.0063	1		05/31/19 08:57	79-00-5	
Trichloroethene	ND	mg/kg	0.0063	1		05/31/19 08:57	79-01-6	
Trichlorofluoromethane	ND	mg/kg	0.0063	1		05/31/19 08:57	75-69-4	
1,2,3-Trichloropropane	ND	mg/kg	0.0063	1		05/31/19 08:57	96-18-4	
1,2,4-Trimethylbenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.0063	1		05/31/19 08:57	108-67-8	
Vinyl acetate	ND	mg/kg	0.13	1		05/31/19 08:57	108-05-4	L2
Vinyl chloride	ND	mg/kg	0.0063	1		05/31/19 08:57	75-01-4	
Xylene (Total)	ND	mg/kg	0.013	1		05/31/19 08:57	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	110	%	77-131	1		05/31/19 08:57	1868-53-7	
Toluene-d8 (S)	121	%	77-127	1		05/31/19 08:57	2037-26-5	
4-Bromofluorobenzene (S)	67	%	65-119	1		05/31/19 08:57	460-00-4	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>22.4</b>	%	0.10	1		05/28/19 10:40		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP8-SS1 (2-3)**      **Lab ID: 50225929015**      Collected: 05/21/19 17:19      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>33.9</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:02	7440-38-2	
Barium	<b>46.2</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:02	7440-39-3	
Cadmium	ND	mg/kg	0.54	1	05/24/19 06:34	05/26/19 01:02	7440-43-9	
Chromium	<b>38.4</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:02	7440-47-3	
Copper	<b>39.7</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:02	7440-50-8	
Lead	<b>25.4</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:02	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:02	7782-49-2	
Silver	ND	mg/kg	0.54	1	05/24/19 06:34	05/26/19 01:02	7440-22-4	
Zinc	<b>91.5</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:02	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.22	1	05/28/19 23:10	05/29/19 12:16	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>10.9</b>	%	0.10	1		05/28/19 10:40		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample:** BC-GP8-SB1 (3-4)      **Lab ID:** 50225929016      Collected: 05/21/19 17:21      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB Solids</b>								
Analytical Method: EPA 8082    Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:57	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:57	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:57	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:57	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:57	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:57	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	mg/kg	0.13	1	05/27/19 13:30	05/29/19 07:57	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	69	%	26-140	1	05/27/19 13:30	05/29/19 07:57	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Arsenic	<b>2.8</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:04	7440-38-2	
Barium	<b>116</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:04	7440-39-3	
Cadmium	ND	mg/kg	0.55	1	05/24/19 06:34	05/26/19 01:04	7440-43-9	
Chromium	<b>25.6</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:04	7440-47-3	
Copper	<b>15.8</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:04	7440-50-8	
Lead	<b>10.7</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:04	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:04	7782-49-2	
Silver	ND	mg/kg	0.55	1	05/24/19 06:34	05/26/19 01:04	7440-22-4	
Zinc	<b>66.3</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:04	7440-66-6	
<b>7471 Mercury</b>								
Analytical Method: EPA 7471    Preparation Method: EPA 7471								
Mercury	ND	mg/kg	0.26	1	05/28/19 23:10	05/29/19 12:18	7439-97-6	
<b>8270 PAH Soil</b>								
Analytical Method: EPA 8270 by SIM    Preparation Method: EPA 3546								
Acenaphthene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	83-32-9	
Acenaphthylene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	208-96-8	
Anthracene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	207-08-9	
Chrysene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	53-70-3	
Fluoranthene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	206-44-0	
Fluorene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	193-39-5	
1-Methylnaphthalene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	90-12-0	N2
2-Methylnaphthalene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	91-57-6	
Naphthalene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	91-20-3	
Phenanthrene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	85-01-8	
Pyrene	ND	mg/kg	0.0063	1	05/28/19 10:10	05/30/19 19:13	129-00-0	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	65	%	23-107	1	05/28/19 10:10	05/30/19 19:13	321-60-8	
p-Terphenyl-d14 (S)	72	%	16-117	1	05/28/19 10:10	05/30/19 19:13	1718-51-0	

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: **BC-GP8-SB1 (3-4)** Lab ID: **50225929016** Collected: 05/21/19 17:21 Received: 05/23/19 08:35 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5035A VOA</b>		Analytical Method: EPA 8260						
Acetone	ND	mg/kg	0.14	1		05/31/19 09:32	67-64-1	
Acrolein	ND	mg/kg	0.14	1		05/31/19 09:32	107-02-8	
Acrylonitrile	ND	mg/kg	0.14	1		05/31/19 09:32	107-13-1	
Benzene	ND	mg/kg	0.0068	1		05/31/19 09:32	71-43-2	
Bromobenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	108-86-1	
Bromochloromethane	ND	mg/kg	0.0068	1		05/31/19 09:32	74-97-5	
Bromodichloromethane	ND	mg/kg	0.0068	1		05/31/19 09:32	75-27-4	
Bromoform	ND	mg/kg	0.0068	1		05/31/19 09:32	75-25-2	
Bromomethane	ND	mg/kg	0.0068	1		05/31/19 09:32	74-83-9	
2-Butanone (MEK)	ND	mg/kg	0.034	1		05/31/19 09:32	78-93-3	
n-Butylbenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	104-51-8	
sec-Butylbenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	135-98-8	
tert-Butylbenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	98-06-6	
Carbon disulfide	ND	mg/kg	0.014	1		05/31/19 09:32	75-15-0	
Carbon tetrachloride	ND	mg/kg	0.0068	1		05/31/19 09:32	56-23-5	
Chlorobenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	108-90-7	
Chloroethane	ND	mg/kg	0.0068	1		05/31/19 09:32	75-00-3	
Chloroform	ND	mg/kg	0.0068	1		05/31/19 09:32	67-66-3	
Chloromethane	ND	mg/kg	0.0068	1		05/31/19 09:32	74-87-3	
2-Chlorotoluene	ND	mg/kg	0.0068	1		05/31/19 09:32	95-49-8	
4-Chlorotoluene	ND	mg/kg	0.0068	1		05/31/19 09:32	106-43-4	
Dibromochloromethane	ND	mg/kg	0.0068	1		05/31/19 09:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	mg/kg	0.0068	1		05/31/19 09:32	106-93-4	
Dibromomethane	ND	mg/kg	0.0068	1		05/31/19 09:32	74-95-3	
1,2-Dichlorobenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	95-50-1	
1,3-Dichlorobenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	541-73-1	
1,4-Dichlorobenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	106-46-7	
trans-1,4-Dichloro-2-butene	ND	mg/kg	0.14	1		05/31/19 09:32	110-57-6	
Dichlorodifluoromethane	ND	mg/kg	0.0068	1		05/31/19 09:32	75-71-8	
1,1-Dichloroethane	ND	mg/kg	0.0068	1		05/31/19 09:32	75-34-3	
1,2-Dichloroethane	ND	mg/kg	0.0068	1		05/31/19 09:32	107-06-2	
1,1-Dichloroethene	ND	mg/kg	0.0068	1		05/31/19 09:32	75-35-4	
cis-1,2-Dichloroethene	ND	mg/kg	0.0068	1		05/31/19 09:32	156-59-2	
trans-1,2-Dichloroethene	ND	mg/kg	0.0068	1		05/31/19 09:32	156-60-5	
1,2-Dichloropropane	ND	mg/kg	0.0068	1		05/31/19 09:32	78-87-5	
1,3-Dichloropropane	ND	mg/kg	0.0068	1		05/31/19 09:32	142-28-9	
2,2-Dichloropropane	ND	mg/kg	0.0068	1		05/31/19 09:32	594-20-7	
1,1-Dichloropropene	ND	mg/kg	0.0068	1		05/31/19 09:32	563-58-6	
cis-1,3-Dichloropropene	ND	mg/kg	0.0068	1		05/31/19 09:32	10061-01-5	
trans-1,3-Dichloropropene	ND	mg/kg	0.0068	1		05/31/19 09:32	10061-02-6	
Ethylbenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	100-41-4	
Ethyl methacrylate	ND	mg/kg	0.14	1		05/31/19 09:32	97-63-2	
Hexachloro-1,3-butadiene	ND	mg/kg	0.0068	1		05/31/19 09:32	87-68-3	
n-Hexane	<b>0.071</b>	mg/kg	0.0068	1		05/31/19 09:32	110-54-3	CL,H7
2-Hexanone	ND	mg/kg	0.14	1		05/31/19 09:32	591-78-6	
Iodomethane	ND	mg/kg	0.14	1		05/31/19 09:32	74-88-4	

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: **BC-GP8-SB1 (3-4)** Lab ID: **50225929016** Collected: 05/21/19 17:21 Received: 05/23/19 08:35 Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5035A VOA</b>		Analytical Method: EPA 8260						
Isopropylbenzene (Cumene)	ND	mg/kg	0.0068	1		05/31/19 09:32	98-82-8	
p-Isopropyltoluene	ND	mg/kg	0.0068	1		05/31/19 09:32	99-87-6	
Methylene Chloride	ND	mg/kg	0.027	1		05/31/19 09:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	mg/kg	0.034	1		05/31/19 09:32	108-10-1	
Methyl-tert-butyl ether	ND	mg/kg	0.0068	1		05/31/19 09:32	1634-04-4	
n-Propylbenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	103-65-1	
Styrene	ND	mg/kg	0.0068	1		05/31/19 09:32	100-42-5	
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0068	1		05/31/19 09:32	630-20-6	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0068	1		05/31/19 09:32	79-34-5	
Tetrachloroethene	ND	mg/kg	0.0068	1		05/31/19 09:32	127-18-4	
Toluene	ND	mg/kg	0.0068	1		05/31/19 09:32	108-88-3	
1,2,3-Trichlorobenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	87-61-6	
1,2,4-Trichlorobenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	120-82-1	
1,1,1-Trichloroethane	ND	mg/kg	0.0068	1		05/31/19 09:32	71-55-6	
1,1,2-Trichloroethane	ND	mg/kg	0.0068	1		05/31/19 09:32	79-00-5	
Trichloroethene	ND	mg/kg	0.0068	1		05/31/19 09:32	79-01-6	
Trichlorofluoromethane	ND	mg/kg	0.0068	1		05/31/19 09:32	75-69-4	
1,2,3-Trichloropropane	ND	mg/kg	0.0068	1		05/31/19 09:32	96-18-4	
1,2,4-Trimethylbenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.0068	1		05/31/19 09:32	108-67-8	
Vinyl acetate	ND	mg/kg	0.14	1		05/31/19 09:32	108-05-4	L2
Vinyl chloride	ND	mg/kg	0.0068	1		05/31/19 09:32	75-01-4	
Xylene (Total)	ND	mg/kg	0.014	1		05/31/19 09:32	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	77-131	1		05/31/19 09:32	1868-53-7	
Toluene-d8 (S)	103	%	77-127	1		05/31/19 09:32	2037-26-5	
4-Bromofluorobenzene (S)	74	%	65-119	1		05/31/19 09:32	460-00-4	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>21.6</b>	%	0.10	1		05/28/19 10:41		

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP9-SS1 (1-2)**      **Lab ID: 50225929017**      Collected: 05/21/19 16:31      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>25.5</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:06	7440-38-2	
Barium	<b>169</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:06	7440-39-3	
Cadmium	<b>2.4</b>	mg/kg	0.56	1	05/24/19 06:34	05/26/19 01:06	7440-43-9	
Chromium	<b>44.0</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:06	7440-47-3	
Copper	<b>688</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:06	7440-50-8	
Lead	<b>448</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:06	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:06	7782-49-2	
Silver	ND	mg/kg	0.56	1	05/24/19 06:34	05/26/19 01:06	7440-22-4	
Zinc	<b>745</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:06	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.26	1	05/28/19 23:10	05/29/19 12:28	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>21.1</b>	%	0.10	1		05/28/19 13:27		

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP9-SB1 (3-4)**      **Lab ID: 50225929018**      Collected: 05/21/19 16:37      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>13.8</b>	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:11	7440-38-2	
Barium	<b>85.2</b>	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:11	7440-39-3	
Cadmium	ND	mg/kg	0.58	1	05/25/19 13:18	05/26/19 02:11	7440-43-9	
Chromium	<b>23.5</b>	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:11	7440-47-3	
Copper	<b>25.9</b>	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:11	7440-50-8	
Lead	<b>12.6</b>	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:11	7439-92-1	
Selenium	ND	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:11	7782-49-2	
Silver	ND	mg/kg	0.58	1	05/25/19 13:18	05/26/19 02:11	7440-22-4	
Zinc	<b>77.6</b>	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:11	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.23	1	05/28/19 23:10	05/29/19 14:06	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>16.9</b>	%	0.10	1		05/28/19 13:27		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP10-SS1 (1-2)**      **Lab ID: 50225929019**      Collected: 05/21/19 12:11      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>11.6</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:09	7440-38-2	
Barium	<b>228</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:09	7440-39-3	
Cadmium	<b>0.60</b>	mg/kg	0.58	1	05/24/19 06:34	05/26/19 01:09	7440-43-9	
Chromium	<b>32.2</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:09	7440-47-3	
Copper	<b>212</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:09	7440-50-8	
Lead	<b>158</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:09	7439-92-1	
Selenium	ND	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:09	7782-49-2	
Silver	ND	mg/kg	0.58	1	05/24/19 06:34	05/26/19 01:09	7440-22-4	
Zinc	<b>159</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:09	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	<b>0.54</b>	mg/kg	0.25	1	05/28/19 23:10	05/29/19 12:30	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>23.3</b>	%	0.10	1		05/28/19 13:27		

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP11-SS1 (0.5-1.5) Lab ID: 50225929020** Collected: 05/21/19 09:51 Received: 05/23/19 08:35 Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010 Preparation Method: EPA 3050						
Arsenic	<b>15.0</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:11	7440-38-2	
Barium	<b>323</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:11	7440-39-3	
Cadmium	<b>5.3</b>	mg/kg	0.60	1	05/24/19 06:34	05/26/19 01:11	7440-43-9	
Chromium	<b>16.7</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:11	7440-47-3	
Copper	<b>385</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:11	7440-50-8	
Lead	<b>282</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:11	7439-92-1	
Selenium	<b>1.8</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:11	7782-49-2	
Silver	ND	mg/kg	0.60	1	05/24/19 06:34	05/26/19 01:11	7440-22-4	
Zinc	<b>1230</b>	mg/kg	1.2	1	05/24/19 06:34	05/26/19 01:11	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471 Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.25	1	05/28/19 23:10	05/29/19 12:33	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>20.1</b>	%	0.10	1		05/28/19 13:27		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP12-SS1 (1-2)**      **Lab ID: 50225929021**      Collected: 05/20/19 09:55      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>3.1</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:13	7440-38-2	
Barium	<b>131</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:13	7440-39-3	
Cadmium	ND	mg/kg	0.54	1	05/24/19 06:34	05/26/19 01:13	7440-43-9	
Chromium	<b>21.2</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:13	7440-47-3	
Copper	<b>13.7</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:13	7440-50-8	
Lead	<b>84.7</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:13	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:13	7782-49-2	
Silver	ND	mg/kg	0.54	1	05/24/19 06:34	05/26/19 01:13	7440-22-4	
Zinc	<b>102</b>	mg/kg	1.1	1	05/24/19 06:34	05/26/19 01:13	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.22	1	05/28/19 23:10	05/29/19 12:35	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>18.5</b>	%	0.10	1		05/28/19 13:28		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP13-SS1 (1-2)**      **Lab ID: 50225929022**      Collected: 05/20/19 17:10      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>13.5</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:17	7440-38-2	
Barium	<b>93.7</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:17	7440-39-3	
Cadmium	<b>1.2</b>	mg/kg	0.56	1	05/25/19 13:18	05/26/19 02:17	7440-43-9	
Chromium	<b>13.1</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:17	7440-47-3	
Copper	<b>124</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:17	7440-50-8	
Lead	<b>137</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:17	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:17	7782-49-2	
Silver	ND	mg/kg	0.56	1	05/25/19 13:18	05/26/19 02:17	7440-22-4	
Zinc	<b>355</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:17	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	<b>0.32</b>	mg/kg	0.21	1	05/28/19 23:10	05/29/19 14:13	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>13.9</b>	%	0.10	1		05/28/19 13:28		

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP14-SS1 (0.5-1.5) Lab ID: 50225929023** Collected: 05/20/19 12:07 Received: 05/23/19 08:35 Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010 Preparation Method: EPA 3050						
Arsenic	<b>49.2</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:19	7440-38-2	
Barium	<b>192</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:19	7440-39-3	
Cadmium	<b>0.80</b>	mg/kg	0.54	1	05/25/19 13:18	05/26/19 02:19	7440-43-9	
Chromium	<b>19.2</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:19	7440-47-3	
Copper	<b>98.1</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:19	7440-50-8	
Lead	<b>156</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:19	7439-92-1	
Selenium	<b>1.7</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:19	7782-49-2	
Silver	ND	mg/kg	0.54	1	05/25/19 13:18	05/26/19 02:19	7440-22-4	
Zinc	<b>211</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:19	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471 Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.22	1	05/28/19 23:10	05/29/19 14:16	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>16.5</b>	%	0.10	1		05/28/19 13:28		

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-GP15-SS1 (0.5-1) Lab ID: 50225929024** Collected: 05/21/19 14:50 Received: 05/23/19 08:35 Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010 Preparation Method: EPA 3050						
Arsenic	<b>12.8</b>	mg/kg	0.93	1	05/25/19 13:18	05/26/19 02:21	7440-38-2	
Barium	<b>29.2</b>	mg/kg	0.93	1	05/25/19 13:18	05/26/19 02:21	7440-39-3	
Cadmium	ND	mg/kg	0.46	1	05/25/19 13:18	05/26/19 02:21	7440-43-9	
Chromium	<b>14.7</b>	mg/kg	0.93	1	05/25/19 13:18	05/26/19 02:21	7440-47-3	
Copper	<b>27.1</b>	mg/kg	0.93	1	05/25/19 13:18	05/26/19 02:21	7440-50-8	
Lead	<b>20.8</b>	mg/kg	0.93	1	05/25/19 13:18	05/26/19 02:21	7439-92-1	
Selenium	ND	mg/kg	0.93	1	05/25/19 13:18	05/26/19 02:21	7782-49-2	
Silver	ND	mg/kg	0.46	1	05/25/19 13:18	05/26/19 02:21	7440-22-4	
Zinc	<b>116</b>	mg/kg	0.93	1	05/25/19 13:18	05/26/19 02:21	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471 Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.22	1	05/28/19 23:10	05/29/19 14:18	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>7.0</b>	%	0.10	1		05/28/19 13:28		

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-SB-FD1**      **Lab ID: 50225929025**      Collected: 05/20/19 00:00      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	<b>17.1</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:28	7440-38-2	
Barium	<b>197</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:28	7440-39-3	
Cadmium	<b>1.1</b>	mg/kg	0.55	1	05/25/19 13:18	05/26/19 02:28	7440-43-9	
Chromium	<b>19.1</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:28	7440-47-3	
Copper	<b>68.3</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:28	7440-50-8	
Lead	<b>150</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:28	7439-92-1	
Selenium	ND	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:28	7782-49-2	
Silver	ND	mg/kg	0.55	1	05/25/19 13:18	05/26/19 02:28	7440-22-4	
Zinc	<b>339</b>	mg/kg	1.1	1	05/25/19 13:18	05/26/19 02:28	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.24	1	05/28/19 23:10	05/29/19 14:21	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	<b>16.1</b>	%	0.10	1		05/28/19 13:29		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-SB-FD2**      **Lab ID: 50225929026**      Collected: 05/21/19 00:00      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>		Analytical Method: EPA 6010    Preparation Method: EPA 3050						
Arsenic	11.5	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:30	7440-38-2	
Barium	416	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:30	7440-39-3	
Cadmium	1.5	mg/kg	0.59	1	05/25/19 13:18	05/26/19 02:30	7440-43-9	
Chromium	15.2	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:30	7440-47-3	
Copper	59.2	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:30	7440-50-8	
Lead	691	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:30	7439-92-1	
Selenium	1.4	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:30	7782-49-2	
Silver	ND	mg/kg	0.59	1	05/25/19 13:18	05/26/19 02:30	7440-22-4	
Zinc	684	mg/kg	1.2	1	05/25/19 13:18	05/26/19 02:30	7440-66-6	
<b>7471 Mercury</b>		Analytical Method: EPA 7471    Preparation Method: EPA 7471						
Mercury	ND	mg/kg	0.26	1	05/28/19 23:10	05/29/19 14:31	7439-97-6	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	24.4	%	0.10	1		05/28/19 13:29		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-SB-FD3**      **Lab ID: 50225929027**      Collected: 05/21/19 00:00      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB Solids</b>								
Analytical Method: EPA 8082    Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	ND	mg/kg	0.11	1	05/27/19 13:30	05/29/19 08:33	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	mg/kg	0.11	1	05/27/19 13:30	05/29/19 08:33	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	mg/kg	0.11	1	05/27/19 13:30	05/29/19 08:33	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	mg/kg	0.11	1	05/27/19 13:30	05/29/19 08:33	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	mg/kg	0.11	1	05/27/19 13:30	05/29/19 08:33	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	mg/kg	0.11	1	05/27/19 13:30	05/29/19 08:33	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	mg/kg	0.11	1	05/27/19 13:30	05/29/19 08:33	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	60	%	26-140	1	05/27/19 13:30	05/29/19 08:33	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Arsenic	<b>27.7</b>	mg/kg	1.0	1	05/25/19 13:18	05/26/19 02:32	7440-38-2	
Barium	<b>35.9</b>	mg/kg	1.0	1	05/25/19 13:18	05/26/19 02:32	7440-39-3	
Cadmium	ND	mg/kg	0.50	1	05/25/19 13:18	05/26/19 02:32	7440-43-9	
Chromium	<b>32.5</b>	mg/kg	1.0	1	05/25/19 13:18	05/26/19 02:32	7440-47-3	
Copper	<b>35.6</b>	mg/kg	1.0	1	05/25/19 13:18	05/26/19 02:32	7440-50-8	
Lead	<b>27.0</b>	mg/kg	1.0	1	05/25/19 13:18	05/26/19 02:32	7439-92-1	
Selenium	ND	mg/kg	1.0	1	05/25/19 13:18	05/26/19 02:32	7782-49-2	
Silver	ND	mg/kg	0.50	1	05/25/19 13:18	05/26/19 02:32	7440-22-4	
Zinc	<b>63.0</b>	mg/kg	1.0	1	05/25/19 13:18	05/26/19 02:32	7440-66-6	
<b>7471 Mercury</b>								
Analytical Method: EPA 7471    Preparation Method: EPA 7471								
Mercury	ND	mg/kg	0.23	1	05/28/19 23:10	05/29/19 14:33	7439-97-6	
<b>8270 PAH Soil</b>								
Analytical Method: EPA 8270 by SIM    Preparation Method: EPA 3546								
Acenaphthene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	83-32-9	
Acenaphthylene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	208-96-8	
Anthracene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	205-99-2	
Benzo(g,h,i)perylene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	191-24-2	
Benzo(k)fluoranthene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	207-08-9	
Chrysene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	53-70-3	
Fluoranthene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	206-44-0	
Fluorene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	193-39-5	
1-Methylnaphthalene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	90-12-0	N2
2-Methylnaphthalene	<b>0.0071</b>	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	91-57-6	
Naphthalene	<b>0.019</b>	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	91-20-3	
Phenanthrene	<b>0.0085</b>	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	85-01-8	
Pyrene	ND	mg/kg	0.0056	1	05/28/19 10:10	05/29/19 16:43	129-00-0	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	68	%	23-107	1	05/28/19 10:10	05/29/19 16:43	321-60-8	
p-Terphenyl-d14 (S)	78	%	16-117	1	05/28/19 10:10	05/29/19 16:43	1718-51-0	

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: **BC-SB-FD3** Lab ID: **50225929027** Collected: 05/21/19 00:00 Received: 05/23/19 08:35 Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5035A VOA</b>		Analytical Method: EPA 8260						
Acetone	ND	mg/kg	0.12	1		05/31/19 10:06	67-64-1	
Acrolein	ND	mg/kg	0.12	1		05/31/19 10:06	107-02-8	
Acrylonitrile	ND	mg/kg	0.12	1		05/31/19 10:06	107-13-1	
Benzene	ND	mg/kg	0.0059	1		05/31/19 10:06	71-43-2	
Bromobenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	108-86-1	
Bromochloromethane	ND	mg/kg	0.0059	1		05/31/19 10:06	74-97-5	
Bromodichloromethane	ND	mg/kg	0.0059	1		05/31/19 10:06	75-27-4	
Bromoform	ND	mg/kg	0.0059	1		05/31/19 10:06	75-25-2	
Bromomethane	ND	mg/kg	0.0059	1		05/31/19 10:06	74-83-9	
2-Butanone (MEK)	ND	mg/kg	0.030	1		05/31/19 10:06	78-93-3	
n-Butylbenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	104-51-8	
sec-Butylbenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	135-98-8	
tert-Butylbenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	98-06-6	
Carbon disulfide	ND	mg/kg	0.012	1		05/31/19 10:06	75-15-0	
Carbon tetrachloride	ND	mg/kg	0.0059	1		05/31/19 10:06	56-23-5	
Chlorobenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	108-90-7	
Chloroethane	ND	mg/kg	0.0059	1		05/31/19 10:06	75-00-3	
Chloroform	ND	mg/kg	0.0059	1		05/31/19 10:06	67-66-3	
Chloromethane	ND	mg/kg	0.0059	1		05/31/19 10:06	74-87-3	
2-Chlorotoluene	ND	mg/kg	0.0059	1		05/31/19 10:06	95-49-8	
4-Chlorotoluene	ND	mg/kg	0.0059	1		05/31/19 10:06	106-43-4	
Dibromochloromethane	ND	mg/kg	0.0059	1		05/31/19 10:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	mg/kg	0.0059	1		05/31/19 10:06	106-93-4	
Dibromomethane	ND	mg/kg	0.0059	1		05/31/19 10:06	74-95-3	
1,2-Dichlorobenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	95-50-1	
1,3-Dichlorobenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	541-73-1	
1,4-Dichlorobenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	106-46-7	
trans-1,4-Dichloro-2-butene	ND	mg/kg	0.12	1		05/31/19 10:06	110-57-6	
Dichlorodifluoromethane	ND	mg/kg	0.0059	1		05/31/19 10:06	75-71-8	
1,1-Dichloroethane	ND	mg/kg	0.0059	1		05/31/19 10:06	75-34-3	
1,2-Dichloroethane	ND	mg/kg	0.0059	1		05/31/19 10:06	107-06-2	
1,1-Dichloroethene	ND	mg/kg	0.0059	1		05/31/19 10:06	75-35-4	
cis-1,2-Dichloroethene	ND	mg/kg	0.0059	1		05/31/19 10:06	156-59-2	
trans-1,2-Dichloroethene	ND	mg/kg	0.0059	1		05/31/19 10:06	156-60-5	
1,2-Dichloropropane	ND	mg/kg	0.0059	1		05/31/19 10:06	78-87-5	
1,3-Dichloropropane	ND	mg/kg	0.0059	1		05/31/19 10:06	142-28-9	
2,2-Dichloropropane	ND	mg/kg	0.0059	1		05/31/19 10:06	594-20-7	
1,1-Dichloropropene	ND	mg/kg	0.0059	1		05/31/19 10:06	563-58-6	
cis-1,3-Dichloropropene	ND	mg/kg	0.0059	1		05/31/19 10:06	10061-01-5	
trans-1,3-Dichloropropene	ND	mg/kg	0.0059	1		05/31/19 10:06	10061-02-6	
Ethylbenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	100-41-4	
Ethyl methacrylate	ND	mg/kg	0.12	1		05/31/19 10:06	97-63-2	
Hexachloro-1,3-butadiene	ND	mg/kg	0.0059	1		05/31/19 10:06	87-68-3	
n-Hexane	<b>0.30</b>	mg/kg	0.0059	1		05/31/19 10:06	110-54-3	CL,H7
2-Hexanone	ND	mg/kg	0.12	1		05/31/19 10:06	591-78-6	
Iodomethane	ND	mg/kg	0.12	1		05/31/19 10:06	74-88-4	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

**Sample: BC-SB-FD3**      **Lab ID: 50225929027**      Collected: 05/21/19 00:00      Received: 05/23/19 08:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5035A VOA</b>		Analytical Method: EPA 8260						
Isopropylbenzene (Cumene)	ND	mg/kg	0.0059	1		05/31/19 10:06	98-82-8	
p-Isopropyltoluene	ND	mg/kg	0.0059	1		05/31/19 10:06	99-87-6	
Methylene Chloride	ND	mg/kg	0.024	1		05/31/19 10:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	mg/kg	0.030	1		05/31/19 10:06	108-10-1	
Methyl-tert-butyl ether	ND	mg/kg	0.0059	1		05/31/19 10:06	1634-04-4	
n-Propylbenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	103-65-1	
Styrene	ND	mg/kg	0.0059	1		05/31/19 10:06	100-42-5	
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0059	1		05/31/19 10:06	630-20-6	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0059	1		05/31/19 10:06	79-34-5	
Tetrachloroethene	ND	mg/kg	0.0059	1		05/31/19 10:06	127-18-4	
Toluene	ND	mg/kg	0.0059	1		05/31/19 10:06	108-88-3	
1,2,3-Trichlorobenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	87-61-6	
1,2,4-Trichlorobenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	120-82-1	
1,1,1-Trichloroethane	ND	mg/kg	0.0059	1		05/31/19 10:06	71-55-6	
1,1,2-Trichloroethane	ND	mg/kg	0.0059	1		05/31/19 10:06	79-00-5	
Trichloroethene	ND	mg/kg	0.0059	1		05/31/19 10:06	79-01-6	
Trichlorofluoromethane	ND	mg/kg	0.0059	1		05/31/19 10:06	75-69-4	
1,2,3-Trichloropropane	ND	mg/kg	0.0059	1		05/31/19 10:06	96-18-4	
1,2,4-Trimethylbenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.0059	1		05/31/19 10:06	108-67-8	
Vinyl acetate	ND	mg/kg	0.12	1		05/31/19 10:06	108-05-4	L2
Vinyl chloride	ND	mg/kg	0.0059	1		05/31/19 10:06	75-01-4	
Xylene (Total)	ND	mg/kg	0.012	1		05/31/19 10:06	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	77-131	1		05/31/19 10:06	1868-53-7	
Toluene-d8 (S)	114	%	77-127	1		05/31/19 10:06	2037-26-5	
4-Bromofluorobenzene (S)	73	%	65-119	1		05/31/19 10:06	460-00-4	
<b>Percent Moisture</b>		Analytical Method: SM 2540G						
Percent Moisture	11.1	%	0.10	1		05/28/19 13:29		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: BC-EB-SB1	Lab ID: 50225929028	Collected: 05/20/19 09:45	Received: 05/23/19 08:35	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	05/31/19 08:34	05/31/19 11:41	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	05/31/19 08:34	05/31/19 11:41	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	05/31/19 08:34	05/31/19 11:41	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	05/31/19 08:34	05/31/19 11:41	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	05/31/19 08:34	05/31/19 11:41	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	05/31/19 08:34	05/31/19 11:41	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	05/31/19 08:34	05/31/19 11:41	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	54	%.	10-148	1	05/31/19 08:34	05/31/19 11:41	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	05/25/19 12:30	05/27/19 09:33	7440-38-2	
Barium	ND	ug/L	10.0	1	05/25/19 12:30	05/27/19 09:33	7440-39-3	
Cadmium	ND	ug/L	2.0	1	05/25/19 12:30	05/27/19 09:33	7440-43-9	
Chromium	ND	ug/L	10.0	1	05/25/19 12:30	05/27/19 09:33	7440-47-3	
Copper	ND	ug/L	10.0	1	05/25/19 12:30	05/27/19 09:33	7440-50-8	
Lead	ND	ug/L	10.0	1	05/25/19 12:30	05/27/19 09:33	7439-92-1	
Selenium	ND	ug/L	10.0	1	05/25/19 12:30	05/27/19 09:33	7782-49-2	
Silver	ND	ug/L	10.0	1	05/25/19 12:30	05/27/19 09:33	7440-22-4	
Zinc	ND	ug/L	20.0	1	05/25/19 12:30	05/27/19 09:33	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/27/19 22:14	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	83-32-9	
Acenaphthylene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	208-96-8	
Anthracene	ND	ug/L	0.10	1	05/24/19 11:36	05/24/19 16:50	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.10	1	05/24/19 11:36	05/24/19 16:50	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.10	1	05/24/19 11:36	05/24/19 16:50	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/24/19 11:36	05/24/19 16:50	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/24/19 11:36	05/24/19 16:50	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/24/19 11:36	05/24/19 16:50	207-08-9	
Chrysene	ND	ug/L	0.50	1	05/24/19 11:36	05/24/19 16:50	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/24/19 11:36	05/24/19 16:50	53-70-3	
Fluoranthene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	206-44-0	
Fluorene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/24/19 11:36	05/24/19 16:50	193-39-5	
1-Methylnaphthalene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	90-12-0	N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	91-57-6	
Naphthalene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	91-20-3	
Phenanthrene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	85-01-8	
Pyrene	ND	ug/L	1.0	1	05/24/19 11:36	05/24/19 16:50	129-00-0	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%.	10-105	1	05/24/19 11:36	05/24/19 16:50	321-60-8	
p-Terphenyl-d14 (S)	80	%.	10-142	1	05/24/19 11:36	05/24/19 16:50	1718-51-0	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: BC-EB-SB1	Lab ID: 50225929028	Collected: 05/20/19 09:45	Received: 05/23/19 08:35	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		05/30/19 21:58	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/30/19 21:58	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/30/19 21:58	107-13-1	
Benzene	ND	ug/L	5.0	1		05/30/19 21:58	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/30/19 21:58	108-86-1	
Bromochloromethane	ND	ug/L	5.0	1		05/30/19 21:58	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/30/19 21:58	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/30/19 21:58	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/30/19 21:58	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/30/19 21:58	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/30/19 21:58	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/30/19 21:58	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/30/19 21:58	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/30/19 21:58	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/30/19 21:58	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/30/19 21:58	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/30/19 21:58	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/30/19 21:58	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/30/19 21:58	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/30/19 21:58	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/30/19 21:58	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/30/19 21:58	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/30/19 21:58	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/30/19 21:58	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 21:58	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 21:58	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 21:58	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/30/19 21:58	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/30/19 21:58	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/30/19 21:58	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/30/19 21:58	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		05/30/19 21:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/30/19 21:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/30/19 21:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/30/19 21:58	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/30/19 21:58	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/30/19 21:58	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/30/19 21:58	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/30/19 21:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/30/19 21:58	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/30/19 21:58	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/30/19 21:58	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/30/19 21:58	87-68-3	L1
n-Hexane	ND	ug/L	5.0	1		05/30/19 21:58	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/30/19 21:58	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/30/19 21:58	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/30/19 21:58	98-82-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: BC-EB-SB1		Lab ID: 50225929028	Collected: 05/20/19 09:45	Received: 05/23/19 08:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
p-Isopropyltoluene	ND	ug/L	5.0	1		05/30/19 21:58	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/30/19 21:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/30/19 21:58	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/30/19 21:58	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/30/19 21:58	103-65-1	
Styrene	ND	ug/L	5.0	1		05/30/19 21:58	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/30/19 21:58	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/30/19 21:58	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/30/19 21:58	127-18-4	L1
Toluene	ND	ug/L	5.0	1		05/30/19 21:58	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/30/19 21:58	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/30/19 21:58	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/30/19 21:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/30/19 21:58	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/30/19 21:58	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/30/19 21:58	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/30/19 21:58	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/30/19 21:58	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/30/19 21:58	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/30/19 21:58	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/30/19 21:58	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/30/19 21:58	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	107	%	80-122	1		05/30/19 21:58	1868-53-7	
4-Bromofluorobenzene (S)	91	%	85-114	1		05/30/19 21:58	460-00-4	
Toluene-d8 (S)	91	%	85-114	1		05/30/19 21:58	2037-26-5	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: BC-TB1	Lab ID: 50225929029	Collected: 05/21/19 08:00	Received: 05/23/19 08:35	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		05/30/19 22:32	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/30/19 22:32	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/30/19 22:32	107-13-1	
Benzene	ND	ug/L	5.0	1		05/30/19 22:32	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/30/19 22:32	108-86-1	
Bromochloromethane	ND	ug/L	5.0	1		05/30/19 22:32	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/30/19 22:32	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/30/19 22:32	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/30/19 22:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/30/19 22:32	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/30/19 22:32	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/30/19 22:32	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/30/19 22:32	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/30/19 22:32	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/30/19 22:32	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/30/19 22:32	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/30/19 22:32	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/30/19 22:32	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/30/19 22:32	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/30/19 22:32	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/30/19 22:32	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/30/19 22:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/30/19 22:32	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/30/19 22:32	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 22:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 22:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 22:32	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/30/19 22:32	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/30/19 22:32	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/30/19 22:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/30/19 22:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		05/30/19 22:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/30/19 22:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/30/19 22:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/30/19 22:32	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/30/19 22:32	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/30/19 22:32	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/30/19 22:32	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/30/19 22:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/30/19 22:32	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/30/19 22:32	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/30/19 22:32	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/30/19 22:32	87-68-3	L1
n-Hexane	ND	ug/L	5.0	1		05/30/19 22:32	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/30/19 22:32	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/30/19 22:32	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/30/19 22:32	98-82-8	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50225929

Sample: BC-TB1		Lab ID: 50225929029	Collected: 05/21/19 08:00	Received: 05/23/19 08:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
p-Isopropyltoluene	ND	ug/L	5.0	1		05/30/19 22:32	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/30/19 22:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/30/19 22:32	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/30/19 22:32	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/30/19 22:32	103-65-1	
Styrene	ND	ug/L	5.0	1		05/30/19 22:32	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/30/19 22:32	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/30/19 22:32	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/30/19 22:32	127-18-4	L1
Toluene	ND	ug/L	5.0	1		05/30/19 22:32	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/30/19 22:32	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/30/19 22:32	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/30/19 22:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/30/19 22:32	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/30/19 22:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/30/19 22:32	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/30/19 22:32	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/30/19 22:32	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/30/19 22:32	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/30/19 22:32	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/30/19 22:32	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/30/19 22:32	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	105	%	80-122	1		05/30/19 22:32	1868-53-7	
4-Bromofluorobenzene (S)	93	%	85-114	1		05/30/19 22:32	460-00-4	
Toluene-d8 (S)	95	%	85-114	1		05/30/19 22:32	2037-26-5	

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**QUALITY CONTROL DATA**

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 502298 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 50225929028

METHOD BLANK: 2318170 Matrix: Water  
 Associated Lab Samples: 50225929028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	2.0	05/27/19 21:45	

LABORATORY CONTROL SAMPLE: 2318171

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.2	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2318172 2318173

Parameter	Units	50225483001		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Mercury	ug/L	ND	5	5	5.3	5.5	106	109	75-125	3	20				

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 502648

Analysis Method: EPA 7471

QC Batch Method: EPA 7471

Analysis Description: 7471 Mercury

Associated Lab Samples: 50225929001, 50225929002, 50225929003, 50225929004, 50225929005, 50225929006, 50225929007, 50225929008, 50225929009, 50225929010, 50225929011, 50225929012, 50225929013, 50225929014, 50225929015, 50225929016, 50225929017, 50225929019, 50225929020, 50225929021

METHOD BLANK: 2320096

Matrix: Solid

Associated Lab Samples: 50225929001, 50225929002, 50225929003, 50225929004, 50225929005, 50225929006, 50225929007, 50225929008, 50225929009, 50225929010, 50225929011, 50225929012, 50225929013, 50225929014, 50225929015, 50225929016, 50225929017, 50225929019, 50225929020, 50225929021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.20	05/29/19 11:27	

LABORATORY CONTROL SAMPLE: 2320097

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.5	0.52	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320098 2320099

Parameter	Units	50225929004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	ND	0.63	0.57	0.67	0.60	102	101	75-125	11	20	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 502650

Analysis Method: EPA 7471

QC Batch Method: EPA 7471

Analysis Description: 7471 Mercury

Associated Lab Samples: 50225929018, 50225929022, 50225929023, 50225929024, 50225929025, 50225929026, 50225929027

METHOD BLANK: 2320104

Matrix: Solid

Associated Lab Samples: 50225929018, 50225929022, 50225929023, 50225929024, 50225929025, 50225929026, 50225929027

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.20	05/29/19 13:46	

LABORATORY CONTROL SAMPLE: 2320105

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.5	0.52	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320106 2320107

Parameter	Units	50225929018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	ND	0.57	0.57	0.58	0.61	102	106	75-125	5	20	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch:	502185	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3050	Analysis Description:	6010 MET
Associated Lab Samples:	50225929001, 50225929002, 50225929003, 50225929004, 50225929005, 50225929006, 50225929007, 50225929008, 50225929009, 50225929010, 50225929011, 50225929012, 50225929013, 50225929014, 50225929015, 50225929016, 50225929017, 50225929019, 50225929020, 50225929021		

METHOD BLANK:	2317308	Matrix:	Solid
Associated Lab Samples:	50225929001, 50225929002, 50225929003, 50225929004, 50225929005, 50225929006, 50225929007, 50225929008, 50225929009, 50225929010, 50225929011, 50225929012, 50225929013, 50225929014, 50225929015, 50225929016, 50225929017, 50225929019, 50225929020, 50225929021		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	05/26/19 00:10	
Barium	mg/kg	ND	1.0	05/26/19 00:10	
Cadmium	mg/kg	ND	0.50	05/26/19 00:10	
Chromium	mg/kg	ND	1.0	05/26/19 00:10	
Copper	mg/kg	ND	1.0	05/26/19 00:10	
Lead	mg/kg	ND	1.0	05/26/19 00:10	
Selenium	mg/kg	ND	1.0	05/26/19 00:10	
Silver	mg/kg	ND	0.50	05/26/19 00:10	
Zinc	mg/kg	ND	1.0	05/26/19 00:10	

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	50	50.7	101	80-120	
Barium	mg/kg	50	52.5	105	80-120	
Cadmium	mg/kg	50	51.4	103	80-120	
Chromium	mg/kg	50	51.3	103	80-120	
Copper	mg/kg	50	51.0	102	80-120	
Lead	mg/kg	50	50.0	100	80-120	
Selenium	mg/kg	50	51.8	104	80-120	
Silver	mg/kg	25	25.6	102	80-120	
Zinc	mg/kg	50	51.6	103	80-120	

Parameter	Units	2317310		2317311		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		50225929004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Arsenic	mg/kg	9.3	60.7	59.9	62.2	60.6	87	86	75-125	3	20	
Barium	mg/kg	87.5	60.7	59.9	162	171	123	139	75-125	5	20	M0
Cadmium	mg/kg	ND	60.7	59.9	54.2	53.8	89	89	75-125	1	20	
Chromium	mg/kg	22.8	60.7	59.9	79.3	78.7	93	93	75-125	1	20	
Copper	mg/kg	21.7	60.7	59.9	79.1	76.2	95	91	75-125	4	20	
Lead	mg/kg	9.4	60.7	59.9	58.9	55.1	82	76	75-125	7	20	
Selenium	mg/kg	ND	60.7	59.9	51.4	51.2	84	85	75-125	0	20	
Silver	mg/kg	ND	30.3	30	27.6	27.5	91	92	75-125	0	20	

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**QUALITY CONTROL DATA**

Project: The Butler Co.

Pace Project No.: 50225929

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2317310												2317311		
Parameter	Units	50225929004		MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	RPD	Qual
		Result	Conc.	Spike	Spike									
Zinc	mg/kg	57.7	60.7	59.9	123	113	107	92	75-125	8	20			

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch:	502186	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3050	Analysis Description:	6010 MET
Associated Lab Samples:	50225929018, 50225929022, 50225929023, 50225929024, 50225929025, 50225929026, 50225929027		

METHOD BLANK: 2317312 Matrix: Solid  
Associated Lab Samples: 50225929018, 50225929022, 50225929023, 50225929024, 50225929025, 50225929026, 50225929027

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	05/26/19 01:23	
Barium	mg/kg	ND	1.0	05/26/19 01:23	
Cadmium	mg/kg	ND	0.50	05/26/19 01:23	
Chromium	mg/kg	ND	1.0	05/26/19 01:23	
Copper	mg/kg	ND	1.0	05/26/19 01:23	
Lead	mg/kg	ND	1.0	05/26/19 01:23	
Selenium	mg/kg	ND	1.0	05/26/19 01:23	
Silver	mg/kg	ND	0.50	05/26/19 01:23	
Zinc	mg/kg	ND	1.0	05/26/19 01:23	

LABORATORY CONTROL SAMPLE: 2317313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	50	47.5	95	80-120	
Barium	mg/kg	50	48.1	96	80-120	
Cadmium	mg/kg	50	47.4	95	80-120	
Chromium	mg/kg	50	47.0	94	80-120	
Copper	mg/kg	50	46.5	93	80-120	
Lead	mg/kg	50	46.3	93	80-120	
Selenium	mg/kg	50	47.5	95	80-120	
Silver	mg/kg	25	24.2	97	80-120	
Zinc	mg/kg	50	47.3	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2317314 2317315

Parameter	Units	MS 50225398001		MSD		MS 2317315		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Arsenic	mg/kg	6.9	47.1	47.7	49.9	54.6	91	100	75-125	9	20		
Barium	mg/kg	31.6	47.1	47.7	78.7	78.9	100	99	75-125	0	20		
Cadmium	mg/kg	ND	47.1	47.7	43.8	46.3	93	96	75-125	5	20		
Chromium	mg/kg	8.7	47.1	47.7	47.2	50.8	82	88	75-125	7	20		
Copper	mg/kg	13.1	47.1	47.7	53.4	57.8	86	94	75-125	8	20		
Lead	mg/kg	5.6	47.1	47.7	40.3	43.2	74	79	75-125	7	20	MO	
Selenium	mg/kg	ND	47.1	47.7	42.5	44.9	90	93	75-125	5	20		
Silver	mg/kg	ND	23.5	23.9	23.2	24.6	98	102	75-125	6	20		
Zinc	mg/kg	34.3	47.1	47.7	68.4	75.1	72	85	75-125	9	20	MO	

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**QUALITY CONTROL DATA**

Project: The Butler Co.

Pace Project No.: 50225929

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2317316 2317317												
Parameter	Units	50225929018		MSD		MSD		MS		MSD		
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	13.8	55.8	58.5	58.5	64.2	80	86	75-125	9	20	
Barium	mg/kg	85.2	55.8	58.5	123	147	67	106	75-125	18	20	M0
Cadmium	mg/kg	ND	55.8	58.5	44.1	51.2	78	87	75-125	15	20	
Chromium	mg/kg	23.5	55.8	58.5	64.6	75.4	74	89	75-125	15	20	M0
Copper	mg/kg	25.9	55.8	58.5	69.0	74.8	77	84	75-125	8	20	
Lead	mg/kg	12.6	55.8	58.5	52.5	58.9	71	79	75-125	11	20	M0
Selenium	mg/kg	ND	55.8	58.5	42.2	49.0	76	84	75-125	15	20	
Silver	mg/kg	ND	27.9	29.2	22.4	26.0	80	89	75-125	15	20	
Zinc	mg/kg	77.6	55.8	58.5	116	125	68	81	75-125	8	20	M0

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**QUALITY CONTROL DATA**

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch:	506440	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET TCLP
Associated Lab Samples:	50225929005		

METHOD BLANK: 2336962 Matrix: Water  
Associated Lab Samples: 50225929005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	mg/L	ND	0.010	06/15/19 01:37	

LABORATORY CONTROL SAMPLE: 2336963

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	mg/L	1	0.93	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2336964 2336965

Parameter	Units	50225929005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	mg/L	30.6	10	10	38.7	38.3	81	77	50-150	1	20	

MATRIX SPIKE SAMPLE: 2336966

Parameter	Units	50226729001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/L	ND	10	8.8	88	50-150	

MATRIX SPIKE SAMPLE: 2336967

Parameter	Units	50226868001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/L	ND	10	9.5	95	50-150	

MATRIX SPIKE SAMPLE: 2336968

Parameter	Units	50226870001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/L	ND	10	9.1	91	50-150	

MATRIX SPIKE SAMPLE: 2336969

Parameter	Units	50227410002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/L	ND	10	8.8	88	50-150	

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**QUALITY CONTROL DATA**

Project: The Butler Co.

Pace Project No.: 50225929

MATRIX SPIKE SAMPLE:		2336970					
Parameter	Units	50227700001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/L	0.43	10	9.6	91	50-150	

MATRIX SPIKE SAMPLE:		2336971					
Parameter	Units	50227703001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/L	ND	10	9.0	90	50-150	

MATRIX SPIKE SAMPLE:		2336972					
Parameter	Units	50227716001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/L	ND	10	8.9	89	50-150	

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### QUALITY CONTROL DATA

Project: The Butler Co.  
Pace Project No.: 50225929

QC Batch: 502382 Analysis Method: EPA 6010  
QC Batch Method: EPA 3010 Analysis Description: 6010 MET  
Associated Lab Samples: 50225929028

METHOD BLANK: 2318425 Matrix: Water  
Associated Lab Samples: 50225929028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	05/27/19 09:18	
Barium	ug/L	ND	10.0	05/27/19 09:18	
Cadmium	ug/L	ND	2.0	05/27/19 09:18	
Chromium	ug/L	ND	10.0	05/27/19 09:18	
Copper	ug/L	ND	10.0	05/27/19 09:18	
Lead	ug/L	ND	10.0	05/27/19 09:18	
Selenium	ug/L	ND	10.0	05/27/19 09:18	
Silver	ug/L	ND	10.0	05/27/19 09:18	
Zinc	ug/L	ND	20.0	05/27/19 09:18	

LABORATORY CONTROL SAMPLE: 2318426

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	970	97	80-120	
Barium	ug/L	1000	1000	100	80-120	
Cadmium	ug/L	1000	1000	100	80-120	
Chromium	ug/L	1000	980	98	80-120	
Copper	ug/L	1000	997	100	80-120	
Lead	ug/L	1000	953	95	80-120	
Selenium	ug/L	1000	1010	101	80-120	
Silver	ug/L	500	488	98	80-120	
Zinc	ug/L	1000	1000	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2318427 2318428

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		50226007004	Result	Spike Conc.	Spike Conc.								
Arsenic	ug/L	ND	1000	1000	966	994	96	99	75-125	3	20		
Barium	ug/L	133	1000	1000	1110	1140	98	101	75-125	3	20		
Cadmium	ug/L	ND	1000	1000	997	1030	100	103	75-125	3	20		
Chromium	ug/L	ND	1000	1000	943	974	94	97	75-125	3	20		
Copper	ug/L	ND	1000	1000	984	1010	98	101	75-125	3	20		
Lead	ug/L	ND	1000	1000	910	931	91	93	75-125	2	20		
Selenium	ug/L	ND	1000	1000	1000	1020	100	102	75-125	2	20		
Silver	ug/L	ND	500	500	487	498	97	100	75-125	2	20		
Zinc	ug/L	ND	1000	1000	953	984	95	98	75-125	3	20		

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 503512 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV  
Associated Lab Samples: 50225929028, 50225929029

METHOD BLANK: 2323503 Matrix: Water

Associated Lab Samples: 50225929028, 50225929029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	5.0	05/30/19 12:42	
1,1,1-Trichloroethane	ug/L	ND	5.0	05/30/19 12:42	
1,1,2,2-Tetrachloroethane	ug/L	ND	5.0	05/30/19 12:42	
1,1,2-Trichloroethane	ug/L	ND	5.0	05/30/19 12:42	
1,1-Dichloroethane	ug/L	ND	5.0	05/30/19 12:42	
1,1-Dichloroethene	ug/L	ND	5.0	05/30/19 12:42	
1,1-Dichloropropene	ug/L	ND	5.0	05/30/19 12:42	
1,2,3-Trichlorobenzene	ug/L	ND	5.0	05/30/19 12:42	
1,2,3-Trichloropropane	ug/L	ND	5.0	05/30/19 12:42	
1,2,4-Trichlorobenzene	ug/L	ND	5.0	05/30/19 12:42	
1,2,4-Trimethylbenzene	ug/L	ND	5.0	05/30/19 12:42	
1,2-Dibromoethane (EDB)	ug/L	ND	5.0	05/30/19 12:42	
1,2-Dichlorobenzene	ug/L	ND	5.0	05/30/19 12:42	
1,2-Dichloroethane	ug/L	ND	5.0	05/30/19 12:42	
1,2-Dichloropropane	ug/L	ND	5.0	05/30/19 12:42	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	05/30/19 12:42	
1,3-Dichlorobenzene	ug/L	ND	5.0	05/30/19 12:42	
1,3-Dichloropropane	ug/L	ND	5.0	05/30/19 12:42	
1,4-Dichlorobenzene	ug/L	ND	5.0	05/30/19 12:42	
2,2-Dichloropropane	ug/L	ND	5.0	05/30/19 12:42	
2-Butanone (MEK)	ug/L	ND	25.0	05/30/19 12:42	
2-Chlorotoluene	ug/L	ND	5.0	05/30/19 12:42	
2-Hexanone	ug/L	ND	25.0	05/30/19 12:42	
4-Chlorotoluene	ug/L	ND	5.0	05/30/19 12:42	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	25.0	05/30/19 12:42	
Acetone	ug/L	ND	100	05/30/19 12:42	
Acrolein	ug/L	ND	50.0	05/30/19 12:42	
Acrylonitrile	ug/L	ND	100	05/30/19 12:42	
Benzene	ug/L	ND	5.0	05/30/19 12:42	
Bromobenzene	ug/L	ND	5.0	05/30/19 12:42	
Bromochloromethane	ug/L	ND	5.0	05/30/19 12:42	
Bromodichloromethane	ug/L	ND	5.0	05/30/19 12:42	
Bromoform	ug/L	ND	5.0	05/30/19 12:42	
Bromomethane	ug/L	ND	5.0	05/30/19 12:42	
Carbon disulfide	ug/L	ND	10.0	05/30/19 12:42	
Carbon tetrachloride	ug/L	ND	5.0	05/30/19 12:42	
Chlorobenzene	ug/L	ND	5.0	05/30/19 12:42	
Chloroethane	ug/L	ND	5.0	05/30/19 12:42	
Chloroform	ug/L	ND	5.0	05/30/19 12:42	
Chloromethane	ug/L	ND	5.0	05/30/19 12:42	
cis-1,2-Dichloroethene	ug/L	ND	5.0	05/30/19 12:42	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

METHOD BLANK: 2323503

Matrix: Water

Associated Lab Samples: 50225929028, 50225929029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,3-Dichloropropene	ug/L	ND	5.0	05/30/19 12:42	
Dibromochloromethane	ug/L	ND	5.0	05/30/19 12:42	
Dibromomethane	ug/L	ND	5.0	05/30/19 12:42	
Dichlorodifluoromethane	ug/L	ND	5.0	05/30/19 12:42	
Ethyl methacrylate	ug/L	ND	100	05/30/19 12:42	
Ethylbenzene	ug/L	ND	5.0	05/30/19 12:42	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	05/30/19 12:42	
Iodomethane	ug/L	ND	10.0	05/30/19 12:42	
Isopropylbenzene (Cumene)	ug/L	ND	5.0	05/30/19 12:42	
Methyl-tert-butyl ether	ug/L	ND	4.0	05/30/19 12:42	
Methylene Chloride	ug/L	ND	5.0	05/30/19 12:42	
n-Butylbenzene	ug/L	ND	5.0	05/30/19 12:42	
n-Hexane	ug/L	ND	5.0	05/30/19 12:42	
n-Propylbenzene	ug/L	ND	5.0	05/30/19 12:42	
p-Isopropyltoluene	ug/L	ND	5.0	05/30/19 12:42	
sec-Butylbenzene	ug/L	ND	5.0	05/30/19 12:42	
Styrene	ug/L	ND	5.0	05/30/19 12:42	
tert-Butylbenzene	ug/L	ND	5.0	05/30/19 12:42	
Tetrachloroethene	ug/L	ND	5.0	05/30/19 12:42	
Toluene	ug/L	ND	5.0	05/30/19 12:42	
trans-1,2-Dichloroethene	ug/L	ND	5.0	05/30/19 12:42	
trans-1,3-Dichloropropene	ug/L	ND	5.0	05/30/19 12:42	
trans-1,4-Dichloro-2-butene	ug/L	ND	100	05/30/19 12:42	
Trichloroethene	ug/L	ND	5.0	05/30/19 12:42	
Trichlorofluoromethane	ug/L	ND	5.0	05/30/19 12:42	
Vinyl acetate	ug/L	ND	50.0	05/30/19 12:42	
Vinyl chloride	ug/L	ND	2.0	05/30/19 12:42	
Xylene (Total)	ug/L	ND	10.0	05/30/19 12:42	
4-Bromofluorobenzene (S)	%	92	85-114	05/30/19 12:42	
Dibromofluoromethane (S)	%	107	80-122	05/30/19 12:42	
Toluene-d8 (S)	%	91	85-114	05/30/19 12:42	

LABORATORY CONTROL SAMPLE: 2323504

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.4	107	78-120	
1,1,1-Trichloroethane	ug/L	50	60.4	121	72-127	
1,1,2,2-Tetrachloroethane	ug/L	50	41.5	83	70-124	
1,1,2-Trichloroethane	ug/L	50	47.7	95	79-121	
1,1-Dichloroethane	ug/L	50	52.7	105	70-119	
1,1-Dichloroethene	ug/L	50	61.8	124	71-126	
1,1-Dichloropropene	ug/L	50	56.0	112	76-122	
1,2,3-Trichlorobenzene	ug/L	50	57.9	116	71-126	
1,2,3-Trichloropropane	ug/L	50	47.7	95	75-119	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

LABORATORY CONTROL SAMPLE: 2323504

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	60.4	121	68-130	
1,2,4-Trimethylbenzene	ug/L	50	46.2	92	79-117	
1,2-Dibromoethane (EDB)	ug/L	50	48.4	97	81-119	
1,2-Dichlorobenzene	ug/L	50	49.7	99	78-114	
1,2-Dichloroethane	ug/L	50	52.5	105	68-119	
1,2-Dichloropropane	ug/L	50	48.1	96	79-126	
1,3,5-Trimethylbenzene	ug/L	50	46.2	92	78-118	
1,3-Dichlorobenzene	ug/L	50	51.7	103	77-114	
1,3-Dichloropropane	ug/L	50	51.3	103	82-124	
1,4-Dichlorobenzene	ug/L	50	50.8	102	77-111	
2,2-Dichloropropane	ug/L	50	57.3	115	53-137	
2-Butanone (MEK)	ug/L	250	246	98	62-140	
2-Chlorotoluene	ug/L	50	48.2	96	76-120	
2-Hexanone	ug/L	250	205	82	62-143	
4-Chlorotoluene	ug/L	50	50.4	101	78-114	
4-Methyl-2-pentanone (MIBK)	ug/L	250	204	82	60-143	
Acetone	ug/L	250	220	88	44-156	
Acrolein	ug/L	1000	802	80	17-189	
Acrylonitrile	ug/L	200	177	88	58-139	
Benzene	ug/L	50	53.2	106	78-117	
Bromobenzene	ug/L	50	50.9	102	76-114	
Bromochloromethane	ug/L	50	47.4	95	70-122	
Bromodichloromethane	ug/L	50	48.4	97	72-121	
Bromoform	ug/L	50	44.1	88	66-117	
Bromomethane	ug/L	50	38.9	78	20-176	
Carbon disulfide	ug/L	50	57.5	115	65-124	
Carbon tetrachloride	ug/L	50	59.0	118	68-132	
Chlorobenzene	ug/L	50	54.8	110	79-113	
Chloroethane	ug/L	50	51.2	102	62-140	
Chloroform	ug/L	50	50.6	101	73-118	
Chloromethane	ug/L	50	35.0	70	36-132	
cis-1,2-Dichloroethene	ug/L	50	53.1	106	74-122	
cis-1,3-Dichloropropene	ug/L	50	51.2	102	79-126	
Dibromochloromethane	ug/L	50	48.9	98	75-121	
Dibromomethane	ug/L	50	52.8	106	75-123	
Dichlorodifluoromethane	ug/L	50	66.7	133	27-172	
Ethyl methacrylate	ug/L	200	178	89	72-134	
Ethylbenzene	ug/L	50	56.6	113	80-118	
Hexachloro-1,3-butadiene	ug/L	50	72.8	146	71-141	L1
Iodomethane	ug/L	100	114	114	10-186	
Isopropylbenzene (Cumene)	ug/L	50	56.5	113	82-120	
Methyl-tert-butyl ether	ug/L	50	53.5	107	72-128	
Methylene Chloride	ug/L	50	50.3	101	70-121	
n-Butylbenzene	ug/L	50	48.6	97	76-123	
n-Hexane	ug/L	50	54.4	109	58-149	
n-Propylbenzene	ug/L	50	47.7	95	80-122	
p-Isopropyltoluene	ug/L	50	51.8	104	79-121	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

LABORATORY CONTROL SAMPLE: 2323504

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
sec-Butylbenzene	ug/L	50	50.1	100	78-124	
Styrene	ug/L	50	53.0	106	80-119	
tert-Butylbenzene	ug/L	50	40.4	81	62-102	
Tetrachloroethene	ug/L	50	66.8	134	76-124	L1
Toluene	ug/L	50	51.4	103	78-116	
trans-1,2-Dichloroethene	ug/L	50	60.1	120	73-121	
trans-1,3-Dichloropropene	ug/L	50	48.1	96	73-126	
trans-1,4-Dichloro-2-butene	ug/L	200	169	85	42-138	
Trichloroethene	ug/L	50	57.1	114	76-120	
Trichlorofluoromethane	ug/L	50	63.3	127	60-138	
Vinyl acetate	ug/L	200	151	75	29-200	
Vinyl chloride	ug/L	50	49.2	98	70-136	
Xylene (Total)	ug/L	150	165	110	79-119	
4-Bromofluorobenzene (S)	%			95	85-114	
Dibromofluoromethane (S)	%			97	80-122	
Toluene-d8 (S)	%			94	85-114	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2323505 2323506

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		50225488004 Result	Spike Conc.	Spike Conc.	Result						
1,1,1,2-Tetrachloroethane	ug/L	ND	50	50	53.4	56.5	107	113	44-142	6	20
1,1,1-Trichloroethane	ug/L	ND	50	50	55.6	58.5	111	117	48-145	5	20
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	41.2	44.3	82	89	44-139	7	20
1,1,2-Trichloroethane	ug/L	ND	50	50	46.6	47.8	93	96	49-140	2	20
1,1-Dichloroethane	ug/L	ND	50	50	51.1	55.5	102	111	38-142	8	20
1,1-Dichloroethene	ug/L	ND	50	50	55.9	60.9	112	122	46-148	8	20
1,1-Dichloropropene	ug/L	ND	50	50	56.5	57.8	113	116	47-142	2	20
1,2,3-Trichlorobenzene	ug/L	ND	50	50	57.0	58.6	114	117	34-139	3	20
1,2,3-Trichloropropane	ug/L	ND	50	50	48.4	52.3	97	105	44-140	8	20
1,2,4-Trichlorobenzene	ug/L	ND	50	50	58.8	59.5	118	119	31-142	1	20
1,2,4-Trimethylbenzene	ug/L	ND	50	50	43.6	46.1	87	92	39-140	6	20
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	51.0	54.5	102	109	47-143	7	20
1,2-Dichlorobenzene	ug/L	ND	50	50	49.7	52.5	99	105	40-135	6	20
1,2-Dichloroethane	ug/L	ND	50	50	51.0	53.9	102	108	44-138	5	20
1,2-Dichloropropane	ug/L	ND	50	50	50.7	52.7	101	105	53-142	4	20
1,3,5-Trimethylbenzene	ug/L	ND	50	50	44.6	46.8	89	94	36-142	5	20
1,3-Dichlorobenzene	ug/L	ND	50	50	52.0	53.9	104	108	37-136	4	20
1,3-Dichloropropane	ug/L	ND	50	50	49.9	54.0	100	108	47-145	8	20
1,4-Dichlorobenzene	ug/L	ND	50	50	49.8	52.7	100	105	38-132	6	20
2,2-Dichloropropane	ug/L	ND	50	50	54.6	57.6	109	115	19-147	5	20
2-Butanone (MEK)	ug/L	ND	250	250	208	224	83	90	36-153	7	20
2-Chlorotoluene	ug/L	ND	50	50	44.3	47.1	89	94	37-143	6	20
2-Hexanone	ug/L	ND	250	250	191	212	76	85	38-149	10	20
4-Chlorotoluene	ug/L	ND	50	50	48.2	51.6	96	103	38-137	7	20

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### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: The Butler Co.

Pace Project No.: 50225929

Parameter	Units	50225488004		2323505		2323506		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
4-Methyl-2-pentanone (MIBK)	ug/L	ND	250	250	187	206	75	82	43-145	9	20			
Acetone	ug/L	ND	250	250	199	210	79	84	21-161	5	20			
Acrolein	ug/L	ND	1000	1000	709	756	71	76	17-153	6	20			
Acrylonitrile	ug/L	ND	200	200	164	172	82	86	40-141	5	20			
Benzene	ug/L	ND	50	50	52.8	54.9	106	110	49-140	4	20			
Bromobenzene	ug/L	ND	50	50	49.1	52.3	98	105	39-137	6	20			
Bromochloromethane	ug/L	ND	50	50	45.5	51.1	91	102	50-132	12	20			
Bromodichloromethane	ug/L	ND	50	50	48.2	49.5	96	99	42-139	3	20			
Bromoform	ug/L	ND	50	50	44.5	47.3	89	95	29-135	6	20			
Bromomethane	ug/L	ND	50	50	41.4	45.8	83	92	10-162	10	20			
Carbon disulfide	ug/L	ND	50	50	51.0	54.3	102	109	33-144	6	20			
Carbon tetrachloride	ug/L	ND	50	50	56.8	59.2	114	118	45-148	4	20			
Chlorobenzene	ug/L	ND	50	50	52.4	55.3	105	111	47-135	5	20			
Chloroethane	ug/L	ND	50	50	46.4	45.5	93	91	41-149	2	20			
Chloroform	ug/L	ND	50	50	51.7	53.7	103	107	49-136	4	20			
Chloromethane	ug/L	ND	50	50	32.5	34.1	65	68	17-138	5	20			
cis-1,2-Dichloroethene	ug/L	ND	50	50	55.2	57.6	110	115	46-143	4	20			
cis-1,3-Dichloropropene	ug/L	ND	50	50	49.3	52.9	99	106	44-142	7	20			
Dibromochloromethane	ug/L	ND	50	50	49.1	52.5	98	105	41-141	7	20			
Dibromomethane	ug/L	ND	50	50	48.3	53.1	97	106	46-140	9	20			
Dichlorodifluoromethane	ug/L	ND	50	50	47.6	49.7	95	99	10-193	4	20			
Ethyl methacrylate	ug/L	ND	200	200	170	184	85	92	45-145	8	20			
Ethylbenzene	ug/L	ND	50	50	52.7	54.7	105	109	44-145	4	20			
Hexachloro-1,3-butadiene	ug/L	ND	50	50	68.8	66.3	138	133	27-158	4	20			
Iodomethane	ug/L	ND	100	100	116	128	116	128	10-172	10	20			
Isopropylbenzene (Cumene)	ug/L	ND	50	50	52.8	56.0	106	112	43-148	6	20			
Methyl-tert-butyl ether	ug/L	ND	50	50	53.0	55.2	106	110	38-158	4	20			
Methylene Chloride	ug/L	ND	50	50	45.6	49.6	91	99	33-140	8	20			
n-Butylbenzene	ug/L	ND	50	50	43.3	44.7	87	89	35-142	3	20			
n-Hexane	ug/L	ND	50	50	51.5	54.6	103	109	32-159	6	20			
n-Propylbenzene	ug/L	ND	50	50	46.2	48.7	92	97	37-145	5	20			
p-Isopropyltoluene	ug/L	ND	50	50	48.7	50.0	97	100	37-143	3	20			
sec-Butylbenzene	ug/L	ND	50	50	45.9	48.0	92	96	40-144	5	20			
Styrene	ug/L	ND	50	50	50.9	53.6	102	107	37-143	5	20			
tert-Butylbenzene	ug/L	ND	50	50	38.4	40.1	77	80	35-114	4	20			
Tetrachloroethene	ug/L	ND	50	50	61.1	65.5	122	131	41-145	7	20			
Toluene	ug/L	ND	50	50	48.2	51.2	96	102	48-139	6	20			
trans-1,2-Dichloroethene	ug/L	ND	50	50	56.9	59.7	114	119	46-140	5	20			
trans-1,3-Dichloropropene	ug/L	ND	50	50	46.5	50.2	93	100	37-141	8	20			
trans-1,4-Dichloro-2-butene	ug/L	ND	200	200	161	175	81	87	10-166	8	20			
Trichloroethene	ug/L	ND	50	50	53.1	56.8	106	114	43-147	7	20			
Trichlorofluoromethane	ug/L	ND	50	50	57.8	60.1	116	120	39-154	4	20			
Vinyl acetate	ug/L	ND	200	200	138	147	69	73	10-181	6	20			
Vinyl chloride	ug/L	ND	50	50	43.6	47.0	87	94	49-153	8	20			

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

Parameter	Units	2323505		2323506		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		50225488004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Xylene (Total)	ug/L	ND	150	150	158	165	105	110	44-147	5	20	
4-Bromofluorobenzene (S)	%						93	95	85-114			
Dibromofluoromethane (S)	%						96	98	80-122			
Toluene-d8 (S)	%						92	93	85-114			

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 503514

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 50225929014, 50225929016, 50225929027

METHOD BLANK: 2323509

Matrix: Solid

Associated Lab Samples: 50225929014, 50225929016, 50225929027

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	mg/kg	ND	0.0050	05/31/19 00:51	
1,1,1-Trichloroethane	mg/kg	ND	0.0050	05/31/19 00:51	
1,1,2,2-Tetrachloroethane	mg/kg	ND	0.0050	05/31/19 00:51	
1,1,2-Trichloroethane	mg/kg	ND	0.0050	05/31/19 00:51	
1,1-Dichloroethane	mg/kg	ND	0.0050	05/31/19 00:51	
1,1-Dichloroethene	mg/kg	ND	0.0050	05/31/19 00:51	
1,1-Dichloropropene	mg/kg	ND	0.0050	05/31/19 00:51	
1,2,3-Trichlorobenzene	mg/kg	ND	0.0050	05/31/19 00:51	
1,2,3-Trichloropropane	mg/kg	ND	0.0050	05/31/19 00:51	
1,2,4-Trichlorobenzene	mg/kg	ND	0.0050	05/31/19 00:51	
1,2,4-Trimethylbenzene	mg/kg	ND	0.0050	05/31/19 00:51	
1,2-Dibromoethane (EDB)	mg/kg	ND	0.0050	05/31/19 00:51	
1,2-Dichlorobenzene	mg/kg	ND	0.0050	05/31/19 00:51	
1,2-Dichloroethane	mg/kg	ND	0.0050	05/31/19 00:51	
1,2-Dichloropropane	mg/kg	ND	0.0050	05/31/19 00:51	
1,3,5-Trimethylbenzene	mg/kg	ND	0.0050	05/31/19 00:51	
1,3-Dichlorobenzene	mg/kg	ND	0.0050	05/31/19 00:51	
1,3-Dichloropropane	mg/kg	ND	0.0050	05/31/19 00:51	
1,4-Dichlorobenzene	mg/kg	ND	0.0050	05/31/19 00:51	
2,2-Dichloropropane	mg/kg	ND	0.0050	05/31/19 00:51	
2-Butanone (MEK)	mg/kg	ND	0.025	05/31/19 00:51	
2-Chlorotoluene	mg/kg	ND	0.0050	05/31/19 00:51	
2-Hexanone	mg/kg	ND	0.10	05/31/19 00:51	
4-Chlorotoluene	mg/kg	ND	0.0050	05/31/19 00:51	
4-Methyl-2-pentanone (MIBK)	mg/kg	ND	0.025	05/31/19 00:51	
Acetone	mg/kg	ND	0.10	05/31/19 00:51	
Acrolein	mg/kg	ND	0.10	05/31/19 00:51	
Acrylonitrile	mg/kg	ND	0.10	05/31/19 00:51	
Benzene	mg/kg	ND	0.0050	05/31/19 00:51	
Bromobenzene	mg/kg	ND	0.0050	05/31/19 00:51	
Bromochloromethane	mg/kg	ND	0.0050	05/31/19 00:51	
Bromodichloromethane	mg/kg	ND	0.0050	05/31/19 00:51	
Bromoform	mg/kg	ND	0.0050	05/31/19 00:51	
Bromomethane	mg/kg	ND	0.0050	05/31/19 00:51	
Carbon disulfide	mg/kg	ND	0.010	05/31/19 00:51	
Carbon tetrachloride	mg/kg	ND	0.0050	05/31/19 00:51	
Chlorobenzene	mg/kg	ND	0.0050	05/31/19 00:51	
Chloroethane	mg/kg	ND	0.0050	05/31/19 00:51	
Chloroform	mg/kg	ND	0.0050	05/31/19 00:51	
Chloromethane	mg/kg	ND	0.0050	05/31/19 00:51	
cis-1,2-Dichloroethene	mg/kg	ND	0.0050	05/31/19 00:51	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

METHOD BLANK: 2323509

Matrix: Solid

Associated Lab Samples: 50225929014, 50225929016, 50225929027

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,3-Dichloropropene	mg/kg	ND	0.0050	05/31/19 00:51	
Dibromochloromethane	mg/kg	ND	0.0050	05/31/19 00:51	
Dibromomethane	mg/kg	ND	0.0050	05/31/19 00:51	
Dichlorodifluoromethane	mg/kg	ND	0.0050	05/31/19 00:51	
Ethyl methacrylate	mg/kg	ND	0.10	05/31/19 00:51	
Ethylbenzene	mg/kg	ND	0.0050	05/31/19 00:51	
Hexachloro-1,3-butadiene	mg/kg	ND	0.0050	05/31/19 00:51	
Iodomethane	mg/kg	ND	0.10	05/31/19 00:51	
Isopropylbenzene (Cumene)	mg/kg	ND	0.0050	05/31/19 00:51	
Methyl-tert-butyl ether	mg/kg	ND	0.0050	05/31/19 00:51	
Methylene Chloride	mg/kg	ND	0.020	05/31/19 00:51	
n-Butylbenzene	mg/kg	ND	0.0050	05/31/19 00:51	
n-Hexane	mg/kg	ND	0.0050	05/31/19 00:51	
n-Propylbenzene	mg/kg	ND	0.0050	05/31/19 00:51	
p-Isopropyltoluene	mg/kg	ND	0.0050	05/31/19 00:51	
sec-Butylbenzene	mg/kg	ND	0.0050	05/31/19 00:51	
Styrene	mg/kg	ND	0.0050	05/31/19 00:51	
tert-Butylbenzene	mg/kg	ND	0.0050	05/31/19 00:51	
Tetrachloroethene	mg/kg	ND	0.0050	05/31/19 00:51	
Toluene	mg/kg	ND	0.0050	05/31/19 00:51	
trans-1,2-Dichloroethene	mg/kg	ND	0.0050	05/31/19 00:51	
trans-1,3-Dichloropropene	mg/kg	ND	0.0050	05/31/19 00:51	
trans-1,4-Dichloro-2-butene	mg/kg	ND	0.10	05/31/19 00:51	
Trichloroethene	mg/kg	ND	0.0050	05/31/19 00:51	
Trichlorofluoromethane	mg/kg	ND	0.0050	05/31/19 00:51	
Vinyl acetate	mg/kg	ND	0.10	05/31/19 00:51	
Vinyl chloride	mg/kg	ND	0.0050	05/31/19 00:51	
Xylene (Total)	mg/kg	ND	0.010	05/31/19 00:51	
4-Bromofluorobenzene (S)	%	93	65-119	05/31/19 00:51	
Dibromofluoromethane (S)	%	107	77-131	05/31/19 00:51	
Toluene-d8 (S)	%	92	77-127	05/31/19 00:51	

LABORATORY CONTROL SAMPLE: 2323510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	mg/kg	0.05	0.050	101	81-122	
1,1,1-Trichloroethane	mg/kg	0.05	0.054	108	72-125	
1,1,2,2-Tetrachloroethane	mg/kg	0.05	0.039	77	70-124	
1,1,2-Trichloroethane	mg/kg	0.05	0.044	88	77-122	
1,1-Dichloroethane	mg/kg	0.05	0.049	97	69-116	
1,1-Dichloroethene	mg/kg	0.05	0.051	101	70-127	
1,1-Dichloropropene	mg/kg	0.05	0.047	93	72-122	
1,2,3-Trichlorobenzene	mg/kg	0.05	0.048	95	56-118	
1,2,3-Trichloropropane	mg/kg	0.05	0.046	92	71-124	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

LABORATORY CONTROL SAMPLE: 2323510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	mg/kg	0.05	0.045	89	50-123	
1,2,4-Trimethylbenzene	mg/kg	0.05	0.040	79	69-117	
1,2-Dibromoethane (EDB)	mg/kg	0.05	0.045	90	77-126	
1,2-Dichlorobenzene	mg/kg	0.05	0.044	89	73-115	
1,2-Dichloroethane	mg/kg	0.05	0.049	97	72-120	
1,2-Dichloropropane	mg/kg	0.05	0.045	90	77-125	
1,3,5-Trimethylbenzene	mg/kg	0.05	0.040	80	69-114	
1,3-Dichlorobenzene	mg/kg	0.05	0.044	88	66-115	
1,3-Dichloropropane	mg/kg	0.05	0.048	95	82-122	
1,4-Dichlorobenzene	mg/kg	0.05	0.042	84	66-114	
2,2-Dichloropropane	mg/kg	0.05	0.049	98	60-126	
2-Butanone (MEK)	mg/kg	0.25	0.21	84	57-145	
2-Chlorotoluene	mg/kg	0.05	0.043	85	71-117	
2-Hexanone	mg/kg	0.25	0.18	72	64-127	
4-Chlorotoluene	mg/kg	0.05	0.044	88	67-115	
4-Methyl-2-pentanone (MIBK)	mg/kg	0.25	0.19	74	60-123	
Acetone	mg/kg	0.25	0.20	80	33-174	
Acrolein	mg/kg	1	0.69	69	11-200	
Acrylonitrile	mg/kg	0.2	0.16	79	64-123	
Benzene	mg/kg	0.05	0.047	94	74-119	
Bromobenzene	mg/kg	0.05	0.046	92	73-114	
Bromochloromethane	mg/kg	0.05	0.045	90	70-118	
Bromodichloromethane	mg/kg	0.05	0.045	90	73-120	
Bromoform	mg/kg	0.05	0.042	84	65-118	
Bromomethane	mg/kg	0.05	0.036	72	37-160	
Carbon disulfide	mg/kg	0.05	0.048	97	65-123	
Carbon tetrachloride	mg/kg	0.05	0.052	104	71-125	
Chlorobenzene	mg/kg	0.05	0.048	96	76-113	
Chloroethane	mg/kg	0.05	0.044	88	59-148	
Chloroform	mg/kg	0.05	0.046	92	71-117	
Chloromethane	mg/kg	0.05	0.031	61	49-112	
cis-1,2-Dichloroethene	mg/kg	0.05	0.048	96	70-122	
cis-1,3-Dichloropropene	mg/kg	0.05	0.045	90	75-120	
Dibromochloromethane	mg/kg	0.05	0.045	90	78-121	
Dibromomethane	mg/kg	0.05	0.047	95	75-125	
Dichlorodifluoromethane	mg/kg	0.05	0.046	92	34-163	
Ethyl methacrylate	mg/kg	0.2	0.17	83	63-132	
Ethylbenzene	mg/kg	0.05	0.049	98	73-118	
Hexachloro-1,3-butadiene	mg/kg	0.05	0.060	120	61-121	
Iodomethane	mg/kg	0.1	0.10	104	71-143	
Isopropylbenzene (Cumene)	mg/kg	0.05	0.049	99	74-121	
Methyl-tert-butyl ether	mg/kg	0.05	0.050	99	74-131	
Methylene Chloride	mg/kg	0.05	0.048	96	67-128	
n-Butylbenzene	mg/kg	0.05	0.037	74	61-116	
n-Hexane	mg/kg	0.05	0.039	78	59-119	
n-Propylbenzene	mg/kg	0.05	0.041	82	70-115	
p-Isopropyltoluene	mg/kg	0.05	0.043	86	68-117	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

LABORATORY CONTROL SAMPLE: 2323510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
sec-Butylbenzene	mg/kg	0.05	0.043	86	72-117	
Styrene	mg/kg	0.05	0.047	93	75-120	
tert-Butylbenzene	mg/kg	0.05	0.036	71	55-100	
Tetrachloroethene	mg/kg	0.05	0.054	109	70-116	
Toluene	mg/kg	0.05	0.045	90	72-112	
trans-1,2-Dichloroethene	mg/kg	0.05	0.052	105	70-120	
trans-1,3-Dichloropropene	mg/kg	0.05	0.043	86	67-119	
trans-1,4-Dichloro-2-butene	mg/kg	0.2	0.15	74	57-124	
Trichloroethene	mg/kg	0.05	0.047	94	74-120	
Trichlorofluoromethane	mg/kg	0.05	0.050	100	59-139	
Vinyl acetate	mg/kg	0.2	0.13	67	70-134	L2
Vinyl chloride	mg/kg	0.05	0.041	81	58-133	
Xylene (Total)	mg/kg	0.15	0.14	96	71-119	
4-Bromofluorobenzene (S)	%			94	65-119	
Dibromofluoromethane (S)	%			96	77-131	
Toluene-d8 (S)	%			91	77-127	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 502677 Analysis Method: EPA 8082  
 QC Batch Method: EPA 3546 Analysis Description: 8082 GCS PCB  
 Associated Lab Samples: 50225929014, 50225929016, 50225929027

METHOD BLANK: 2320189 Matrix: Solid

Associated Lab Samples: 50225929014, 50225929016, 50225929027

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	ND	0.099	05/29/19 07:11	
PCB-1221 (Aroclor 1221)	mg/kg	ND	0.099	05/29/19 07:11	
PCB-1232 (Aroclor 1232)	mg/kg	ND	0.099	05/29/19 07:11	
PCB-1242 (Aroclor 1242)	mg/kg	ND	0.099	05/29/19 07:11	
PCB-1248 (Aroclor 1248)	mg/kg	ND	0.099	05/29/19 07:11	
PCB-1254 (Aroclor 1254)	mg/kg	ND	0.099	05/29/19 07:11	
PCB-1260 (Aroclor 1260)	mg/kg	ND	0.099	05/29/19 07:11	
Tetrachloro-m-xylene (S)	%	72	26-140	05/29/19 07:11	

LABORATORY CONTROL SAMPLE: 2320190

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	0.17	0.14	83	59-119	
PCB-1260 (Aroclor 1260)	mg/kg	0.17	0.14	86	57-119	
Tetrachloro-m-xylene (S)	%			80	26-140	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320193 2320194

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		50225929014 Result	Spike Conc.	Spike Conc.	Conc.								
PCB-1016 (Aroclor 1016)	mg/kg	ND	0.22	0.21	0.13	.12J	62	59	10-159			20	
PCB-1260 (Aroclor 1260)	mg/kg	ND	0.22	0.21	0.15	0.15	71	69	11-131		4	20	
Tetrachloro-m-xylene (S)	%						64	62	26-140				

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 503548

Analysis Method: EPA 8082

QC Batch Method: EPA 3510

Analysis Description: 8082 GCS PCB Mod

Associated Lab Samples: 50225929028

METHOD BLANK: 2323592

Matrix: Water

Associated Lab Samples: 50225929028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.10	05/31/19 10:58	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.20	05/31/19 10:58	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.10	05/31/19 10:58	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.10	05/31/19 10:58	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.10	05/31/19 10:58	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.10	05/31/19 10:58	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.10	05/31/19 10:58	
Tetrachloro-m-xylene (S)	%	69	10-148	05/31/19 10:58	

LABORATORY CONTROL SAMPLE: 2323593

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	5	4.5	91	45-157	
PCB-1260 (Aroclor 1260)	ug/L	5	4.1	81	42-155	
Tetrachloro-m-xylene (S)	%			72	10-148	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 502396

Analysis Method: EPA 8270 by SIM LVE

QC Batch Method: EPA 3510

Analysis Description: 8270 Water PAH LV by SIM MSSV

Associated Lab Samples: 50225929028

METHOD BLANK: 2318495

Matrix: Water

Associated Lab Samples: 50225929028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	1.0	05/24/19 15:31	
2-Methylnaphthalene	ug/L	ND	1.0	05/24/19 15:31	
Acenaphthene	ug/L	ND	1.0	05/24/19 15:31	
Acenaphthylene	ug/L	ND	1.0	05/24/19 15:31	
Anthracene	ug/L	ND	0.10	05/24/19 15:31	
Benzo(a)anthracene	ug/L	ND	0.10	05/24/19 15:31	
Benzo(a)pyrene	ug/L	ND	0.10	05/24/19 15:31	
Benzo(b)fluoranthene	ug/L	ND	0.10	05/24/19 15:31	
Benzo(g,h,i)perylene	ug/L	ND	0.10	05/24/19 15:31	
Benzo(k)fluoranthene	ug/L	ND	0.10	05/24/19 15:31	
Chrysene	ug/L	ND	0.50	05/24/19 15:31	
Dibenz(a,h)anthracene	ug/L	ND	0.10	05/24/19 15:31	
Fluoranthene	ug/L	ND	1.0	05/24/19 15:31	
Fluorene	ug/L	ND	1.0	05/24/19 15:31	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.10	05/24/19 15:31	
Naphthalene	ug/L	ND	1.0	05/24/19 15:31	
Phenanthrene	ug/L	ND	1.0	05/24/19 15:31	
Pyrene	ug/L	ND	1.0	05/24/19 15:31	
2-Fluorobiphenyl (S)	%	65	10-105	05/24/19 15:31	
p-Terphenyl-d14 (S)	%	76	10-142	05/24/19 15:31	

LABORATORY CONTROL SAMPLE: 2318496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/L	10	7.0	70	15-95	
2-Methylnaphthalene	ug/L	10	6.8	68	15-91	
Acenaphthene	ug/L	10	7.3	73	19-106	
Acenaphthylene	ug/L	10	7.7	77	24-117	
Anthracene	ug/L	10	7.5	75	34-113	
Benzo(a)anthracene	ug/L	10	8.0	80	41-141	
Benzo(a)pyrene	ug/L	10	8.0	80	42-148	
Benzo(b)fluoranthene	ug/L	10	8.6	86	36-157	
Benzo(g,h,i)perylene	ug/L	10	7.0	70	34-145	
Benzo(k)fluoranthene	ug/L	10	8.3	83	40-151	
Chrysene	ug/L	10	7.9	79	44-137	
Dibenz(a,h)anthracene	ug/L	10	7.3	73	34-146	
Fluoranthene	ug/L	10	8.5	85	39-146	
Fluorene	ug/L	10	7.9	79	30-116	
Indeno(1,2,3-cd)pyrene	ug/L	10	7.8	78	37-146	
Naphthalene	ug/L	10	6.9	69	15-96	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

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LABORATORY CONTROL SAMPLE: 2318496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	10	7.7	77	37-124	
Pyrene	ug/L	10	7.9	79	43-131	
2-Fluorobiphenyl (S)	%.			69	10-105	
p-Terphenyl-d14 (S)	%.			78	10-142	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 502733 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3546 Analysis Description: 8270 MSSV PAH by SIM  
 Associated Lab Samples: 50225929014, 50225929016, 50225929027

METHOD BLANK: 2320346 Matrix: Solid

Associated Lab Samples: 50225929014, 50225929016, 50225929027

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	mg/kg	ND	0.0050	05/28/19 16:05	
2-Methylnaphthalene	mg/kg	ND	0.0050	05/28/19 16:05	
Acenaphthene	mg/kg	ND	0.0050	05/28/19 16:05	
Acenaphthylene	mg/kg	ND	0.0050	05/28/19 16:05	
Anthracene	mg/kg	ND	0.0050	05/28/19 16:05	
Benzo(a)anthracene	mg/kg	ND	0.0050	05/28/19 16:05	
Benzo(a)pyrene	mg/kg	ND	0.0050	05/28/19 16:05	
Benzo(b)fluoranthene	mg/kg	ND	0.0050	05/28/19 16:05	
Benzo(g,h,i)perylene	mg/kg	ND	0.0050	05/28/19 16:05	
Benzo(k)fluoranthene	mg/kg	ND	0.0050	05/28/19 16:05	
Chrysene	mg/kg	ND	0.0050	05/28/19 16:05	
Dibenz(a,h)anthracene	mg/kg	ND	0.0050	05/28/19 16:05	
Fluoranthene	mg/kg	ND	0.0050	05/28/19 16:05	
Fluorene	mg/kg	ND	0.0050	05/28/19 16:05	
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.0050	05/28/19 16:05	
Naphthalene	mg/kg	ND	0.0050	05/28/19 16:05	
Phenanthrene	mg/kg	ND	0.0050	05/28/19 16:05	
Pyrene	mg/kg	ND	0.0050	05/28/19 16:05	
2-Fluorobiphenyl (S)	%	71	23-107	05/28/19 16:05	
p-Terphenyl-d14 (S)	%	84	16-117	05/28/19 16:05	

LABORATORY CONTROL SAMPLE: 2320347

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	mg/kg	0.33	0.24	73	44-111	
2-Methylnaphthalene	mg/kg	0.33	0.25	75	45-111	
Acenaphthene	mg/kg	0.33	0.27	80	48-109	
Acenaphthylene	mg/kg	0.33	0.27	81	49-108	
Anthracene	mg/kg	0.33	0.27	80	44-104	
Benzo(a)anthracene	mg/kg	0.33	0.31	93	46-122	
Benzo(a)pyrene	mg/kg	0.33	0.27	80	31-156	
Benzo(b)fluoranthene	mg/kg	0.33	0.26	80	29-158	
Benzo(g,h,i)perylene	mg/kg	0.33	0.25	75	35-145	
Benzo(k)fluoranthene	mg/kg	0.33	0.26	79	33-150	
Chrysene	mg/kg	0.33	0.30	92	47-120	
Dibenz(a,h)anthracene	mg/kg	0.33	0.25	74	28-160	
Fluoranthene	mg/kg	0.33	0.30	91	49-121	
Fluorene	mg/kg	0.33	0.28	84	47-116	
Indeno(1,2,3-cd)pyrene	mg/kg	0.33	0.25	76	31-155	
Naphthalene	mg/kg	0.33	0.24	71	47-103	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

LABORATORY CONTROL SAMPLE: 2320347

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	mg/kg	0.33	0.29	86	50-114	
Pyrene	mg/kg	0.33	0.30	91	49-114	
2-Fluorobiphenyl (S)	%			76	23-107	
p-Terphenyl-d14 (S)	%			94	16-117	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320457 2320458

Parameter	Units	50225929016		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec						
1-Methylnaphthalene	mg/kg	ND	0.42	0.42	0.29	0.29	69	69	10-145	1	20				
2-Methylnaphthalene	mg/kg	ND	0.42	0.42	0.29	0.30	70	71	10-135	2	20				
Acenaphthene	mg/kg	ND	0.42	0.42	0.32	0.31	76	73	10-138	3	20				
Acenaphthylene	mg/kg	ND	0.42	0.42	0.31	0.30	73	71	11-133	2	20				
Anthracene	mg/kg	ND	0.42	0.42	0.32	0.32	77	75	10-131	2	20				
Benzo(a)anthracene	mg/kg	ND	0.42	0.42	0.31	0.30	74	71	10-158	3	20				
Benzo(a)pyrene	mg/kg	ND	0.42	0.42	0.26	0.25	62	60	10-174	2	20				
Benzo(b)fluoranthene	mg/kg	ND	0.42	0.42	0.28	0.24	66	56	10-184	15	20				
Benzo(g,h,i)perylene	mg/kg	ND	0.42	0.42	0.24	0.24	58	57	10-170	1	20				
Benzo(k)fluoranthene	mg/kg	ND	0.42	0.42	0.25	0.28	60	67	10-183	12	20				
Chrysene	mg/kg	ND	0.42	0.42	0.34	0.33	80	78	10-147	2	20				
Dibenz(a,h)anthracene	mg/kg	ND	0.42	0.42	0.27	0.27	66	63	10-166	3	20				
Fluoranthene	mg/kg	ND	0.42	0.42	0.30	0.31	73	73	10-158	2	20				
Fluorene	mg/kg	ND	0.42	0.42	0.32	0.32	75	75	10-142	0	20				
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.42	0.42	0.25	0.25	59	58	11-167	1	20				
Naphthalene	mg/kg	ND	0.42	0.42	0.29	0.30	70	72	13-128	4	20				
Phenanthrene	mg/kg	ND	0.42	0.42	0.29	0.30	69	71	10-164	3	20				
Pyrene	mg/kg	ND	0.42	0.42	0.32	0.32	75	76	10-152	1	20				
2-Fluorobiphenyl (S)	%						71	70	23-107						
p-Terphenyl-d14 (S)	%						75	69	16-117						

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

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QC Batch:	502791	Analysis Method:	SM 2540G
QC Batch Method:	SM 2540G	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	50225929001, 50225929002, 50225929003, 50225929004, 50225929005, 50225929006, 50225929007, 50225929008, 50225929009, 50225929010, 50225929011, 50225929012, 50225929013, 50225929014, 50225929015, 50225929016		

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SAMPLE DUPLICATE: 2320500

Parameter	Units	50225763001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.7	19.0	2	5	

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SAMPLE DUPLICATE: 2320501

Parameter	Units	50225929004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.4	18.3	6	5	R1

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50225929

QC Batch: 502847 Analysis Method: SM 2540G

QC Batch Method: SM 2540G Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 50225929017, 50225929018, 50225929019, 50225929020, 50225929021, 50225929022, 50225929023, 50225929024, 50225929025, 50225929026, 50225929027

SAMPLE DUPLICATE: 2320677

Parameter	Units	50225929018 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	16.9	15.8	6	5	R1

SAMPLE DUPLICATE: 2320678

Parameter	Units	50225957001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.0	17.2	5	5	

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## QUALIFIERS

Project: The Butler Co.

Pace Project No.: 50225929

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

### BATCH QUALIFIERS

Batch: 502396

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 503548

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

H7 Re-extraction or re-analysis could not be performed within method holding time.

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: The Butler Co.  
Pace Project No.: 50225929

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50225929014	BC-GP7-SB1 (3-4)	EPA 3546	502677	EPA 8082	502765
50225929016	BC-GP8-SB1 (3-4)	EPA 3546	502677	EPA 8082	502765
50225929027	BC-SB-FD3	EPA 3546	502677	EPA 8082	502765
50225929028	BC-EB-SB1	EPA 3510	503548	EPA 8082	503619
50225929001	BC-GP1-SS1 (1-2)	EPA 3050	502185	EPA 6010	502614
50225929002	BC-GP1-SB1 (3-4)	EPA 3050	502185	EPA 6010	502614
50225929003	BC-GP2-SS1 (0.5-1.5)	EPA 3050	502185	EPA 6010	502614
50225929004	BC-GP2-SB1 (3-4)	EPA 3050	502185	EPA 6010	502614
50225929005	BC-GP3-SS1 (1-2)	EPA 3050	502185	EPA 6010	502614
50225929006	BC-GP3-SB1 (3-4)	EPA 3050	502185	EPA 6010	502614
50225929007	BC-GP4-SS1 (1-2)	EPA 3050	502185	EPA 6010	502614
50225929008	BC-GP4-SB1 (3-4)	EPA 3050	502185	EPA 6010	502614
50225929009	BC-GP5-SS1 (2-3)	EPA 3050	502185	EPA 6010	502614
50225929010	BC-GP5-SB1 (3.5-4)	EPA 3050	502185	EPA 6010	502614
50225929011	BC-GP6-SS1 (1-2)	EPA 3050	502185	EPA 6010	502614
50225929012	BC-GP6-SB1 (3-4)	EPA 3050	502185	EPA 6010	502614
50225929013	BC-GP7-SS1 (1-2)	EPA 3050	502185	EPA 6010	502614
50225929014	BC-GP7-SB1 (3-4)	EPA 3050	502185	EPA 6010	502614
50225929015	BC-GP8-SS1 (2-3)	EPA 3050	502185	EPA 6010	502614
50225929016	BC-GP8-SB1 (3-4)	EPA 3050	502185	EPA 6010	502614
50225929017	BC-GP9-SS1 (1-2)	EPA 3050	502185	EPA 6010	502614
50225929018	BC-GP9-SB1 (3-4)	EPA 3050	502186	EPA 6010	502616
50225929019	BC-GP10-SS1 (1-2)	EPA 3050	502185	EPA 6010	502614
50225929020	BC-GP11-SS1 (0.5-1.5)	EPA 3050	502185	EPA 6010	502614
50225929021	BC-GP12-SS1 (1-2)	EPA 3050	502185	EPA 6010	502614
50225929022	BC-GP13-SS1 (1-2)	EPA 3050	502186	EPA 6010	502616
50225929023	BC-GP14-SS1 (0.5-1.5)	EPA 3050	502186	EPA 6010	502616
50225929024	BC-GP15-SS1 (0.5-1)	EPA 3050	502186	EPA 6010	502616
50225929025	BC-SB-FD1	EPA 3050	502186	EPA 6010	502616
50225929026	BC-SB-FD2	EPA 3050	502186	EPA 6010	502616
50225929027	BC-SB-FD3	EPA 3050	502186	EPA 6010	502616
50225929005	BC-GP3-SS1 (1-2)	EPA 3010	506440	EPA 6010	506621
50225929028	BC-EB-SB1	EPA 3010	502382	EPA 6010	502657
50225929028	BC-EB-SB1	EPA 7470	502298	EPA 7470	502698
50225929001	BC-GP1-SS1 (1-2)	EPA 7471	502648	EPA 7471	502986
50225929002	BC-GP1-SB1 (3-4)	EPA 7471	502648	EPA 7471	502986
50225929003	BC-GP2-SS1 (0.5-1.5)	EPA 7471	502648	EPA 7471	502986
50225929004	BC-GP2-SB1 (3-4)	EPA 7471	502648	EPA 7471	502986
50225929005	BC-GP3-SS1 (1-2)	EPA 7471	502648	EPA 7471	502986
50225929006	BC-GP3-SB1 (3-4)	EPA 7471	502648	EPA 7471	502986
50225929007	BC-GP4-SS1 (1-2)	EPA 7471	502648	EPA 7471	502986
50225929008	BC-GP4-SB1 (3-4)	EPA 7471	502648	EPA 7471	502986
50225929009	BC-GP5-SS1 (2-3)	EPA 7471	502648	EPA 7471	502986
50225929010	BC-GP5-SB1 (3.5-4)	EPA 7471	502648	EPA 7471	502986

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: The Butler Co.

Pace Project No.: 50225929

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50225929011	BC-GP6-SS1 (1-2)	EPA 7471	502648	EPA 7471	502986
50225929012	BC-GP6-SB1 (3-4)	EPA 7471	502648	EPA 7471	502986
50225929013	BC-GP7-SS1 (1-2)	EPA 7471	502648	EPA 7471	502986
50225929014	BC-GP7-SB1 (3-4)	EPA 7471	502648	EPA 7471	502986
50225929015	BC-GP8-SS1 (2-3)	EPA 7471	502648	EPA 7471	502986
50225929016	BC-GP8-SB1 (3-4)	EPA 7471	502648	EPA 7471	502986
50225929017	BC-GP9-SS1 (1-2)	EPA 7471	502648	EPA 7471	502986
50225929018	BC-GP9-SB1 (3-4)	EPA 7471	502650	EPA 7471	502989
50225929019	BC-GP10-SS1 (1-2)	EPA 7471	502648	EPA 7471	502986
50225929020	BC-GP11-SS1 (0.5-1.5)	EPA 7471	502648	EPA 7471	502986
50225929021	BC-GP12-SS1 (1-2)	EPA 7471	502648	EPA 7471	502986
50225929022	BC-GP13-SS1 (1-2)	EPA 7471	502650	EPA 7471	502989
50225929023	BC-GP14-SS1 (0.5-1.5)	EPA 7471	502650	EPA 7471	502989
50225929024	BC-GP15-SS1 (0.5-1)	EPA 7471	502650	EPA 7471	502989
50225929025	BC-SB-FD1	EPA 7471	502650	EPA 7471	502989
50225929026	BC-SB-FD2	EPA 7471	502650	EPA 7471	502989
50225929027	BC-SB-FD3	EPA 7471	502650	EPA 7471	502989
50225929028	BC-EB-SB1	EPA 3510	502396	EPA 8270 by SIM LVE	502505
50225929014	BC-GP7-SB1 (3-4)	EPA 3546	502733	EPA 8270 by SIM	502939
50225929016	BC-GP8-SB1 (3-4)	EPA 3546	502733	EPA 8270 by SIM	502939
50225929027	BC-SB-FD3	EPA 3546	502733	EPA 8270 by SIM	502939
50225929028	BC-EB-SB1	EPA 8260	503512		
50225929029	BC-TB1	EPA 8260	503512		
50225929014	BC-GP7-SB1 (3-4)	EPA 8260	503514		
50225929016	BC-GP8-SB1 (3-4)	EPA 8260	503514		
50225929027	BC-SB-FD3	EPA 8260	503514		
50225929001	BC-GP1-SS1 (1-2)	SM 2540G	502791		
50225929002	BC-GP1-SB1 (3-4)	SM 2540G	502791		
50225929003	BC-GP2-SS1 (0.5-1.5)	SM 2540G	502791		
50225929004	BC-GP2-SB1 (3-4)	SM 2540G	502791		
50225929005	BC-GP3-SS1 (1-2)	SM 2540G	502791		
50225929006	BC-GP3-SB1 (3-4)	SM 2540G	502791		
50225929007	BC-GP4-SS1 (1-2)	SM 2540G	502791		
50225929008	BC-GP4-SB1 (3-4)	SM 2540G	502791		
50225929009	BC-GP5-SS1 (2-3)	SM 2540G	502791		
50225929010	BC-GP5-SB1 (3.5-4)	SM 2540G	502791		
50225929011	BC-GP6-SS1 (1-2)	SM 2540G	502791		
50225929012	BC-GP6-SB1 (3-4)	SM 2540G	502791		
50225929013	BC-GP7-SS1 (1-2)	SM 2540G	502791		
50225929014	BC-GP7-SB1 (3-4)	SM 2540G	502791		
50225929015	BC-GP8-SS1 (2-3)	SM 2540G	502791		
50225929016	BC-GP8-SB1 (3-4)	SM 2540G	502791		
50225929017	BC-GP9-SS1 (1-2)	SM 2540G	502847		
50225929018	BC-GP9-SB1 (3-4)	SM 2540G	502847		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: The Butler Co.

Pace Project No.: 50225929

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50225929019	BC-GP10-SS1 (1-2)	SM 2540G	502847		
50225929020	BC-GP11-SS1 (0.5-1.5)	SM 2540G	502847		
50225929021	BC-GP12-SS1 (1-2)	SM 2540G	502847		
50225929022	BC-GP13-SS1 (1-2)	SM 2540G	502847		
50225929023	BC-GP14-SS1 (0.5-1.5)	SM 2540G	502847		
50225929024	BC-GP15-SS1 (0.5-1)	SM 2540G	502847		
50225929025	BC-SB-FD1	SM 2540G	502847		
50225929026	BC-SB-FD2	SM 2540G	502847		
50225929027	BC-SB-FD3	SM 2540G	502847		

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# SAMPLE CONDITION UPON RECEIPT FORM

Project #: 50225929

Date/Time and Initials of person examining contents: KS/100, 5-23-19

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other NOW

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  Yes  No      Seals Intact:  Yes  No

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer: 1 2 3 4 5 6 A B C D E F      Ice Type:  Wet  Blue  None | Samples collected today and on ice:  Yes  No  N/A

Cooler Temperature: 6.0 | 1.4 | 0.8 | 1.2      Ice Visible in Sample Containers?:  Yes  No  N/A

(Initial/Corrected) Temp should be above freezing to 6°C      If temp. is Over 6°C or under 0°C, was the PM Notified?:  Yes  No  N/A

All discrepancies will be written out in the comments section below.

	Yes	No		Yes	No	N/A
Are samples from West Virginia? Document any containers out of temp.		/	All containers needing acid/base pres. Have been checked?: exceptions: VOA, coliform, LLHg, O&G, and any container with a septum cap or preserved with HCl.			
USDA Regulated Soils? (ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		/	All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.	/		
Chain of Custody Present:	/		Circle: <u>HNO3</u> H2SO4 NaOH NaOH/ZnAc			
Chain of Custody Filled Out:	X <sub>155</sub>	/	Dissolved Metals field filtered?:			/
Short Hold Time Analysis (<72hr)? Analysis: <u>TC</u>	/		Headspace Wisconsin Sulfide			/
Time 5035A TC placed in Freezer or Short Holds To Lab: <u>1200</u>			Residual Chlorine Check (SVOC 625 Pest/PCB 608)	Present	Absent	N/A
			Residual Chlorine Check (Total/Amenable/Free Cyanide)			/
Rush TAT Requested:		/	Headspace in VOA Vials (>6mm):		/	
Containers Intact?:	/		Trip Blank Present?:	/		
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID	/		Trip Blank Custody Seals?:	/		

Comments: COC unrelinquished

### Sample Container Count

CLIENT: WMM

COC PAGE 1 of 2

COC ID# \_\_\_\_\_

Project # 50225929

Sample Line Item	DG9H	VG9H	AG0U	AG1H	AG1U	AG2U	AG3S	WGFU	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	SBS		Matrix S/W/W/N/L (Soil/Water/Non-Aqueous Liquid)	pH <2	pH >9	pH >12	
																		Bulk	DI					
																		R						
1								3													52			
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13								3																

Container Codes

Glass				Plastic / Misc.			
DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass	BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
DG9H	40mL HCL amber vial	AG1H	1 liter HCL amber glass	BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass	BP1S	1 liter H2SO4 plastic		
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass	BP1U	1 liter unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG1U	1 liter unpreserved amber glass	BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
DG9U	40mL unpreserved amber vial	AG2S	500mL H2SO4 amber glass	BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass	BP2O	500mL NaOH plastic	U	Summa Can
VG9T	40mL Na Thio. clear vial	AG3S	250mL H2SO4 glass amber	BP2S	500mL H2SO4 plastic	ZPLC	Ziploc Bag
VG9U	40mL unpreserved clear vial	AG3U	250mL unpreserved amber glass	BP2U	500mL unpreserved plastic		
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass	BP2Z	500mL NaOH, Zn Ac		
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass	BP3B	250mL NaOH plastic		
WGKU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass	BP3N	250mL HNO3 plastic		
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass	BP3S	250mL H2SO4 plastic		
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass				
		BG3U	250mL Unpreserved Clear Glass				

## Sample Container Count

CLIENT: WMM

COC PAGE 2 of 2

COC ID# \_\_\_\_\_

Project # 50225927

SBS  
Kit

Matrix S/M/NAL  
(Soil/Water/Non-  
Aqueous Liquid)

Sample Line Item	DG9H VG9H	AG0U	AG1H	AG1U	AG2U	AG3S	WG9U	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	R	Matrix S/M/NAL (Soil/Water/Non- Aqueous Liquid)	pH <2	pH >9	pH >12	
1							3										3		SL			
2							3															
3							3															
4							3															
5							9															
6							3															
7																						
8																						
9																						
10																						
11																						
12																						

Container Codes

Glass				Plastic / Misc.			
DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass	BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
DG9H	40mL HCL amber vial	AG1H	1 liter HCL amber glass	BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass	BP1S	1 liter H2SO4 plastic		
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass	BP1U	1 liter unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG1U	1 liter unpreserved amber glass	BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
DG9U	40mL unpreserved amber vial	AG2S	500mL H2SO4 amber glass	BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass	BP2O	500mL NaOH plastic	U	Summa Can
VG9T	40mL Na Thio. clear vial	AG3S	250mL H2SO4 glass amber	BP2S	500mL H2SO4 plastic	ZPLC	Ziploc Bag
VG9U	40mL unpreserved clear vial	AG3U	250mL unpreserved amber glass	BP2U	500mL unpreserved plastic		
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass	BP2Z	500mL NaOH, Zn Ac		
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass	BP3B	250mL NaOH plastic		
WGKU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass	BP3N	250mL HNO3 plastic		
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass	BP3S	250mL H2SO4 plastic		
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass				
		BG3U	250mL Unpreserved Clear Glass				

Sample Container Count

WO#: 50225929



CLIENT: WMM

COC PAGE 2 of 2

COC ID#

Project # 50225929

Sample Line Item	DG9H	VG9H	AG0U	AG1H	AG1U	AG2U	AG3S	WGFU	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	R	SBS	Bdg Kit	Matrix SI/ (Soil/Water Aqueous)	pH <2	pH >9	pH >12
1	13							3													SL			
2	14							1										3			SL			
3	15	3	4												1						WT	✓		
4	16	3																			WT			
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Container Codes

Glass				Plastic / Misc.			
DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass	BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
DG9H	40mL HCL amber vial	AG1H	1 liter HCL amber glass	BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass	BP1S	1 liter H2SO4 plastic		
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass	BP1U	1 liter unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG1U	1 liter unpreserved amber glass	BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
DG9U	40mL unpreserved amber vial	AG2S	500mL H2SO4 amber glass	BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass	BP2O	500mL NaOH plastic	U	Summa Can
VG9T	40mL Na Thio. clear vial	AG3S	250mL H2SO4 glass amber	BP2S	500mL H2SO4 plastic	ZPLC	Ziptloc Bag
VG9U	40mL unpreserved clear vial	AG3U	250mL unpreserved amber glass	BP2U	500mL unpreserved plastic		
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass	BP2Z	500mL NaOH, Zn Ac		
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass	BP3B	250mL NaOH plastic		
WGKU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass	BP3N	250mL HNO3 plastic		
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass	BP3S	250mL H2SO4 plastic		
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass				
		BG3U	250mL Unpreserved Clear Glass				

July 08, 2019

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Pace Analytical - Indianapolis, IN

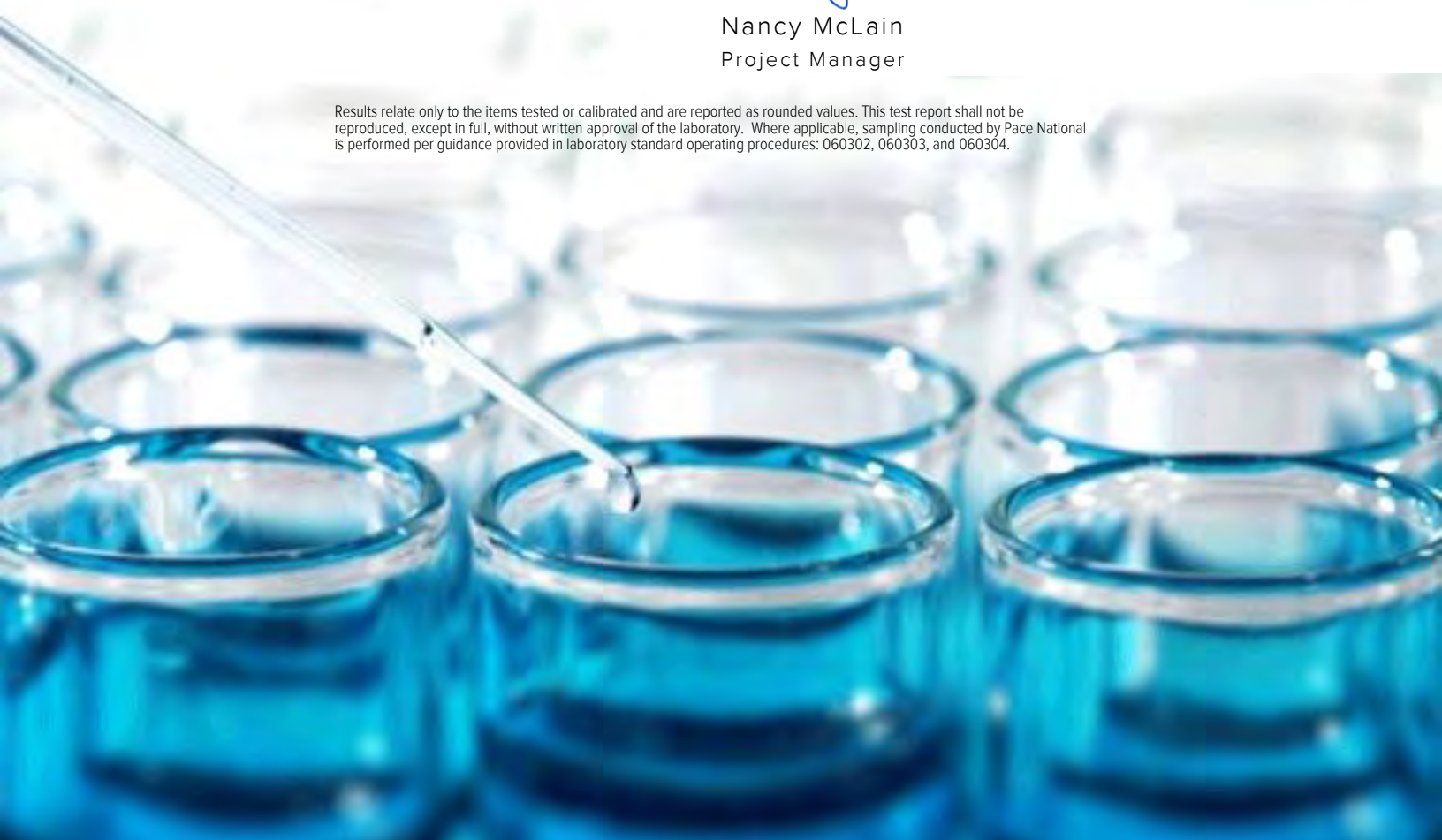
Sample Delivery Group: L1108665  
Samples Received: 06/13/2019  
Project Number: 50225929  
Description: The Butler Co.  
Site: 012  
Report To: Chris Boyle  
7726 Moller Rd.  
Indianapolis, IN 46268

Entire Report Reviewed By:



Nancy McLain  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.





<b>Cp: Cover Page</b>	<b>1</b>	<b><sup>1</sup>Cp</b>
<b>Tc: Table of Contents</b>	<b>2</b>	<b><sup>2</sup>Tc</b>
<b>Ss: Sample Summary</b>	<b>3</b>	<b><sup>3</sup>Ss</b>
<b>Cn: Case Narrative</b>	<b>4</b>	<b><sup>4</sup>Cn</b>
<b>Sr: Sample Results</b>	<b>5</b>	<b><sup>5</sup>Sr</b>
BC-GP6-SB1 (3-4) L1108665-01	<b>5</b>	
BC-GP8-SS1 (2-3) L1108665-02	<b>6</b>	
BC-GP9-SS1 (1-2) L1108665-03	<b>7</b>	
<b>Qc: Quality Control Summary</b>	<b>8</b>	<b><sup>6</sup>Qc</b>
Total Solids by Method 2540 G-2011	<b>8</b>	
Wet Chemistry by Method 7199	<b>10</b>	
<b>Gl: Glossary of Terms</b>	<b>11</b>	<b><sup>7</sup>Gl</b>
<b>Al: Accreditations &amp; Locations</b>	<b>12</b>	<b><sup>8</sup>Al</b>
<b>Sc: Sample Chain of Custody</b>	<b>13</b>	<b><sup>9</sup>Sc</b>

# SAMPLE SUMMARY

## BC-GP6-SB1 (3-4) L1108665-01 Solid

Collected by  
05/21/19 17:11      Collected date/time  
06/13/19 08:45      Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1296276	1	06/14/19 16:31	06/14/19 16:41	KDW	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1297128	1	06/17/19 13:23	06/18/19 12:24	LEB	Mt. Juliet, TN

1  
Cp

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Tc

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Ss

4  
Cn

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Sr

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Qc

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Gl

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Al

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Sc

## BC-GP8-SS1 (2-3) L1108665-02 Solid

Collected by  
05/21/19 17:19      Collected date/time  
06/13/19 08:45      Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1296276	1	06/14/19 16:31	06/14/19 16:41	KDW	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1297128	1	06/17/19 13:23	06/18/19 12:37	LEB	Mt. Juliet, TN

## BC-GP9-SS1 (1-2) L1108665-03 Solid

Collected by  
05/21/19 16:31      Collected date/time  
06/13/19 08:45      Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1296277	1	06/14/19 16:17	06/14/19 16:26	KDW	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1297128	1	06/17/19 13:23	06/18/19 12:42	LEB	Mt. Juliet, TN





All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Nancy McLain  
Project Manager

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	60.2		1	06/14/2019 16:41	<a href="#">WG1296276</a>

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc

Wet Chemistry by Method 7199

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.423	1.66	1	06/18/2019 12:24	<a href="#">WG1297128</a>

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	96.8		1	06/14/2019 16:41	<a href="#">WG1296276</a>

- <sup>1</sup>Cp
- <sup>2</sup>Tc
- <sup>3</sup>Ss
- <sup>4</sup>Cn
- <sup>5</sup>Sr
- <sup>6</sup>Qc
- <sup>7</sup>Gl
- <sup>8</sup>Al
- <sup>9</sup>Sc

Wet Chemistry by Method 7199

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.263	1.03	1	06/18/2019 12:37	<a href="#">WG1297128</a>



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	79.5		1	06/14/2019 16:26	<a href="#">WG1296277</a>

1 Cp

2 Tc

Wet Chemistry by Method 7199

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.600	J	0.321	1.26	1	06/18/2019 12:42	<a href="#">WG1297128</a>

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3421553-1 06/14/19 16:41

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1108663-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1108663-01 06/14/19 16:41 • (DUP) R3421553-3 06/14/19 16:41

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Total Solids	89.5	89.3	1	0.208		10

Laboratory Control Sample (LCS)

(LCS) R3421553-2 06/14/19 16:41

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	



Method Blank (MB)

(MB) R3421550-1 06/14/19 16:26

Analyte	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
	%		%	%
Total Solids	0.000			

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

L1108688-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1108688-01 06/14/19 16:26 • (DUP) R3421550-3 06/14/19 16:26

Analyte	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
	%	%		%		%
Total Solids	79.4	82.2	1	3.39		10

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3421550-2 06/14/19 16:26

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	



Method Blank (MB)

(MB) R3422032-1 06/18/19 12:07

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1108665-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1108665-01 06/18/19 12:24 • (DUP) R3422032-3 06/18/19 12:32

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3422032-2 06/18/19 12:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	9.81	98.1	80.0-120	

L1108665-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1108665-03 06/18/19 12:42 • (MS) R3422032-4 06/18/19 12:47 • (MSD) R3422032-5 06/18/19 12:52

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	25.1	0.600	22.7	22.2	87.9	85.8	1	75.0-125			2.29	20

L1108665-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1108665-03 06/18/19 12:42 • (MS) R3422032-6 06/18/19 12:58

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Hexavalent Chromium	1070	0.600	819	76.7	50	75.0-125	



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
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Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

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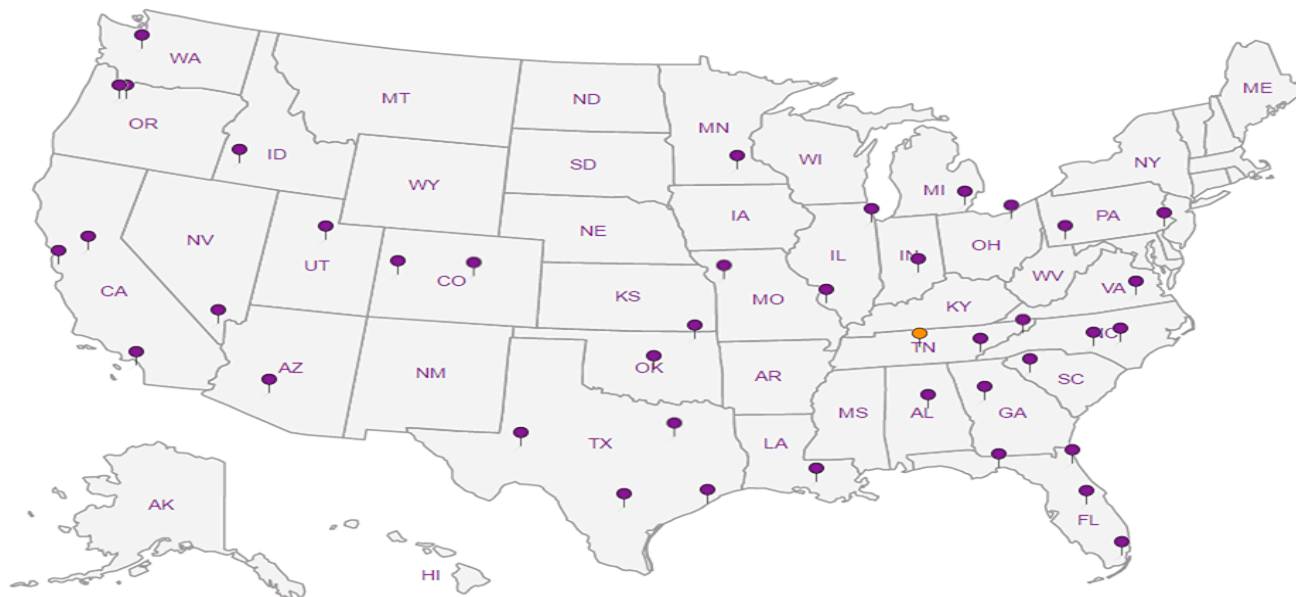
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.





# Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: IN

Cert. Needed:  Yes  No

Owner Received Date: 5/23/2019 Results Requested By: 6/20/2019

Workorder: 50225929 Workorder Name: The Butler Co.

Report To		Subcontract To					Requested Analysis																		
Chris Boyle Pace Analytical Indianapolis 7726 Moller Road Indianapolis, IN 46268 Phone (317)228-3100		Pace National Mt Juliet, TN					<div style="float: right; font-size: 2em;">L1108665</div>     <div style="float: left; font-size: 1.5em;">1077 1904 3659</div>     <div style="float: right; font-size: 0.8em;">LAB USE ONLY</div>																		
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Unpreserved											Preserved Containers				7,199 hexachrome				
1	BC-GP6-SS1 (3-4)	PS	5/21/2019 17:11	50225929012	Solid	1																	X		
2	BC-GP8-SS1 (2-3)	PS	5/21/2019 17:19	50225929015	Solid	1																	X		
3	BC-GP9-SS1 (1-2)	PS	5/21/2019 16:31	50225929017	Solid	1																	X		
4																									
5																									

Transfers					Comments				
Released By	Date/Time	Received By	Date/Time						
<i>Lucian Danna</i>	6/12/19 1630	<i>Wm</i>	6/13/19 845		OK				

Cooler Temperature on Receipt 3.8+ .2°C Custody Seal Y or (N) Received on Ice (Y) or N Samples Intact (Y) or N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.  
This chain of custody is considered complete as is since this information is available in the owner laboratory.

4.0  
A3BF

RAD SCREEN: <0.5 mR/hr

## Pace Analytical National Center for Testing & Innovation Cooler Receipt Form

Client: <u>PACEITN</u>	SDG#:	<u>L108665</u>		
Cooler Received/Opened On: <u>6 / 13 / 19</u>	Temperature:	<u>4.0</u>		
Received By: Alexandra Murtaugh				
Signature: <u>AM</u>				
Receipt Check List		NP	Yes	No
COC Seal Present / Intact?		/		
COC Signed / Accurate?			/	
Bottles arrive intact?			/	
Correct bottles used?			/	
Sufficient volume sent?			/	
If Applicable				
VOA Zero headspace?				
Preservation Correct / Checked?				

June 25, 2019

Mr. Mark Anderson  
IWM Consulting Group LLC  
1015 Production Drive  
Fort Wayne, IN 46808

RE: Project: The Butler Co.  
Pace Project No.: 50228450

Dear Mr. Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on June 20, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Chris Boyle  
chris.boyle@pacelabs.com  
(317)228-3100  
Project Manager

Enclosures

cc: Ms. Pauline Lemay, IWM Consulting Group, LLC



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: The Butler Co.

Pace Project No.: 50228450

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### Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268

Illinois Certification #: 200074

Indiana Certification #: C-49-06

Kansas/NELAP Certification #: E-10177

Kentucky UST Certification #: 80226

Kentucky WW Certification #: 98019

Michigan Department of Environmental Quality, Laboratory  
#9050

Ohio VAP Certification #: CL0065

Oklahoma Certification #: 2018-101

Texas Certification #: T104704355

West Virginia Certification #: 330

Wisconsin Certification #: 999788130

USDA Soil Permit #: P330-16-00257

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: The Butler Co.

Pace Project No.: 50228450

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50228450001	BC-GP3-N5 (1-2)	Solid	06/18/19 12:06	06/20/19 08:30
50228450002	BC-GP3-E10 (1-2)	Solid	06/18/19 14:11	06/20/19 08:30
50228450003	BC-GP3-W5 (1-2)	Solid	06/18/19 13:16	06/20/19 08:30
50228450004	BC-GP3-S10 (1-2)	Solid	06/18/19 16:20	06/20/19 08:30
50228450005	BC-GP16-N5 (1-2)	Solid	06/18/19 14:11	06/20/19 08:30
50228450006	BC-GP16-E10 (1-2)	Solid	06/18/19 15:51	06/20/19 08:30
50228450007	BC-GP16-W5 (1-2)	Solid	06/18/19 15:06	06/20/19 08:30
50228450008	BC-GP16-S10 (1-2)	Solid	06/18/19 15:41	06/20/19 08:30
50228450009	BC-SB-FD4	Solid	06/18/19 08:00	06/20/19 08:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: The Butler Co.

Pace Project No.: 50228450

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50228450001	BC-GP3-N5 (1-2)	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50228450002	BC-GP3-E10 (1-2)	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50228450003	BC-GP3-W5 (1-2)	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50228450004	BC-GP3-S10 (1-2)	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50228450005	BC-GP16-N5 (1-2)	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50228450006	BC-GP16-E10 (1-2)	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50228450007	BC-GP16-W5 (1-2)	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50228450008	BC-GP16-S10 (1-2)	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I
50228450009	BC-SB-FD4	EPA 6010	RAM	1	PASI-I
		SM 2540G	RM1	1	PASI-I

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: The Butler Co.  
Pace Project No.: 50228450

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
<b>50228450001</b>	<b>BC-GP3-N5 (1-2)</b>					
EPA 6010	Lead	51.7	mg/kg	1.1	06/24/19 13:53	
SM 2540G	Percent Moisture	15.8	%	0.10	06/20/19 11:16	
<b>50228450002</b>	<b>BC-GP3-E10 (1-2)</b>					
EPA 6010	Lead	75.6	mg/kg	1.2	06/24/19 13:55	
SM 2540G	Percent Moisture	19.0	%	0.10	06/20/19 11:16	
<b>50228450003</b>	<b>BC-GP3-W5 (1-2)</b>					
EPA 6010	Lead	307	mg/kg	1.0	06/24/19 13:58	
SM 2540G	Percent Moisture	8.4	%	0.10	06/20/19 11:16	
<b>50228450004</b>	<b>BC-GP3-S10 (1-2)</b>					
EPA 6010	Lead	660	mg/kg	1.1	06/24/19 14:09	
SM 2540G	Percent Moisture	16.9	%	0.10	06/20/19 11:17	
<b>50228450005</b>	<b>BC-GP16-N5 (1-2)</b>					
EPA 6010	Lead	49.2	mg/kg	1.2	06/24/19 14:16	
SM 2540G	Percent Moisture	24.5	%	0.10	06/20/19 11:17	
<b>50228450006</b>	<b>BC-GP16-E10 (1-2)</b>					
EPA 6010	Lead	4470	mg/kg	1.2	06/24/19 14:18	
SM 2540G	Percent Moisture	23.0	%	0.10	06/20/19 11:17	
<b>50228450007</b>	<b>BC-GP16-W5 (1-2)</b>					
EPA 6010	Lead	964	mg/kg	1.2	06/24/19 14:21	
SM 2540G	Percent Moisture	22.3	%	0.10	06/20/19 11:18	
<b>50228450008</b>	<b>BC-GP16-S10 (1-2)</b>					
EPA 6010	Lead	135	mg/kg	1.3	06/24/19 14:23	
SM 2540G	Percent Moisture	24.1	%	0.10	06/20/19 11:19	
<b>50228450009</b>	<b>BC-SB-FD4</b>					
EPA 6010	Lead	228	mg/kg	1.1	06/24/19 14:25	
SM 2540G	Percent Moisture	15.5	%	0.10	06/21/19 10:58	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

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**Sample: BC-GP3-N5 (1-2)**      **Lab ID: 50228450001**      Collected: 06/18/19 12:06      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>51.7</b>	mg/kg	1.1	1	06/21/19 13:10	06/24/19 13:53	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>15.8</b>	%	0.10	1		06/20/19 11:16		

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

**Sample: BC-GP3-E10 (1-2)**      **Lab ID: 50228450002**      Collected: 06/18/19 14:11      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>75.6</b>	mg/kg	1.2	1	06/21/19 13:10	06/24/19 13:55	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>19.0</b>	%	0.10	1		06/20/19 11:16		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

**Sample: BC-GP3-W5 (1-2)**      **Lab ID: 50228450003**      Collected: 06/18/19 13:16      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>307</b>	mg/kg	1.0	1	06/21/19 13:10	06/24/19 13:58	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>8.4</b>	%	0.10	1		06/20/19 11:16		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

**Sample: BC-GP3-S10 (1-2)**      **Lab ID: 50228450004**      Collected: 06/18/19 16:20      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>660</b>	mg/kg	1.1	1	06/21/19 13:10	06/24/19 14:09	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>16.9</b>	%	0.10	1		06/20/19 11:17		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

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**Sample: BC-GP16-N5 (1-2)**      **Lab ID: 50228450005**      Collected: 06/18/19 14:11      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>49.2</b>	mg/kg	1.2	1	06/21/19 13:10	06/24/19 14:16	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>24.5</b>	%	0.10	1		06/20/19 11:17		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

**Sample: BC-GP16-E10 (1-2)**      **Lab ID: 50228450006**      Collected: 06/18/19 15:51      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>4470</b>	mg/kg	1.2	1	06/21/19 13:10	06/24/19 14:18	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>23.0</b>	%	0.10	1		06/20/19 11:17		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

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**Sample: BC-GP16-W5 (1-2)**      **Lab ID: 50228450007**      Collected: 06/18/19 15:06      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>964</b>	mg/kg	1.2	1	06/21/19 13:10	06/24/19 14:21	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>22.3</b>	%	0.10	1		06/20/19 11:18		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

**Sample: BC-GP16-S10 (1-2)**      **Lab ID: 50228450008**      Collected: 06/18/19 15:41      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>135</b>	mg/kg	1.3	1	06/21/19 13:10	06/24/19 14:23	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>24.1</b>	%	0.10	1		06/20/19 11:19		

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50228450

**Sample: BC-SB-FD4**      **Lab ID: 50228450009**      Collected: 06/18/19 08:00      Received: 06/20/19 08:30      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010    Preparation Method: EPA 3050								
Lead	<b>228</b>	mg/kg	1.1	1	06/21/19 13:10	06/24/19 14:25	7439-92-1	
<b>Percent Moisture</b>								
Analytical Method: SM 2540G								
Percent Moisture	<b>15.5</b>	%	0.10	1		06/21/19 10:58		

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50228450

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QC Batch:	507607	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3050	Analysis Description:	6010 MET
Associated Lab Samples:	50228450001, 50228450002, 50228450003, 50228450004, 50228450005, 50228450006, 50228450007, 50228450008, 50228450009		

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METHOD BLANK:	2342424	Matrix:	Solid
Associated Lab Samples:	50228450001, 50228450002, 50228450003, 50228450004, 50228450005, 50228450006, 50228450007, 50228450008, 50228450009		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	mg/kg	ND	1.0	06/24/19 13:07	

LABORATORY CONTROL SAMPLE: 2342425

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	mg/kg	50	45.2	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2342426 2342427

Parameter	Units	50228450003		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Lead	mg/kg	307	52.9	47.1	294	315	-25	16	75-125	7	20 M3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50228450

QC Batch: 507525

Analysis Method: SM 2540G

QC Batch Method: SM 2540G

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 50228450001, 50228450002, 50228450003, 50228450004, 50228450005, 50228450006, 50228450007, 50228450008

SAMPLE DUPLICATE: 2341954

Parameter	Units	50228364001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.8	8.8	1	5	H3

SAMPLE DUPLICATE: 2341955

Parameter	Units	50228450003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.4	6.5	26	5	R1

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50228450

QC Batch: 507767

Analysis Method: SM 2540G

QC Batch Method: SM 2540G

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 50228450009

SAMPLE DUPLICATE: 2343215

Parameter	Units	50228527004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	15.3	15.0	2	5	H3

SAMPLE DUPLICATE: 2343216

Parameter	Units	50228298017 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	32.3	32.3	0	5	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: The Butler Co.

Pace Project No.: 50228450

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

### ANALYTE QUALIFIERS

H3 Sample was received or analysis requested beyond the recognized method holding time.

M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: The Butler Co.

Pace Project No.: 50228450

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50228450001	BC-GP3-N5 (1-2)	EPA 3050	507607	EPA 6010	507978
50228450002	BC-GP3-E10 (1-2)	EPA 3050	507607	EPA 6010	507978
50228450003	BC-GP3-W5 (1-2)	EPA 3050	507607	EPA 6010	507978
50228450004	BC-GP3-S10 (1-2)	EPA 3050	507607	EPA 6010	507978
50228450005	BC-GP16-N5 (1-2)	EPA 3050	507607	EPA 6010	507978
50228450006	BC-GP16-E10 (1-2)	EPA 3050	507607	EPA 6010	507978
50228450007	BC-GP16-W5 (1-2)	EPA 3050	507607	EPA 6010	507978
50228450008	BC-GP16-S10 (1-2)	EPA 3050	507607	EPA 6010	507978
50228450009	BC-SB-FD4	EPA 3050	507607	EPA 6010	507978
50228450001	BC-GP3-N5 (1-2)	SM 2540G	507525		
50228450002	BC-GP3-E10 (1-2)	SM 2540G	507525		
50228450003	BC-GP3-W5 (1-2)	SM 2540G	507525		
50228450004	BC-GP3-S10 (1-2)	SM 2540G	507525		
50228450005	BC-GP16-N5 (1-2)	SM 2540G	507525		
50228450006	BC-GP16-E10 (1-2)	SM 2540G	507525		
50228450007	BC-GP16-W5 (1-2)	SM 2540G	507525		
50228450008	BC-GP16-S10 (1-2)	SM 2540G	507525		
50228450009	BC-SB-FD4	SM 2540G	507767		

### REPORT OF LABORATORY ANALYSIS

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**SAMPLE CONDITION UPON RECEIPT FORM**

**Project #:** 50228450

**Date/Time and Initials of person examining contents:** KS 6-20-19 900

**Courier:**  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other Now

**Tracking #:** \_\_\_\_\_

**Custody Seal on Cooler/Box Present:**  Yes  No      **Seals Intact:**  Yes  No

**Packing Material:**  Bubble Wrap  Bubble Bags  None  Other Ziploc

**Thermometer:** 1 2 3 4 5 6 A @ C D E F      **Ice Type:**  Wet  Blue  None | **Samples collected today and on ice:**  Yes  No  N/A

**Cooler Temperature:** 0.4 10.6      **Ice Visible in Sample Containers?:**  Yes  No  N/A

**(Initial/Corrected) Temp should be above freezing to 6°C**      **If temp. is Over 6°C or under 0°C, was the PM Notified?:**  Yes  No  N/A

**All discrepancies will be written out in the comments section below.**

	Yes	No		Yes	No	N/A
<b>Are samples from West Virginia?</b>			All containers needing acid/base pres. Have been checked?: exceptions: VOA, coliform, LLHg, O&G, and any container with a septum cap or preserved with HCl.			
Document any containers out of temp.		/		All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
<b>USDA Regulated Soils?</b> (ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		/	Circle: HNO3 H2SO4 NaOH NaOH/ZnAc			
Chain of Custody Present:	/		Dissolved Metals field filtered?:			/
Chain of Custody Filled Out:		/	Headspace Wisconsin Sulfide			/
<b>Short Hold Time Analysis (&lt;72hr)?:</b>			Residual Chlorine Check (SVOC 625 Pest/PCB 608) Residual Chlorine Check (Total/Amenable/Free Cyanide)	Present	Absent	N/A
<b>Analysis:</b>						/
<b>Time 5035A TC placed in Freezer or Short Holds To Lab:</b>						/
<b>Rush TAT Requested:</b>		/	Headspace in VOA Vials (>6mm):			/
Containers Intact?:	/		Trip Blank Present?:		/	
Sample Label (IDs/Dates/Times) Match COC?:	/		Trip Blank Custody Seals?:		/	
Except TCs, which only require sample ID	/					

**Comments:** OC unrelinquished



Sample Container Count

WO#: 50228450



50228450

CLIENT: IWM

COC PAGE      of       
COC ID# 2021407

Project # 50228450

SBS  
Bulk Kit

Matrix S/A  
(Soil/Wate  
Aqueous I

Sample Line Item	DG9H	VG9H	AG0U	AG1H	AG1U	AG2U	AG3S	WGFU	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	R	pH <2	pH >9	pH >12	
1								2														
2								2														
3								6														
4								2														
5								↓														
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Container Codes

Glass				Plastic / Misc.			
DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass	BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
DG9H	40mL HCL amber vial	AG1H	1 liter HCL amber glass	BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass	BP1S	1 liter H2SO4 plastic		
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass	BP1U	1 liter unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG1U	1 liter unpreserved amber glass	BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
DG9U	40mL unpreserved amber vial	AG2S	500mL H2SO4 amber glass	BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass	BP2O	500mL NaOH plastic	U	Summa Can
VG9T	40mL Na Thio. clear vial	AG3S	250mL H2SO4 glass amber	BP2S	500mL H2SO4 plastic	ZPLC	Ziploc Bag
VG9U	40mL unpreserved clear vial	AG3U	250mL unpreserved amber glass	BP2U	500mL unpreserved plastic		
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass	BP2Z	500mL NaOH, Zn Ac		
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass	BP3B	250mL NaOH plastic		
WGKU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass	BP3N	250mL HNO3 plastic		
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass	BP3S	250mL H2SO4 plastic		
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass				
		BG3U	250mL Unpreserved Clear Glass				

**Report Prepared for:**

Mark Anderson  
IWM Consulting Group, LLC.  
1015 Production Road  
Fort Wayne IN 46808

**REPORT OF  
LABORATORY  
ANALYSIS  
FOR PFAAs**

**Report Prepared Date:**

June 17, 2019

**Report Information:**

**Pace Project #: 10476199**  
**Sample Receipt Date: 05/23/2019**  
**Client Project #: The Butler Co. 19716-10**  
**Client Sub PO #: N/A**  
**State Cert #: 2926.01**

**Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kirsten Hogberg, your Pace Project Manager.

**This report has been reviewed by:**



June 17, 2019

Kirsten Hogberg, Project Manager  
(612) 607-6407  
(612) 607-6444 (fax)  
kirsten.hogberg@pacelabs.com



**Report of Laboratory Analysis**

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

## **DISCUSSION**

This report presents the results from the analyses performed on eight samples and one duplicate submitted by a representative of IWM Consulting. The samples were analyzed for twenty-one perfluorinated compounds using a modified version of USEPA Method 537 Rev. 1.1. Reporting limits were set to the quantitation limits.

As per Pace SOP, the water and soil samples in this batch were analyzed separately.

For soils:

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank was free of the target perfluorinated compounds at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the analyte content determined for the sample material.

Laboratory spike samples were also prepared with the sample batch using clean reference matrix that had been fortified with native standards. The recovery results were within the method limits. The RPDs (relative percent differences) between one designated spike and its duplicate were within the method limits. These spikes indicate that extraction performed as expected.

Recoveries for isotopically-labeled surrogate standards in the sample extracts were within the target ranges specified in the method except sample 10476199002. The 10476199002 samples had recoveries for the surrogate labeled 13C2-PFDA that was lower than the method limit (flagged "Fail") by 1%. Where surrogates failed, the sample results could be biased in the same direction.

In the preliminary report, Sample 3 showed a failed D3-MeFOSAA Internal standard, elevated versus the CCV, but passing against the lcal. A dilution was performed on this sample to mitigate the effect of matrix, and this sample is now passing all standard criteria.

Results for selected analytes were taken from secondary dilutions of the sample extracts in order to reduce the impact of matrix effects. The affected values were flagged "D" on the results tables.

One of the Continuing Calibration Verifications (CCVs) had higher than expected recoveries for PFBA and PFPeA. Another Continuing Calibration Verifications (CCVs) had higher than expected recoveries for PFOA. However, the sample that uses the first

## **DISCUSSION**

CCV had non-detect recoveries for those two analytes. The sample that uses the second failing CCV was a dilution from which the failing analyte was not reported. Pace does not usually report CCV results in these reports.

For the waters:

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. With the exception of the target surrogate d5-EtFOSAA, the results show the blank was free of the target perfluorinated compounds at the reporting limits. Where surrogates failed, the sample results could be biased in the same direction.

Laboratory spike samples were also prepared with the sample batch using clean reference matrix that had been fortified with native standards. The recovery results were within the method limits with the exception of PFUdA, N-EtFOSAA, PFDS, PFDoA, PFTrDA, PFTeDA, PFHxDA, and PFODA in LCSD-70779 (flagged "R"). The RPDs (relative percent differences) between one designated spike and its duplicate were within the method limits with the exception of PFUdA, N-EtFOSAA, PFDS, PFDoA, PFTrDA, PFTeDA, PFHxDA, and PFODA due to low recoveries in LCSD-70779. This indicates the possibility of a similar loss to the analytes in the water samples. The Alternate Laboratory Control Spike passed all criteria.

It should be noted that Pace Analytical has not yet completed the certification process for all analytes in this method. Therefore, the results have been marked "N2" as qualified. Results for the low level spikes that were below the calibration range were flagged "J".

## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
A2LA	2926.01	Minnesota - Pet	1240
Alabama	40770	Mississippi	MN00064
Alaska - DW	MN00064	Missouri - DW	10100
Alaska - UST	17-009	Montana	CERT0092
Arizona	AZ0014	Nebraska	NE-OS-18-06
Arkansas - DW	MN00064	Nevada	MN00064
Arkansas - WW	88-0680	New Hampshire	2081
CNMI Saipan	MP0003	New Jersey (NE)	MN002
California	2929	New York	11647
Colorado	MN00064	North Carolina	27700
Connecticut	PH-0256	North Carolina -	27700
EPA Region 8+	via MN 027-053	North Carolina -	530
Florida (NELAP)	E87605	North Dakota	R-036
Georgia	959	Ohio - DW	41244
Guam	17-001r	Ohio - VAP	CL101
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon - Primar	MN300001
Illinois	200011	Oregon - Secon	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky - DW	90062	South Dakota	NA
Kentucky - WW	90062	Tennessee	TN02818
Louisiana - DE	03086	Texas	T104704192
Louisiana - DW	MN00064	Utah (NELAP)	MN00064
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts	M-MN064	West Virginia -	382
Michigan	9909	West Virginia -	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota - De	via MN 027-053	Wyoming - UST	2926.01

## REPORT OF LABORATORY ANALYSIS

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# Appendix A

## Sample Management



**Sample Condition Upon Receipt**

Client Name: IWM Project #: **WO#: 10476199**

**PM: KNH Due Date: 06/14/19**  
**CLIENT: IWM CONSULT**

Courier:  Fed Ex  UPS  USPS  Client  
 Pace  SpeedDee  Commercial See Exception

Tracking Number: 4934 3730 0222

Custody Seal on Cooler/Box Present?  Yes  No Seals Intact?  Yes  No Biological Tissue Frozen?  Yes  No  N/A

Packing Material:  Bubble Wrap  Bubble Bags  None  Other: \_\_\_\_\_ Temp Blank?  Yes  No

Thermometer:  T1(0461)  T2(1336)  T3(0459)  
 T4(0254)  T5(0489) Type of Ice:  Wet  Blue  None  Dry  Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 2.6 °C Average Corrected Temp (no temp blank only):  See Exceptions

Correction Factor: +0.2 Cooler Temp Corrected w/temp blank: 2.7 °C

USDA Regulated Soil: (  N/A, water sample/Other: \_\_\_\_\_ ) Date/initials of Person Examining Contents: 5/23/19 H

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)?  Yes  No Hawaii and Puerto Rico?  Yes  No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot# <input type="checkbox"/> See Exception
	Res. Chlorine   0-6 Roll   0-6 Strip   0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

**CLIENT NOTIFICATION/RESOLUTION**

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Field Data Required?  Yes  No

Comments/Resolution: \_\_\_\_\_

Project Manager Review: Kirsten Hofer Date: 5/23/2019

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: \_\_\_\_\_



## Reporting Flags

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = See Discussion

### REPORT OF LABORATORY ANALYSIS

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# Appendix B

## Sample Analysis Summary



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP10-SS1 (1'-2')	Date Extracted	05/24/2019
Lab Sample ID	10476199001	Total Amount Extracted	2.01 g
Filename	B190605B_037	% Moisture	N/A
Matrix	Soil	Dry Weight Extracted	2.01 g
Collected	05/21/2019	Starting CCal	B190605B_027
Received	05/23/2019	Ending CCal	B190605B_038
		Method Blank Filename	B190605B_033

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	0.22	0.030	1	06/05/2019 19:48	375-73-5	N2
PFHxA	ND	0.25	0.036	1	06/05/2019 19:48	307-24-4	N2
PFHpA	ND	0.25	0.038	1	06/05/2019 19:48	375-85-9	N2
PFHxS	ND	0.23	0.039	1	06/05/2019 19:48	355-46-4	N2
PFOA	0.61	0.25	0.040	1	06/05/2019 19:48	335-67-1	N2
PFNA	ND	0.25	0.058	1	06/05/2019 19:48	375-95-1	N2
PFOS	ND	0.24	0.027	1	06/05/2019 19:48	1763-23-1	N2
PFDA	ND	0.25	0.037	1	06/05/2019 19:48	335-76-2	N2
PFUdA	ND	0.25	0.048	1	06/05/2019 19:48	2058-94-8	N2
N-MeFOSAA	ND	0.50	0.10	1	06/05/2019 19:48	2355-31-9	N2
N-EtFOSAA	ND	0.50	0.073	1	06/05/2019 19:48	2991-50-6	N2
PFDaA	ND	0.25	0.034	1	06/05/2019 19:48	307-55-1	N2
PFTTrDA	ND	0.25	0.041	1	06/05/2019 19:48	72629-94-8	N2
PFTeDA	ND	0.25	0.085	1	06/05/2019 19:48	376-06-7	N2
PFPPrOPrA	ND	0.50	0.16	1	06/05/2019 19:48	13252-13-6	N2
PFBA	ND	0.25	0.086	1	06/05/2019 19:48	375-22-4	N2
PFPeA	ND	0.25	0.026	1	06/05/2019 19:48	2706-90-3	N2
PFDS	ND	0.24	0.028	1	06/05/2019 19:48	335-77-3	N2
NaDONA	ND	0.50	0.24	1	06/05/2019 19:48	958445-44-8	N2
PFHxDA	ND	0.25	0.067	1	06/05/2019 19:48	67905-19-5	N2
PFODA	ND	0.25	0.076	1	06/05/2019 19:48	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.9	96	70 - 130	Pass
13C2_PFDA	2.0	1.6	80	70 - 130	Pass
d5-EtFOSAA	8.0	7.7	96	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	417041	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	545313	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	862022	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	927325	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAP/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP10-SS1 (1'-2')	Date Extracted	05/24/2019
Lab Sample ID	10476199001-DUP	Total Amount Extracted	2.18 g
Filename	B190605B_044	% Moisture	N/A
Matrix	Soil	Dry Weight Extracted	2.18 g
Collected	05/21/2019	Starting CCal	B190605B_038
Received	05/23/2019	Ending CCal	B190605B_060
		Method Blank Filename	B190605B_033

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	0.20	0.027	1	06/05/201921:10	375-73-5	N2
PFHxA	ND	0.23	0.033	1	06/05/201921:10	307-24-4	N2
PFHpA	ND	0.23	0.035	1	06/05/201921:10	375-85-9	N2
PFHxS	ND	0.22	0.036	1	06/05/201921:10	355-46-4	N2
PFOA	0.58	0.23	0.037	1	06/05/201921:10	335-67-1	N2
PFNA	ND	0.23	0.053	1	06/05/201921:10	375-95-1	N2
PFOS	ND	0.22	0.025	1	06/05/201921:10	1763-23-1	N2
PFDA	ND	0.23	0.034	1	06/05/201921:10	335-76-2	N2
PFUdA	ND	0.23	0.044	1	06/05/201921:10	2058-94-8	N2
N-MeFOSAA	ND	0.46	0.094	1	06/05/201921:10	2355-31-9	N2
N-EtFOSAA	ND	0.46	0.067	1	06/05/201921:10	2991-50-6	N2
PFDaA	ND	0.23	0.031	1	06/05/201921:10	307-55-1	N2
PFTTrDA	ND	0.23	0.038	1	06/05/201921:10	72629-94-8	N2
PFTeDA	ND	0.23	0.079	1	06/05/201921:10	376-06-7	N2
PFPPrOPrA	ND	0.46	0.14	1	06/05/201921:10	13252-13-6	N2
PFBA	ND	0.23	0.079	1	06/05/201921:10	375-22-4	N2
PFPeA	ND	0.23	0.024	1	06/05/201921:10	2706-90-3	N2
PFDS	ND	0.22	0.026	1	06/05/201921:10	335-77-3	N2
NaDONA	ND	0.46	0.22	1	06/05/201921:10	958445-44-8	N2
PFHxDA	ND	0.23	0.062	1	06/05/201921:10	67905-19-5	N2
PFODA	ND	0.23	0.070	1	06/05/201921:10	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	91	70 - 130	Pass
13C2_PFDA	2.0	1.7	86	70 - 130	Pass
d5-EtFOSAA	8.0	8.2	103	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	333682	175772 - 527315	232551 - 465103	Pass
13C2_PFOA	565529	241388 - 724164	320413 - 640826	Pass
13C4_PFOS	846711	370672 - 1112015	549921 - 1099841	Pass
d3-MeFOSAA	872333	330534 - 991601	472454 - 944909	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP11-SS1 (0.5'-1.5')	Date Extracted	05/24/2019
Lab Sample ID	10476199002	Total Amount Extracted	2.15 g
Filename	B190606B_011	% Moisture	N/A
Matrix	Soil	Dry Weight Extracted	2.15 g
Collected	05/21/2019	Starting CCal	B190606B_002
Received	05/23/2019	Ending CCal	B190606B_013
		Method Blank Filename	B190605B_033

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	0.20	0.028	1	06/06/2019 18:19	375-73-5	N2
PFHxA	ND	0.23	0.033	1	06/06/2019 18:19	307-24-4	N2
PFHpA	ND	0.23	0.036	1	06/06/2019 18:19	375-85-9	N2
PFHxS	ND	0.22	0.036	1	06/06/2019 18:19	355-46-4	N2
PFOA	ND	0.23	0.037	1	06/06/2019 18:19	335-67-1	N2
PFNA	ND	0.23	0.054	1	06/06/2019 18:19	375-95-1	N2
PFOS	0.54	0.22	0.026	1	06/06/2019 18:19	1763-23-1	N2
PFDA	ND	0.23	0.035	1	06/06/2019 18:19	335-76-2	N2
PFUdA	ND	0.23	0.044	1	06/06/2019 18:19	2058-94-8	N2
N-MeFOSAA	ND	0.46	0.095	1	06/06/2019 18:19	2355-31-9	N2
N-EtFOSAA	ND	0.46	0.068	1	06/06/2019 18:19	2991-50-6	N2
PFDaA	ND	0.23	0.031	1	06/06/2019 18:19	307-55-1	N2
PFTrDA	ND	0.23	0.039	1	06/06/2019 18:19	72629-94-8	N2
PFTeDA	ND	0.23	0.080	1	06/06/2019 18:19	376-06-7	N2
PFPPrOPrA	ND	0.46	0.15	1	06/06/2019 18:19	13252-13-6	N2
PFBA	ND	0.23	0.080	1	06/06/2019 18:19	375-22-4	N2
PFPeA	ND	0.23	0.025	1	06/06/2019 18:19	2706-90-3	N2
PFDS	ND	0.22	0.026	1	06/06/2019 18:19	335-77-3	N2
NaDONA	ND	0.46	0.22	1	06/06/2019 18:19	958445-44-8	N2
PFHxDA	ND	0.23	0.063	1	06/06/2019 18:19	67905-19-5	N2
PFODA	ND	0.23	0.070	1	06/06/2019 18:19	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	88	70 - 130	Pass
13C2_PFDA	2.0	1.4	69	70 - 130	Fail
d5-EtFOSAA	8.0	7.4	93	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	314462	175772 - 527315	233295 - 466591	Pass
13C2_PFOA	489552	241388 - 724164	333003 - 666005	Pass
13C4_PFOS	751818	370672 - 1112015	488421 - 976841	Pass
d3-MeFOSAA	915961	330534 - 991601	470690 - 941381	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP12-SS1 (1'-2')	Date Extracted	05/24/2019
Lab Sample ID	10476199003	Total Amount Extracted	2.13 g
Filename	B190605B_040	% Moisture	N/A
Matrix	Soil	Dry Weight Extracted	2.13 g
Collected	05/20/2019	Starting CCal	B190605B_038
Received	05/23/2019	Ending CCal	B190605B_060
		Method Blank Filename	B190605B_033

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	0.21	0.028	1	06/05/201920:23	375-73-5	N2
PFHxA	ND	0.23	0.034	1	06/05/201920:23	307-24-4	N2
PFHpA	ND	0.23	0.036	1	06/05/201920:23	375-85-9	N2
PFHxS	ND	0.22	0.037	1	06/05/201920:23	355-46-4	N2
PFOA	ND	0.23	0.037	1	06/05/201920:23	335-67-1	N2
PFNA	ND	0.23	0.054	1	06/05/201920:23	375-95-1	N2
PFOS	ND	0.23	0.026	1	06/05/201920:23	1763-23-1	N2
PFDA	ND	0.23	0.035	1	06/05/201920:23	335-76-2	N2
PFUdA	ND D	470	90	2	06/14/201910:58	2058-94-8	N2
N-MeFOSAA	ND D	940	190	2	06/14/201910:58	2355-31-9	N2
N-EtFOSAA	ND D	940	140	2	06/14/201910:58	2991-50-6	N2
PFDaA	ND D	470	63	2	06/14/201910:58	307-55-1	N2
PFTTrDA	ND D	470	78	2	06/14/201910:58	72629-94-8	N2
PFTeDA	ND D	470	160	2	06/14/201910:58	376-06-7	N2
PFPPrOPrA	ND	0.47	0.15	1	06/05/201920:23	13252-13-6	N2
PFBA	ND	0.23	0.081	1	06/05/201920:23	375-22-4	N2
PFPeA	ND	0.23	0.025	1	06/05/201920:23	2706-90-3	N2
PFDS	ND D	450	52	2	06/14/201910:58	335-77-3	N2
NaDONA	ND	0.47	0.22	1	06/05/201920:23	958445-44-8	N2
PFHxDA	ND D	470	130	2	06/14/201910:58	67905-19-5	N2
PFODA	ND D	470	140	2	06/14/201910:58	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	92	70 - 130	Pass
13C2_PFDA	2.0	1.7	84	70 - 130	Pass
d5-EtFOSAA	8.0	9.5	119	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	343531	175772 - 527315	232551 - 465103	Pass
13C2_PFOA	575408	241388 - 724164	320413 - 640826	Pass
13C4_PFOS	883602	370672 - 1112015	549921 - 1099841	Pass
d3-MeFOSAA	297987	160461 - 481384	222573 - 445145	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP13-SS1 (1'-2')	Date Extracted	05/24/2019
Lab Sample ID	10476199004	Total Amount Extracted	2.09 g
Filename	B190605B_041	% Moisture	N/A
Matrix	Soil	Dry Weight Extracted	2.09 g
Collected	05/20/2019	Starting CCal	B190605B_038
Received	05/23/2019	Ending CCal	B190605B_060
		Method Blank Filename	B190605B_033

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	0.21	0.028	1	06/05/201920:35	375-73-5	N2
PFHxA	ND	0.24	0.034	1	06/05/201920:35	307-24-4	N2
PFHpA	ND	0.24	0.037	1	06/05/201920:35	375-85-9	N2
PFHxS	ND	0.22	0.038	1	06/05/201920:35	355-46-4	N2
PFOA	ND	0.24	0.038	1	06/05/201920:35	335-67-1	N2
PFNA	ND	0.24	0.055	1	06/05/201920:35	375-95-1	N2
PFOS	0.46	0.23	0.026	1	06/05/201920:35	1763-23-1	N2
PFDA	ND	0.24	0.036	1	06/05/201920:35	335-76-2	N2
PFUdA	ND D	0.48	0.092	2	06/11/201920:56	2058-94-8	N2
N-MeFOSAA	ND D	0.96	0.19	2	06/11/201920:56	2355-31-9	N2
N-EtFOSAA	ND D	0.96	0.14	2	06/11/201920:56	2991-50-6	N2
PFDaA	ND D	0.48	0.065	2	06/11/201920:56	307-55-1	N2
PFTTrDA	ND D	0.48	0.080	2	06/11/201920:56	72629-94-8	N2
PFTeDA	ND D	0.48	0.16	2	06/11/201920:56	376-06-7	N2
PFPPrOPrA	ND	0.48	0.15	1	06/05/201920:35	13252-13-6	N2
PFBA	ND	0.24	0.082	1	06/05/201920:35	375-22-4	N2
PFPeA	ND	0.24	0.025	1	06/05/201920:35	2706-90-3	N2
PFDS	ND D	0.46	0.053	2	06/11/201920:56	335-77-3	N2
NaDONA	ND	0.48	0.23	1	06/05/201920:35	958445-44-8	N2
PFHxDA	ND D	0.48	0.13	2	06/11/201920:56	67905-19-5	N2
PFODA	ND D	0.48	0.15	2	06/11/201920:56	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	89	70 - 130	Pass
13C2_PFDA	2.0	1.5	73	70 - 130	Pass
d5-EtFOSAA	8.0	7.2	90	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	352427	175772 - 527315	232551 - 465103	Pass
13C2_PFOA	551285	241388 - 724164	320413 - 640826	Pass
13C4_PFOS	836864	370672 - 1112015	549921 - 1099841	Pass
d3-MeFOSAA	475480	189935 - 569806	318037 - 636074	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP14-SS1 (0.5'-1.5')	Date Extracted	05/24/2019
Lab Sample ID	10476199005	Total Amount Extracted	2.10 g
Filename	B190605B_042	% Moisture	N/A
Matrix	Soil	Dry Weight Extracted	2.10 g
Collected	05/20/2019	Starting CCal	B190605B_038
Received	05/23/2019	Ending CCal	B190605B_060
		Method Blank Filename	B190605B_033

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	0.21	0.028	1	06/05/201920:47	375-73-5	N2
PFHxA	ND	0.24	0.034	1	06/05/201920:47	307-24-4	N2
PFHpA	ND	0.24	0.037	1	06/05/201920:47	375-85-9	N2
PFHxS	ND	0.22	0.037	1	06/05/201920:47	355-46-4	N2
PFOA	ND	0.24	0.038	1	06/05/201920:47	335-67-1	N2
PFNA	ND	0.24	0.055	1	06/05/201920:47	375-95-1	N2
PFOS	ND	0.23	0.026	1	06/05/201920:47	1763-23-1	N2
PFDA	ND	0.24	0.036	1	06/05/201920:47	335-76-2	N2
PFUdA	ND D	0.48	0.091	2	06/10/201913:17	2058-94-8	N2
N-MeFOSAA	ND D	0.95	0.19	2	06/10/201913:17	2355-31-9	N2
N-EtFOSAA	ND D	0.95	0.14	2	06/10/201913:17	2991-50-6	N2
PFDaA	ND D	0.48	0.064	2	06/10/201913:17	307-55-1	N2
PFTTrDA	ND D	0.48	0.079	2	06/10/201913:17	72629-94-8	N2
PFTeDA	ND D	0.48	0.16	2	06/10/201913:17	376-06-7	N2
PFPPrOPrA	ND	0.48	0.15	1	06/05/201920:47	13252-13-6	N2
PFBA	ND	0.24	0.082	1	06/05/201920:47	375-22-4	N2
PFPeA	ND	0.24	0.025	1	06/05/201920:47	2706-90-3	N2
PFDS	ND D	0.46	0.053	2	06/10/201913:17	335-77-3	N2
NaDONA	ND	0.48	0.23	1	06/05/201920:47	958445-44-8	N2
PFHxDA	ND D	0.48	0.13	2	06/10/201913:17	67905-19-5	N2
PFODA	ND D	0.48	0.14	2	06/10/201913:17	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.5	76	70 - 130	Pass
13C2_PFDA	2.0	1.5	74	70 - 130	Pass
d5-EtFOSAA	8.0	7.4	92	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	281284	175772 - 527315	232551 - 465103	Pass
13C2_PFOA	568965	241388 - 724164	320413 - 640826	Pass
13C4_PFOS	860053	370672 - 1112015	549921 - 1099841	Pass
d3-MeFOSAA	451524	189935 - 569806	273552 - 547105	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.





**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-SB-FD1	Date Extracted	05/24/2019
Lab Sample ID	10476199006	Total Amount Extracted	2.18 g
Filename	B190605B_043	% Moisture	N/A
Matrix	Soil	Dry Weight Extracted	2.18 g
Collected	05/20/2019	Starting CCal	B190605B_038
Received	05/23/2019	Ending CCal	B190605B_060
		Method Blank Filename	B190605B_033

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	0.20	0.027	1	06/05/201920:59	375-73-5	N2
PFHxA	ND	0.23	0.033	1	06/05/201920:59	307-24-4	N2
PFHpA	ND	0.23	0.035	1	06/05/201920:59	375-85-9	N2
PFHxS	ND	0.22	0.036	1	06/05/201920:59	355-46-4	N2
PFOA	ND	0.23	0.037	1	06/05/201920:59	335-67-1	N2
PFNA	ND	0.23	0.053	1	06/05/201920:59	375-95-1	N2
PFOS	ND	0.22	0.025	1	06/05/201920:59	1763-23-1	N2
PFDA	ND	0.23	0.034	1	06/05/201920:59	335-76-2	N2
PFUdA	ND D	0.46	0.088	2	06/10/201913:05	2058-94-8	N2
N-MeFOSAA	ND D	0.92	0.19	2	06/10/201913:05	2355-31-9	N2
N-EtFOSAA	ND D	0.92	0.13	2	06/10/201913:05	2991-50-6	N2
PFDaA	ND D	0.46	0.062	2	06/10/201913:05	307-55-1	N2
PFTTrDA	ND D	0.46	0.077	2	06/10/201913:05	72629-94-8	N2
PFTeDA	ND D	0.46	0.16	2	06/10/201913:05	376-06-7	N2
PFPPrOPrA	ND	0.46	0.15	1	06/05/201920:59	13252-13-6	N2
PFBA	ND	0.23	0.079	1	06/05/201920:59	375-22-4	N2
PFPeA	ND	0.23	0.024	1	06/05/201920:59	2706-90-3	N2
PFDS	ND D	0.44	0.051	2	06/10/201913:05	335-77-3	N2
NaDONA	ND	0.46	0.22	1	06/05/201920:59	958445-44-8	N2
PFHxDA	ND D	0.46	0.12	2	06/10/201913:05	67905-19-5	N2
PFODA	ND D	0.46	0.14	2	06/10/201913:05	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.7	87	70 - 130	Pass
13C2_PFDA	2.0	1.6	79	70 - 130	Pass
d5-EtFOSAA	8.0	8.1	101	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	309884	175772 - 527315	232551 - 465103	Pass
13C2_PFOA	567303	241388 - 724164	320413 - 640826	Pass
13C4_PFOS	889251	370672 - 1112015	549921 - 1099841	Pass
d3-MeFOSAA	439234	189935 - 569806	273552 - 547105	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-FRB1	Date Extracted	05/27/2019
Lab Sample ID	10476199007	Total Amount Extracted	271 mL
Filename	B190530B_010	ICAL ID	190530A02
Matrix	Water	Starting CCal	B190530B_004
Collected	05/20/2019	Ending CCal	B190530B_017
Received	05/23/2019	Method Blank Filename	B190606B_015

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	1.6	0.24	1	05/30/2019 15:43	375-73-5	N2
PFHxA	ND	1.8	0.25	1	05/30/2019 15:43	307-24-4	N2
PFHpA	ND	1.8	0.57	1	05/30/2019 15:43	375-85-9	N2
PFHxS	ND	1.7	0.59	1	05/30/2019 15:43	355-46-4	N2
PFOA	ND	1.8	0.41	1	05/30/2019 15:43	335-67-1	N2
PFNA	ND	1.8	0.47	1	05/30/2019 15:43	375-95-1	N2
PFOS	ND	1.8	0.57	1	05/30/2019 15:43	1763-23-1	N2
PFDA	ND	1.8	0.45	1	05/30/2019 15:43	335-76-2	N2
PFUdA	ND	1.8	0.43	1	05/30/2019 15:43	2058-94-8	N2
N-MeFOSAA	ND	3.7	1.2	1	05/30/2019 15:43	2355-31-9	N2
N-EtFOSAA	ND	3.7	1.0	1	05/30/2019 15:43	2991-50-6	N2
PFDaA	ND	1.8	0.36	1	05/30/2019 15:43	307-55-1	N2
PFTTrDA	ND	1.8	0.34	1	05/30/2019 15:43	72629-94-8	N2
PFTeDA	ND	1.8	0.32	1	05/30/2019 15:43	376-06-7	N2
PFPPrOPrA	ND	3.7	0.66	1	05/30/2019 15:43	13252-13-6	N2
PFBA	ND	1.8	0.67	1	05/30/2019 15:43	375-22-4	N2
PFPeA	ND	1.8	0.36	1	05/30/2019 15:43	2706-90-3	N2
PFDS	ND	1.8	0.34	1	05/30/2019 15:43	335-77-3	N2
NaDONA	ND	3.7	0.59	1	05/30/2019 15:43	958445-44-8	N2
PFHxDA	ND	1.8	0.39	1	05/30/2019 15:43	67905-19-5	N2
PFODA	ND	1.8	0.66	1	05/30/2019 15:43	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.9	93	70 - 130	Pass
13C2_PFDA	2.0	1.9	96	70 - 130	Pass
d5-EtFOSAA	8.0	3.8	48	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	231881	134260 - 402781	172867 - 345733	Pass
13C2_PFOA	457455	225330 - 675989	303311 - 606622	Pass
13C4_PFOS	610994	301397 - 904191	421516 - 843031	Pass
d3-MeFOSAA	356256	182697 - 548090	244139 - 488277	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-FRB2	Date Extracted	05/27/2019
Lab Sample ID	10476199008	Total Amount Extracted	270 mL
Filename	B190530B_011	ICAL ID	190530A02
Matrix	Water	Starting CCal	B190530B_004
Collected	05/21/2019	Ending CCal	B190530B_017
Received	05/23/2019	Method Blank Filename	B190606B_015

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	1.6	0.25	1	05/30/2019 15:54	375-73-5	N2
PFHxA	ND	1.9	0.25	1	05/30/2019 15:54	307-24-4	N2
PFHpA	ND	1.9	0.58	1	05/30/2019 15:54	375-85-9	N2
PFHxS	ND	1.7	0.60	1	05/30/2019 15:54	355-46-4	N2
PFOA	ND	1.9	0.41	1	05/30/2019 15:54	335-67-1	N2
PFNA	ND	1.9	0.47	1	05/30/2019 15:54	375-95-1	N2
PFOS	ND	1.8	0.58	1	05/30/2019 15:54	1763-23-1	N2
PFDA	ND	1.9	0.45	1	05/30/2019 15:54	335-76-2	N2
PFUdA	ND	1.9	0.43	1	05/30/2019 15:54	2058-94-8	N2
N-MeFOSAA	ND	3.7	1.2	1	05/30/2019 15:54	2355-31-9	N2
N-EtFOSAA	ND	3.7	1.0	1	05/30/2019 15:54	2991-50-6	N2
PFDoA	ND	1.9	0.36	1	05/30/2019 15:54	307-55-1	N2
PFTTrDA	ND	1.9	0.34	1	05/30/2019 15:54	72629-94-8	N2
PFTeDA	ND	1.9	0.33	1	05/30/2019 15:54	376-06-7	N2
PFPPrOPrA	ND	3.7	0.67	1	05/30/2019 15:54	13252-13-6	N2
PFBA	ND	1.9	0.68	1	05/30/2019 15:54	375-22-4	N2
PFPeA	ND	1.9	0.36	1	05/30/2019 15:54	2706-90-3	N2
PFDS	ND	1.8	0.34	1	05/30/2019 15:54	335-77-3	N2
NaDONA	ND	3.7	0.59	1	05/30/2019 15:54	958445-44-8	N2
PFHxDA	ND	1.9	0.39	1	05/30/2019 15:54	67905-19-5	N2
PFODA	ND	1.9	0.66	1	05/30/2019 15:54	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.9	94	70 - 130	Pass
13C2_PFDA	2.0	2.0	102	70 - 130	Pass
d5-EtFOSAA	8.0	5.6	70	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	230736	134260 - 402781	172867 - 345733	Pass
13C2_PFOA	472414	225330 - 675989	303311 - 606622	Pass
13C4_PFOS	597742	301397 - 904191	421516 - 843031	Pass
d3-MeFOSAA	360225	182697 - 548090	244139 - 488277	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified) Blank Analysis Summary**

Lab Sample ID	BLANK-70772	Date Extracted	05/24/2019
Filename	B190605B_033	Total Amount Extracted	2.18 g
Matrix	Soil	% Moisture	N/A
		Dry Weight Extracted	2.18 g
		Starting CCal	B190605B_027
		Ending CCal	B190605B_038

Compound	Concentration (ug/Kg)	PQL (ug/Kg)	MDL (ug/Kg)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	0.20	0.027	1	06/05/2019 19:01	375-73-5	N2
PFHxA	ND	0.23	0.033	1	06/05/2019 19:01	307-24-4	N2
PFHpA	ND	0.23	0.035	1	06/05/2019 19:01	375-85-9	N2
PFHxS	ND	0.22	0.036	1	06/05/2019 19:01	355-46-4	N2
PFOA	ND	0.23	0.037	1	06/05/2019 19:01	335-67-1	N2
PFNA	ND	0.23	0.053	1	06/05/2019 19:01	375-95-1	N2
PFOS	ND	0.22	0.025	1	06/05/2019 19:01	1763-23-1	N2
PFDA	ND	0.23	0.034	1	06/05/2019 19:01	335-76-2	N2
PFUdA	ND	0.23	0.044	1	06/05/2019 19:01	2058-94-8	N2
N-MeFOSAA	ND	0.46	0.093	1	06/05/2019 19:01	2355-31-9	N2
N-EtFOSAA	ND	0.46	0.067	1	06/05/2019 19:01	2991-50-6	N2
PFDoA	ND	0.23	0.031	1	06/05/2019 19:01	307-55-1	N2
PFTTrDA	ND	0.23	0.038	1	06/05/2019 19:01	72629-94-8	N2
PFTeDA	ND	0.23	0.079	1	06/05/2019 19:01	376-06-7	N2
PFPPrOPrA	ND	0.46	0.14	1	06/05/2019 19:01	13252-13-6	N2
PFBA	ND	0.23	0.079	1	06/05/2019 19:01	375-22-4	N2
PFPeA	ND	0.23	0.024	1	06/05/2019 19:01	2706-90-3	N2
PFDS	ND	0.22	0.025	1	06/05/2019 19:01	335-77-3	N2
NaDONA	ND	0.46	0.22	1	06/05/2019 19:01	958445-44-8	N2
PFHxDA	ND	0.23	0.062	1	06/05/2019 19:01	67905-19-5	N2
PFODA	ND	0.23	0.070	1	06/05/2019 19:01	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.9	93	70 - 130	Pass
13C2_PFDA	2.0	1.6	81	70 - 130	Pass
d5-EtFOSAA	8.0	6.4	80	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	397436	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	546066	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	777840	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	854410	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified) Blank Analysis Summary**

Lab Sample ID	BLANK-70776	Total Amount Extracted	259 mL
Filename	B190606B_015	ICAL ID	190605A02
Matrix	Water	Starting CCal	B190606B_013
Date Extracted	05/27/2019	Ending CCal	B190606B_024

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBS	ND	1.7	0.26	1	06/06/2019 19:06	375-73-5	N2
PFHxA	ND	1.9	0.26	1	06/06/2019 19:06	307-24-4	N2
PFHpA	ND	1.9	0.60	1	06/06/2019 19:06	375-85-9	N2
PFHxS	ND	1.8	0.62	1	06/06/2019 19:06	355-46-4	N2
PFOA	ND	1.9	0.43	1	06/06/2019 19:06	335-67-1	N2
PFNA	ND	1.9	0.49	1	06/06/2019 19:06	375-95-1	N2
PFOS	ND	1.9	0.60	1	06/06/2019 19:06	1763-23-1	N2
PFDA	ND	1.9	0.47	1	06/06/2019 19:06	335-76-2	N2
PFUdA	ND	1.9	0.45	1	06/06/2019 19:06	2058-94-8	N2
N-MeFOSAA	ND	3.9	1.2	1	06/06/2019 19:06	2355-31-9	N2
N-EtFOSAA	ND	3.9	1.1	1	06/06/2019 19:06	2991-50-6	N2
PFDaA	ND	1.9	0.38	1	06/06/2019 19:06	307-55-1	N2
PFTTrDA	ND	1.9	0.36	1	06/06/2019 19:06	72629-94-8	N2
PFTeDA	ND	1.9	0.34	1	06/06/2019 19:06	376-06-7	N2
PFPrOPrA	ND	3.9	0.69	1	06/06/2019 19:06	13252-13-6	N2
PFBA	ND	1.9	0.70	1	06/06/2019 19:06	375-22-4	N2
PFPeA	ND	1.9	0.38	1	06/06/2019 19:06	2706-90-3	N2
PFDS	ND	1.9	0.36	1	06/06/2019 19:06	335-77-3	N2
NaDONA	ND	3.9	0.62	1	06/06/2019 19:06	958445-44-8	N2
PFHxDA	ND	1.9	0.41	1	06/06/2019 19:06	67905-19-5	N2
PFODA	ND	1.9	0.69	1	06/06/2019 19:06	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.9	96	70 - 130	Pass
13C2_PFDA	2.0	1.5	75	70 - 130	Pass
d5-EtFOSAA	8.0	3.6	45	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	381128	175772 - 527315	250184 - 500368	Pass
13C2_PFOA	492087	241388 - 724164	337803 - 675606	Pass
13C4_PFOS	833624	370672 - 1112015	514279 - 1028557	Pass
d3-MeFOSAA	816731	330534 - 991601	564037 - 1128075	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified) Laboratory Control Sample (LCS)**

LCS Lab Sample ID	LCS-70773	Matrix	Soil
LCS Filename	B190605B_034	Dilution	1
Total Amount Extracted	2.08g	Extracted	05/24/2019
ICAL ID	190605A02	Analyzed	06/05/2019 19:13
Start CCal Filename	B190605B_027	Injected By	WM
End CCal Filename	B190605B_038		
Method Blank Filename	B190605B_033		

Compound	Spiked (ug/Kg)	Recovered (ug/Kg)	Recovery %	Limits
PFBA	0.24	0.28	116	50.0 - 150.0
PFPeA	0.24	0.22 J	91	50.0 - 150.0
PFBS	0.21	0.19 J	91	50.0 - 150.0
PFHxA	0.24	0.23 J	93	50.0 - 150.0
PFPPrA	0.48	0.42 J	87	50.0 - 150.0
PFHpA	0.24	0.24	101	50.0 - 150.0
NaDONA	0.48	0.58	120	50.0 - 150.0
PFHxS	0.23	0.22 J	97	50.0 - 150.0
PFOA	0.24	0.25	103	50.0 - 150.0
PFNA	0.24	0.23 J	95	50.0 - 150.0
PFOS	0.23	0.23 J	98	50.0 - 150.0
PFDA	0.24	0.20 J	81	50.0 - 150.0
PFUdA	0.24	0.18 J	76	50.0 - 150.0
N-MeFOSAA	0.48	0.35 J	73	50.0 - 150.0
N-EtFOSAA	0.48	0.38 J	79	50.0 - 150.0
PFDS	0.23	0.17 J	74	50.0 - 150.0
PFDoA	0.24	0.19 J	79	50.0 - 150.0
PFTTrDA	0.24	0.17 J	72	50.0 - 150.0
PFTeDA	0.24	0.16 J	66	50.0 - 150.0
PFHxDA	0.24	0.15 J	64	50.0 - 150.0
PFODA	0.24	0.14 J	57	50.0 - 150.0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	88	70 - 130	Pass
13C2_PFDA	2.0	1.5	76	70 - 130	Pass
d5-EtFOSAA	8.0	6.6	82	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrA	369045	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	537400	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	856339	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	892720	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample (LCS)**

LCS Lab Sample ID	LCS-70774	Matrix	Soil
LCS Filename	B190605B_035	Dilution	1
Total Amount Extracted	2.07g	Extracted	05/24/2019
ICAL ID	190605A02	Analyzed	06/05/2019 19:24
Start CCal Filename	B190605B_027	Injected By	WM
End CCal Filename	B190605B_038		
Method Blank Filename	B190605B_033		

Compound	Spiked (ug/Kg)	Recovered (ug/Kg)	Recovery %	Limits
PFBA	2.4	2.4	101	70.0 - 130.0
PFPeA	2.4	2.5	102	70.0 - 130.0
PFBS	2.1	2.2	103	70.0 - 130.0
PFHxA	2.4	2.5	103	70.0 - 130.0
PFPrOPrA	4.8	4.6	96	70.0 - 130.0
PFHpA	2.4	2.7	113	70.0 - 130.0
NaDONA	4.8	6.1	127	70.0 - 130.0
PFHxS	2.3	2.4	106	70.0 - 130.0
PFOA	2.4	2.9	120	70.0 - 130.0
PFNA	2.4	2.5	103	70.0 - 130.0
PFOS	2.3	2.4	104	70.0 - 130.0
PFDA	2.4	2.2	89	70.0 - 130.0
PFUdA	2.4	2.3	95	70.0 - 130.0
N-MeFOSAA	4.8	4.4	92	70.0 - 130.0
N-EtFOSAA	4.8	4.3	89	70.0 - 130.0
PFDS	2.3	2.2	94	70.0 - 130.0
PFDoA	2.4	2.2	89	70.0 - 130.0
PFTTrDA	2.4	2.2	90	70.0 - 130.0
PFTeDA	2.4	2.0	83	70.0 - 130.0
PFHxDA	2.4	1.9	81	70.0 - 130.0
PFODA	2.4	1.8	75	70.0 - 130.0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	92	70 - 130	Pass
13C2_PFDA	2.0	1.6	79	70 - 130	Pass
d5-EtFOSAA	8.0	6.0	75	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	401559	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	560155	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	907071	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	889936	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample (LCS)**

LCS Lab Sample ID	LCS-70777	Matrix	Water
LCS Filename	B190606B_016	Dilution	1
Total Amount Extracted	253mL	Extracted	05/27/2019
ICAL ID	190605A02	Analyzed	06/06/2019 19:17
Start CCal Filename	B190606B_013	Injected By	WM
End CCal Filename	B190606B_024		
Method Blank Filename	B190606B_015		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Limits
PFBA	2.0	2.2	110	50.0 - 150.0
PFPeA	2.0	1.8 J	92	50.0 - 150.0
PFBS	1.7	1.4 J	83	50.0 - 150.0
PFHxA	2.0	1.8 J	91	50.0 - 150.0
PFPrOPrA	3.9	3.3 J	84	50.0 - 150.0
PFHpA	2.0	2.0 J	99	50.0 - 150.0
NaDONA	3.9	4.1	103	50.0 - 150.0
PFHxS	1.9	1.7 J	92	50.0 - 150.0
PFOA	2.0	1.9 J	94	50.0 - 150.0
PFNA	2.0	2.0	100	50.0 - 150.0
PFOS	1.9	1.9 J	98	50.0 - 150.0
PFDA	2.0	1.7 J	84	50.0 - 150.0
PFUdA	2.0	1.9 J	95	50.0 - 150.0
N-MeFOSAA	3.9	3.5 J	88	50.0 - 150.0
N-EtFOSAA	3.9	3.8 J	96	50.0 - 150.0
PFDS	1.9	1.5 J	80	50.0 - 150.0
PFDoA	2.0	1.7 J	86	50.0 - 150.0
PFTTrDA	2.0	1.6 J	81	50.0 - 150.0
PFTeDA	2.0	1.5 J	77	50.0 - 150.0
PFHxDA	2.0	1.4 J	73	50.0 - 150.0
PFODA	2.0	1.3 J	66	50.0 - 150.0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.7	86	70 - 130	Pass
13C2_PFDA	2.0	1.7	85	70 - 130	Pass
d5-EtFOSAA	8.0	7.9	99	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	411628	175772 - 527315	250184 - 500368	Pass
13C2_PFOA	557945	241388 - 724164	337803 - 675606	Pass
13C4_PFOS	817350	370672 - 1112015	514279 - 1028557	Pass
d3-MeFOSAA	811537	330534 - 991601	564037 - 1128075	Pass

50-150% of Ical area

70-140% of the preceding CCV area





**Method 537 (Modified) Laboratory Control Sample (LCS)**

LCS Lab Sample ID	LCS-70778	Matrix	Water
LCS Filename	B190606B_017	Dilution	1
Total Amount Extracted	255mL	Extracted	05/27/2019
ICAL ID	190605A02	Analyzed	06/06/2019 19:29
Start CCal Filename	B190606B_013	Injected By	WM
End CCal Filename	B190606B_024		
Method Blank Filename	B190606B_015		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Limits
PFBA	20	20	102	70.0 - 130.0
PFPeA	20	20	102	70.0 - 130.0
PFBS	17	17	100	70.0 - 130.0
PFHxA	20	21	105	70.0 - 130.0
PFPrOPrA	39	38	96	70.0 - 130.0
PFHpA	20	23	115	70.0 - 130.0
NaDONA	39	48	122	70.0 - 130.0
PFHxS	18	19	103	70.0 - 130.0
PFOA	20	23	118	70.0 - 130.0
PFNA	20	23	116	70.0 - 130.0
PFOS	19	22	115	70.0 - 130.0
PFDA	20	19	97	70.0 - 130.0
PFUdA	20	20	100	70.0 - 130.0
N-MeFOSAA	39	42	106	70.0 - 130.0
N-EtFOSAA	39	40	102	70.0 - 130.0
PFDS	19	17	92	70.0 - 130.0
PFDoA	20	19	97	70.0 - 130.0
PFTTrDA	20	18	94	70.0 - 130.0
PFTeDA	20	17	89	70.0 - 130.0
PFHxDA	20	17	87	70.0 - 130.0
PFODA	20	16	80	70.0 - 130.0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	89	70 - 130	Pass
13C2_PFDA	2.0	1.7	84	70 - 130	Pass
d5-EtFOSAA	8.0	7.1	89	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	396114	175772 - 527315	250184 - 500368	Pass
13C2_PFOA	561250	241388 - 724164	337803 - 675606	Pass
13C4_PFOS	818121	370672 - 1112015	514279 - 1028557	Pass
d3-MeFOSAA	863455	330534 - 991601	564037 - 1128075	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample Duplicate (LCSD)**

LCSD Lab Sample ID	LCSD-70775	LCS Filename	B190605B_035
LCSD Filename	B190605B_036	Matrix	Soil
Total Amount Extracted	2.08g	Dilution	1
ICAL ID	190605A02	Extracted	05/24/2019
Start CCal Filename	B190605B_027	Analyzed	06/05/2019 19:36
End CCal Filename	B190605B_038	Injected By	WM
Method Blank Filename	B190605B_033		

Compound	Spiked (ug/Kg)	Recovered (ug/Kg)	Recovery %	Recovery Limits	RPD %
PFBA	2.4	2.5	103	70.0 - 130.0	1
PFPeA	2.4	2.6	106	70.0 - 130.0	4
PFBS	2.1	2.2	104	70.0 - 130.0	1
PFHxA	2.4	2.6	108	70.0 - 130.0	5
PFPrOPrA	4.8	4.1	85	70.0 - 130.0	12
PFHpA	2.4	2.8	117	70.0 - 130.0	3
NaDONA	4.8	5.9	122	70.0 - 130.0	4
PFHxS	2.3	2.5	111	70.0 - 130.0	4
PFOA	2.4	2.7	113	70.0 - 130.0	6
PFNA	2.4	2.7	111	70.0 - 130.0	8
PFOS	2.3	2.5	108	70.0 - 130.0	4
PFDA	2.4	2.0	85	70.0 - 130.0	5
PFUdA	2.4	2.2	92	70.0 - 130.0	3
N-MeFOSAA	4.8	4.5	94	70.0 - 130.0	2
N-EtFOSAA	4.8	4.7	98	70.0 - 130.0	9
PFDS	2.3	2.0	87	70.0 - 130.0	7
PFDoA	2.4	2.1	86	70.0 - 130.0	3
PFTTrDA	2.4	2.1	87	70.0 - 130.0	4
PFTeDA	2.4	1.9	80	70.0 - 130.0	4
PFHxDA	2.4	1.9	77	70.0 - 130.0	4
PFODA	2.4	1.8	75	70.0 - 130.0	0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.7	84	70 - 130	Pass
13C2_PFDA	2.0	1.7	85	70 - 130	Pass
d5-EtFOSAA	8.0	6.5	81	70 - 130	Pass

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	429650	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	553961	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	863892	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	923221	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample Duplicate (LCSD)**

LCSD Lab Sample ID	LCSD-70779	LCS Filename	B190606B_017
LCSD Filename	B190606B_018	Matrix	Water
Total Amount Extracted	252mL	Dilution	1
ICAL ID	190605A02	Extracted	05/27/2019
Start CCal Filename	B190606B_013	Analyzed	06/06/2019 19:41
End CCal Filename	B190606B_024	Injected By	WM
Method Blank Filename	B190606B_015		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Recovery Limits	RPD %
PFBA	20	20	101	70.0 - 130.0	1
PFPeA	20	20	102	70.0 - 130.0	1
PFBS	17	19	107	70.0 - 130.0	8
PFHxA	20	22	110	70.0 - 130.0	6
PFPrOPrA	40	35	87	70.0 - 130.0	9
PFHpA	20	20	103	70.0 - 130.0	10
NaDONA	40	48	121	70.0 - 130.0	1
PFHxS	19	20	108	70.0 - 130.0	6
PFOA	20	23	116	70.0 - 130.0	0
PFNA	20	21	108	70.0 - 130.0	6
PFOS	19	19	101	70.0 - 130.0	12
PFDA	20	19	98	70.0 - 130.0	2
PFUdA	20	14 R	69	70.0 - 130.0	35
N-MeFOSAA	40	31	79	70.0 - 130.0	28
N-EtFOSAA	40	24 R	60	70.0 - 130.0	50
PFDS	19	8.0 R	42	70.0 - 130.0	73
PFDoA	20	7.3 R	37	70.0 - 130.0	89
PFTrDA	20	4.2 R	21	70.0 - 130.0	125
PFTeDA	20	2.8 R	14	70.0 - 130.0	145
PFHxDA	20	6.3 R	32	70.0 - 130.0	92
PFODA	20	11 R	55	70.0 - 130.0	36

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	89	70 - 130	Pass
13C2_PFDA	2.0	1.8	91	70 - 130	Pass
d5-EtFOSAA	8.0	4.3	54	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	385531	175772 - 527315	250184 - 500368	Pass
13C2_PFOA	533036	241388 - 724164	337803 - 675606	Pass
13C4_PFOS	850323	370672 - 1112015	514279 - 1028557	Pass
d3-MeFOSAA	732735	330534 - 991601	564037 - 1128075	Pass

50-150% of Ical area

70-140% of the preceding CCV area

## **APPENDIX L**

### **LABORATORY ANALYTICAL REPORTS – GROUNDWATER**

June 03, 2019

Mr. Mark Anderson  
IWM Consulting Group LLC  
1015 Production Drive  
Fort Wayne, IN 46808

RE: Project: The Butler Co.  
Pace Project No.: 50226102

Dear Mr. Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on May 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Chris Boyle  
chris.boyle@pacelabs.com  
(317)228-3100  
Project Manager

Enclosures

cc: Ms. Pauline Lemay, IWM Consulting Group, LLC



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: The Butler Co.

Pace Project No.: 50226102

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### Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268

Illinois Certification #: 200074

Indiana Certification #: C-49-06

Kansas/NELAP Certification #: E-10177

Kentucky UST Certification #: 80226

Kentucky WW Certification #: 98019

Michigan Department of Environmental Quality, Laboratory  
#9050

Ohio VAP Certification #: CL0065

Oklahoma Certification #: 2018-101

Texas Certification #: T104704355

West Virginia Certification #: 330

Wisconsin Certification #: 999788130

USDA Soil Permit #: P330-16-00257

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: The Butler Co.

Pace Project No.: 50226102

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50226102001	BC-GP10-GW1	Water	05/22/19 16:35	05/24/19 08:45
50226102002	BC-GP11-GW1	Water	05/22/19 14:41	05/24/19 08:45
50226102003	BC-GP12-GW1	Water	05/22/19 10:40	05/24/19 08:45
50226102004	BC-GP13-GW1	Water	05/22/19 13:03	05/24/19 08:45
50226102005	BC-GP14-GW1	Water	05/22/19 11:44	05/24/19 08:45
50226102006	BC-GP15-GW1	Water	05/22/19 18:08	05/24/19 08:45
50226102007	BC-GPGW-FD1	Water	05/22/19 08:00	05/24/19 08:45
50226102008	BC-EB-GW1	Water	05/22/19 11:20	05/24/19 08:45
50226102009	BC-TB1	Water	05/22/19 08:00	05/24/19 08:45

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**SAMPLE ANALYTE COUNT**

Project: The Butler Co.

Pace Project No.: 50226102

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50226102001	BC-GP10-GW1	EPA 8082	KAV	8	PASI-I
		EPA 6010	RAM	9	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 7470	ILP	1	PASI-I
		EPA 8270 by SIM LVE	GRM	20	PASI-I
		EPA 8260	CAP	72	PASI-I
50226102002	BC-GP11-GW1	EPA 8082	KAV	8	PASI-I
		EPA 6010	RAM	9	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 7470	ILP	1	PASI-I
		EPA 8270 by SIM LVE	GRM	20	PASI-I
		EPA 8260	CAP	72	PASI-I
50226102003	BC-GP12-GW1	EPA 8082	KAV	8	PASI-I
		EPA 6010	RAM	9	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 7470	ILP	1	PASI-I
		EPA 8270 by SIM LVE	GRM	20	PASI-I
		EPA 8260	CAP	72	PASI-I
50226102004	BC-GP13-GW1	EPA 8082	KAV	8	PASI-I
		EPA 6010	RAM	9	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 7470	ILP	1	PASI-I
		EPA 8270 by SIM LVE	GRM	20	PASI-I
		EPA 8260	CAP	72	PASI-I
50226102005	BC-GP14-GW1	EPA 8082	KAV	8	PASI-I
		EPA 6010	RAM	9	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 7470	ILP	1	PASI-I
		EPA 8270 by SIM LVE	GRM	20	PASI-I
		EPA 8260	CAP	72	PASI-I
50226102006	BC-GP15-GW1	EPA 8082	KAV	8	PASI-I
		EPA 6010	RAM	9	PASI-I

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### SAMPLE ANALYTE COUNT

Project: The Butler Co.

Pace Project No.: 50226102

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50226102007	BC-GPGW-FD1	EPA 6010	JPK	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 7470	ILP	1	PASI-I
		EPA 8270 by SIM LVE	GRM	20	PASI-I
		EPA 8260	CAP	72	PASI-I
		EPA 8082	KAV	8	PASI-I
		EPA 6010	RAM	9	PASI-I
		EPA 6010	JPK	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 7470	ILP	1	PASI-I
50226102008	BC-EB-GW1	EPA 8270 by SIM LVE	GRM	20	PASI-I
		EPA 8260	CAP	72	PASI-I
		EPA 8082	KAV	8	PASI-I
		EPA 6010	RAM	9	PASI-I
		EPA 7470	LBT	1	PASI-I
		EPA 8270 by SIM LVE	GRM	20	PASI-I
50226102009	BC-TB1	EPA 8260	CAP	72	PASI-I
		EPA 8260	CAP	72	PASI-I

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: The Butler Co.

Pace Project No.: 50226102

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
<b>50226102001</b>	<b>BC-GP10-GW1</b>					
EPA 6010	Barium	117	ug/L	10.0	06/03/19 08:42	
EPA 6010	Chromium	17.4	ug/L	10.0	06/03/19 08:42	
EPA 6010	Copper	14.5	ug/L	10.0	06/03/19 08:42	
EPA 6010	Zinc	27.6	ug/L	20.0	06/03/19 08:42	
EPA 6010	Barium, Dissolved	72.0	ug/L	10.0	05/29/19 02:42	
<b>50226102002</b>	<b>BC-GP11-GW1</b>					
EPA 6010	Barium	134	ug/L	10.0	06/03/19 08:45	
EPA 6010	Zinc	56.1	ug/L	20.0	06/03/19 08:45	
EPA 6010	Barium, Dissolved	115	ug/L	10.0	05/29/19 02:49	
EPA 6010	Zinc, Dissolved	24.4	ug/L	20.0	05/29/19 02:49	
<b>50226102003</b>	<b>BC-GP12-GW1</b>					
EPA 6010	Barium	121	ug/L	10.0	06/03/19 08:47	
EPA 6010	Barium, Dissolved	114	ug/L	10.0	05/29/19 02:51	
<b>50226102004</b>	<b>BC-GP13-GW1</b>					
EPA 6010	Barium	136	ug/L	10.0	06/03/19 08:49	
EPA 6010	Cadmium	3.9	ug/L	2.0	06/03/19 08:49	
EPA 6010	Copper	35.0	ug/L	10.0	06/03/19 08:49	
EPA 6010	Zinc	1610	ug/L	20.0	06/03/19 08:49	
EPA 6010	Barium, Dissolved	140	ug/L	10.0	05/29/19 02:54	
EPA 6010	Cadmium, Dissolved	3.8	ug/L	2.0	05/29/19 02:54	
EPA 6010	Zinc, Dissolved	1570	ug/L	20.0	05/29/19 02:54	
<b>50226102005</b>	<b>BC-GP14-GW1</b>					
EPA 6010	Barium	158	ug/L	10.0	06/03/19 08:51	
EPA 6010	Chromium	10.9	ug/L	10.0	06/03/19 08:51	
EPA 6010	Copper	12.6	ug/L	10.0	06/03/19 08:51	
EPA 6010	Zinc	22.3	ug/L	20.0	06/03/19 08:51	
EPA 6010	Barium, Dissolved	123	ug/L	10.0	05/29/19 02:56	
<b>50226102006</b>	<b>BC-GP15-GW1</b>					
EPA 6010	Barium	150	ug/L	10.0	06/03/19 08:54	
EPA 6010	Barium, Dissolved	131	ug/L	10.0	05/29/19 02:59	
<b>50226102007</b>	<b>BC-GPGW-FD1</b>					
EPA 6010	Barium	133	ug/L	10.0	06/03/19 09:09	
EPA 6010	Copper	10.2	ug/L	10.0	06/03/19 09:09	
EPA 6010	Zinc	54.4	ug/L	20.0	06/03/19 09:09	
EPA 6010	Barium, Dissolved	116	ug/L	10.0	05/29/19 03:10	
EPA 6010	Zinc, Dissolved	22.8	ug/L	20.0	05/29/19 03:10	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP10-GW1	Lab ID: 50226102001	Collected: 05/22/19 16:35	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:29	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	06/01/19 11:47	06/03/19 02:29	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:29	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:29	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:29	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:29	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:29	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	49	%	10-148	1	06/01/19 11:47	06/03/19 02:29	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:42	7440-38-2	
Barium	117	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:42	7440-39-3	
Cadmium	ND	ug/L	2.0	1	06/01/19 09:40	06/03/19 08:42	7440-43-9	
Chromium	17.4	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:42	7440-47-3	
Copper	14.5	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:42	7440-50-8	
Lead	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:42	7439-92-1	
Selenium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:42	7782-49-2	
Silver	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:42	7440-22-4	
Zinc	27.6	ug/L	20.0	1	06/01/19 09:40	06/03/19 08:42	7440-66-6	
<b>6010 MET ICP, Dissolved</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:42	7440-38-2	
Barium, Dissolved	72.0	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:42	7440-39-3	
Cadmium, Dissolved	ND	ug/L	2.0	1	05/28/19 06:02	05/29/19 02:42	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:42	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:42	7440-50-8	
Lead, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:42	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:42	7782-49-2	
Silver, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:42	7440-22-4	
Zinc, Dissolved	ND	ug/L	20.0	1	05/28/19 06:02	05/29/19 02:42	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/28/19 00:17	7439-97-6	
<b>7470 Mercury, Dissolved</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/19 21:24	05/31/19 08:36	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	83-32-9	1d
Acenaphthylene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	208-96-8	1d
Anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:21	120-12-7	1d
Benzo(a)anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:21	56-55-3	1d
Benzo(a)pyrene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:21	50-32-8	1d
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:21	205-99-2	1d
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:21	191-24-2	1d

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP10-GW1	Lab ID: 50226102001	Collected: 05/22/19 16:35	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAHLV</b>		Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510						
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:21	207-08-9	1d
Chrysene	ND	ug/L	0.50	1	05/28/19 09:26	05/28/19 15:21	218-01-9	1d
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:21	53-70-3	1d
Fluoranthene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	206-44-0	1d
Fluorene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	86-73-7	1d
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:21	193-39-5	1d
1-Methylnaphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	90-12-0	1d,N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	91-57-6	1d
Naphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	91-20-3	1d
Phenanthrene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	85-01-8	1d
Pyrene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:21	129-00-0	1d
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	74	%.	10-105	1	05/28/19 09:26	05/28/19 15:21	321-60-8	
p-Terphenyl-d14 (S)	108	%.	10-142	1	05/28/19 09:26	05/28/19 15:21	1718-51-0	
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
Acetone	ND	ug/L	100	1		05/30/19 23:12	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/30/19 23:12	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/30/19 23:12	107-13-1	
Benzene	ND	ug/L	5.0	1		05/30/19 23:12	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/30/19 23:12	108-86-1	
Bromochloromethane	ND	ug/L	5.0	1		05/30/19 23:12	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/30/19 23:12	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/30/19 23:12	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/30/19 23:12	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/30/19 23:12	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/30/19 23:12	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/30/19 23:12	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/30/19 23:12	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/30/19 23:12	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/30/19 23:12	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/30/19 23:12	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/30/19 23:12	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/30/19 23:12	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/30/19 23:12	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/30/19 23:12	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/30/19 23:12	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/30/19 23:12	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/30/19 23:12	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/30/19 23:12	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 23:12	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 23:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/30/19 23:12	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/30/19 23:12	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/30/19 23:12	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/30/19 23:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/30/19 23:12	107-06-2	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP10-GW1	Lab ID: 50226102001	Collected: 05/22/19 16:35	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
1,1-Dichloroethene	ND	ug/L	5.0	1		05/30/19 23:12	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/30/19 23:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/30/19 23:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/30/19 23:12	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/30/19 23:12	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/30/19 23:12	594-20-7	L1
1,1-Dichloropropene	ND	ug/L	5.0	1		05/30/19 23:12	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/30/19 23:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/30/19 23:12	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/30/19 23:12	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/30/19 23:12	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/30/19 23:12	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/30/19 23:12	110-54-3	L1
2-Hexanone	ND	ug/L	25.0	1		05/30/19 23:12	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/30/19 23:12	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/30/19 23:12	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		05/30/19 23:12	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/30/19 23:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/30/19 23:12	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/30/19 23:12	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/30/19 23:12	103-65-1	
Styrene	ND	ug/L	5.0	1		05/30/19 23:12	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/30/19 23:12	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/30/19 23:12	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/30/19 23:12	127-18-4	
Toluene	ND	ug/L	5.0	1		05/30/19 23:12	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/30/19 23:12	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/30/19 23:12	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/30/19 23:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/30/19 23:12	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/30/19 23:12	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/30/19 23:12	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/30/19 23:12	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/30/19 23:12	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/30/19 23:12	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/30/19 23:12	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/30/19 23:12	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/30/19 23:12	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%.	80-122	1		05/30/19 23:12	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	85-114	1		05/30/19 23:12	460-00-4	
Toluene-d8 (S)	101	%.	85-114	1		05/30/19 23:12	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP11-GW1	Lab ID: 50226102002	Collected: 05/22/19 14:41	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:43	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	06/01/19 11:47	06/03/19 02:43	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:43	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:43	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:43	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:43	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:43	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	62	%	10-148	1	06/01/19 11:47	06/03/19 02:43	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:45	7440-38-2	
Barium	134	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:45	7440-39-3	
Cadmium	ND	ug/L	2.0	1	06/01/19 09:40	06/03/19 08:45	7440-43-9	
Chromium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:45	7440-47-3	
Copper	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:45	7440-50-8	
Lead	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:45	7439-92-1	
Selenium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:45	7782-49-2	
Silver	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:45	7440-22-4	
Zinc	56.1	ug/L	20.0	1	06/01/19 09:40	06/03/19 08:45	7440-66-6	
<b>6010 MET ICP, Dissolved</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:49	7440-38-2	
Barium, Dissolved	115	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:49	7440-39-3	
Cadmium, Dissolved	ND	ug/L	2.0	1	05/28/19 06:02	05/29/19 02:49	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:49	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:49	7440-50-8	
Lead, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:49	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:49	7782-49-2	
Silver, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:49	7440-22-4	
Zinc, Dissolved	24.4	ug/L	20.0	1	05/28/19 06:02	05/29/19 02:49	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/28/19 00:19	7439-97-6	
<b>7470 Mercury, Dissolved</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/19 21:24	05/31/19 08:38	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	83-32-9	1d
Acenaphthylene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	208-96-8	1d
Anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:33	120-12-7	1d
Benzo(a)anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:33	56-55-3	1d
Benzo(a)pyrene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:33	50-32-8	1d
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:33	205-99-2	1d
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:33	191-24-2	1d

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP11-GW1	Lab ID: 50226102002	Collected: 05/22/19 14:41	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:33	207-08-9	1d
Chrysene	ND	ug/L	0.50	1	05/28/19 09:26	05/28/19 15:33	218-01-9	1d
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:33	53-70-3	1d
Fluoranthene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	206-44-0	1d
Fluorene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	86-73-7	1d
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:33	193-39-5	1d
1-Methylnaphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	90-12-0	1d,N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	91-57-6	1d
Naphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	91-20-3	1d
Phenanthrene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	85-01-8	1d
Pyrene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:33	129-00-0	1d
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	75	%.	10-105	1	05/28/19 09:26	05/28/19 15:33	321-60-8	
p-Terphenyl-d14 (S)	79	%.	10-142	1	05/28/19 09:26	05/28/19 15:33	1718-51-0	
<b>8260/5030 MSV</b>								
Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	1		05/31/19 02:13	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/31/19 02:13	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/31/19 02:13	107-13-1	
Benzene	ND	ug/L	5.0	1		05/31/19 02:13	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/31/19 02:13	108-86-1	L1
Bromochloromethane	ND	ug/L	5.0	1		05/31/19 02:13	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/31/19 02:13	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/31/19 02:13	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/31/19 02:13	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/31/19 02:13	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/31/19 02:13	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/31/19 02:13	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/31/19 02:13	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/31/19 02:13	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/31/19 02:13	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/31/19 02:13	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/31/19 02:13	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/31/19 02:13	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/31/19 02:13	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 02:13	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 02:13	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/31/19 02:13	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/31/19 02:13	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/31/19 02:13	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:13	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:13	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:13	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/31/19 02:13	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/31/19 02:13	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/31/19 02:13	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/31/19 02:13	107-06-2	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP11-GW1	Lab ID: 50226102002	Collected: 05/22/19 14:41	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
1,1-Dichloroethene	ND	ug/L	5.0	1		05/31/19 02:13	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 02:13	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 02:13	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 02:13	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/31/19 02:13	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 02:13	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/31/19 02:13	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 02:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 02:13	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/31/19 02:13	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/31/19 02:13	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/31/19 02:13	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/31/19 02:13	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/31/19 02:13	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/31/19 02:13	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/31/19 02:13	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		05/31/19 02:13	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/31/19 02:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/31/19 02:13	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/31/19 02:13	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/31/19 02:13	103-65-1	
Styrene	ND	ug/L	5.0	1		05/31/19 02:13	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 02:13	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 02:13	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/31/19 02:13	127-18-4	
Toluene	ND	ug/L	5.0	1		05/31/19 02:13	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:13	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:13	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/31/19 02:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/31/19 02:13	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/31/19 02:13	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/31/19 02:13	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/31/19 02:13	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 02:13	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 02:13	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/31/19 02:13	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/31/19 02:13	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/31/19 02:13	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	104	%.	80-122	1		05/31/19 02:13	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	85-114	1		05/31/19 02:13	460-00-4	
Toluene-d8 (S)	99	%.	85-114	1		05/31/19 02:13	2037-26-5	

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP12-GW1	Lab ID: 50226102003	Collected: 05/22/19 10:40	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:57	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	06/01/19 11:47	06/03/19 02:57	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:57	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:57	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:57	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:57	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 02:57	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	48	%	10-148	1	06/01/19 11:47	06/03/19 02:57	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:47	7440-38-2	
Barium	121	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:47	7440-39-3	
Cadmium	ND	ug/L	2.0	1	06/01/19 09:40	06/03/19 08:47	7440-43-9	
Chromium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:47	7440-47-3	
Copper	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:47	7440-50-8	
Lead	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:47	7439-92-1	
Selenium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:47	7782-49-2	
Silver	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:47	7440-22-4	
Zinc	ND	ug/L	20.0	1	06/01/19 09:40	06/03/19 08:47	7440-66-6	
<b>6010 MET ICP, Dissolved</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:51	7440-38-2	
Barium, Dissolved	114	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:51	7440-39-3	
Cadmium, Dissolved	ND	ug/L	2.0	1	05/28/19 06:02	05/29/19 02:51	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:51	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:51	7440-50-8	
Lead, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:51	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:51	7782-49-2	
Silver, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:51	7440-22-4	
Zinc, Dissolved	ND	ug/L	20.0	1	05/28/19 06:02	05/29/19 02:51	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/28/19 00:21	7439-97-6	
<b>7470 Mercury, Dissolved</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/19 21:24	05/31/19 08:41	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	83-32-9	1d
Acenaphthylene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	208-96-8	1d
Anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:44	120-12-7	1d
Benzo(a)anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:44	56-55-3	1d
Benzo(a)pyrene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:44	50-32-8	1d
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:44	205-99-2	1d
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:44	191-24-2	1d

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP12-GW1	Lab ID: 50226102003	Collected: 05/22/19 10:40	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:44	207-08-9	1d
Chrysene	ND	ug/L	0.50	1	05/28/19 09:26	05/28/19 15:44	218-01-9	1d
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:44	53-70-3	1d
Fluoranthene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	206-44-0	1d
Fluorene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	86-73-7	1d
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:44	193-39-5	1d
1-Methylnaphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	90-12-0	1d,N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	91-57-6	1d
Naphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	91-20-3	1d
Phenanthrene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	85-01-8	1d
Pyrene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:44	129-00-0	1d
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%.	10-105	1	05/28/19 09:26	05/28/19 15:44	321-60-8	
p-Terphenyl-d14 (S)	76	%.	10-142	1	05/28/19 09:26	05/28/19 15:44	1718-51-0	
<b>8260/5030 MSV</b>								
Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	1		05/31/19 02:45	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/31/19 02:45	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/31/19 02:45	107-13-1	
Benzene	ND	ug/L	5.0	1		05/31/19 02:45	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/31/19 02:45	108-86-1	L1
Bromochloromethane	ND	ug/L	5.0	1		05/31/19 02:45	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/31/19 02:45	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/31/19 02:45	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/31/19 02:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/31/19 02:45	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/31/19 02:45	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/31/19 02:45	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/31/19 02:45	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/31/19 02:45	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/31/19 02:45	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/31/19 02:45	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/31/19 02:45	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/31/19 02:45	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/31/19 02:45	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 02:45	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 02:45	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/31/19 02:45	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/31/19 02:45	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/31/19 02:45	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:45	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/31/19 02:45	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/31/19 02:45	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/31/19 02:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/31/19 02:45	107-06-2	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP12-GW1	Lab ID: 50226102003	Collected: 05/22/19 10:40	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
1,1-Dichloroethene	ND	ug/L	5.0	1		05/31/19 02:45	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 02:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 02:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 02:45	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/31/19 02:45	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 02:45	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/31/19 02:45	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 02:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 02:45	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/31/19 02:45	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/31/19 02:45	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/31/19 02:45	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/31/19 02:45	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/31/19 02:45	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/31/19 02:45	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/31/19 02:45	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		05/31/19 02:45	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/31/19 02:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/31/19 02:45	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/31/19 02:45	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/31/19 02:45	103-65-1	
Styrene	ND	ug/L	5.0	1		05/31/19 02:45	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 02:45	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 02:45	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/31/19 02:45	127-18-4	
Toluene	ND	ug/L	5.0	1		05/31/19 02:45	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:45	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 02:45	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/31/19 02:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/31/19 02:45	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/31/19 02:45	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/31/19 02:45	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/31/19 02:45	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 02:45	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 02:45	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/31/19 02:45	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/31/19 02:45	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/31/19 02:45	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	103	%.	80-122	1		05/31/19 02:45	1868-53-7	
4-Bromofluorobenzene (S)	100	%.	85-114	1		05/31/19 02:45	460-00-4	
Toluene-d8 (S)	98	%.	85-114	1		05/31/19 02:45	2037-26-5	

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP13-GW1	Lab ID: 50226102004	Collected: 05/22/19 13:03	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:12	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	06/01/19 11:47	06/03/19 03:12	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:12	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:12	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:12	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:12	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:12	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	45	%	10-148	1	06/01/19 11:47	06/03/19 03:12	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:49	7440-38-2	
Barium	136	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:49	7440-39-3	
Cadmium	3.9	ug/L	2.0	1	06/01/19 09:40	06/03/19 08:49	7440-43-9	
Chromium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:49	7440-47-3	
Copper	35.0	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:49	7440-50-8	
Lead	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:49	7439-92-1	
Selenium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:49	7782-49-2	
Silver	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:49	7440-22-4	
Zinc	1610	ug/L	20.0	1	06/01/19 09:40	06/03/19 08:49	7440-66-6	
<b>6010 MET ICP, Dissolved</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:54	7440-38-2	
Barium, Dissolved	140	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:54	7440-39-3	
Cadmium, Dissolved	3.8	ug/L	2.0	1	05/28/19 06:02	05/29/19 02:54	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:54	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:54	7440-50-8	
Lead, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:54	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:54	7782-49-2	
Silver, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:54	7440-22-4	
Zinc, Dissolved	1570	ug/L	20.0	1	05/28/19 06:02	05/29/19 02:54	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/28/19 00:23	7439-97-6	
<b>7470 Mercury, Dissolved</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/19 21:24	05/31/19 08:43	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	83-32-9	1d
Acenaphthylene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	208-96-8	1d
Anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:55	120-12-7	1d
Benzo(a)anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:55	56-55-3	1d
Benzo(a)pyrene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:55	50-32-8	1d
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:55	205-99-2	1d
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:55	191-24-2	1d

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP13-GW1	Lab ID: 50226102004	Collected: 05/22/19 13:03	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:55	207-08-9	1d
Chrysene	ND	ug/L	0.50	1	05/28/19 09:26	05/28/19 15:55	218-01-9	1d
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:55	53-70-3	1d
Fluoranthene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	206-44-0	1d
Fluorene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	86-73-7	1d
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/28/19 09:26	05/28/19 15:55	193-39-5	1d
1-Methylnaphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	90-12-0	1d,N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	91-57-6	1d
Naphthalene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	91-20-3	1d
Phenanthrene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	85-01-8	1d
Pyrene	ND	ug/L	1.0	1	05/28/19 09:26	05/28/19 15:55	129-00-0	1d
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	60	%.	10-105	1	05/28/19 09:26	05/28/19 15:55	321-60-8	
p-Terphenyl-d14 (S)	74	%.	10-142	1	05/28/19 09:26	05/28/19 15:55	1718-51-0	
<b>8260/5030 MSV</b>								
Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	1		05/31/19 03:18	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/31/19 03:18	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/31/19 03:18	107-13-1	
Benzene	ND	ug/L	5.0	1		05/31/19 03:18	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/31/19 03:18	108-86-1	L1
Bromochloromethane	ND	ug/L	5.0	1		05/31/19 03:18	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/31/19 03:18	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/31/19 03:18	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/31/19 03:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/31/19 03:18	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/31/19 03:18	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/31/19 03:18	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/31/19 03:18	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/31/19 03:18	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/31/19 03:18	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/31/19 03:18	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/31/19 03:18	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/31/19 03:18	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/31/19 03:18	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 03:18	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 03:18	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/31/19 03:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/31/19 03:18	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/31/19 03:18	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:18	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:18	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:18	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/31/19 03:18	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/31/19 03:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/31/19 03:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/31/19 03:18	107-06-2	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP13-GW1	Lab ID: 50226102004	Collected: 05/22/19 13:03	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
1,1-Dichloroethene	ND	ug/L	5.0	1		05/31/19 03:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 03:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 03:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 03:18	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/31/19 03:18	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 03:18	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/31/19 03:18	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 03:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 03:18	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/31/19 03:18	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/31/19 03:18	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/31/19 03:18	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/31/19 03:18	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/31/19 03:18	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/31/19 03:18	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/31/19 03:18	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		05/31/19 03:18	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/31/19 03:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/31/19 03:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/31/19 03:18	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/31/19 03:18	103-65-1	
Styrene	ND	ug/L	5.0	1		05/31/19 03:18	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 03:18	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 03:18	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/31/19 03:18	127-18-4	
Toluene	ND	ug/L	5.0	1		05/31/19 03:18	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:18	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:18	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/31/19 03:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/31/19 03:18	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/31/19 03:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/31/19 03:18	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/31/19 03:18	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 03:18	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 03:18	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/31/19 03:18	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/31/19 03:18	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/31/19 03:18	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	104	%.	80-122	1		05/31/19 03:18	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	85-114	1		05/31/19 03:18	460-00-4	
Toluene-d8 (S)	98	%.	85-114	1		05/31/19 03:18	2037-26-5	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP14-GW1	Lab ID: 50226102005	Collected: 05/22/19 11:44	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:26	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	06/01/19 11:47	06/03/19 03:26	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:26	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:26	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:26	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:26	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:26	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	59	%	10-148	1	06/01/19 11:47	06/03/19 03:26	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:51	7440-38-2	
Barium	158	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:51	7440-39-3	
Cadmium	ND	ug/L	2.0	1	06/01/19 09:40	06/03/19 08:51	7440-43-9	
Chromium	10.9	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:51	7440-47-3	
Copper	12.6	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:51	7440-50-8	
Lead	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:51	7439-92-1	
Selenium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:51	7782-49-2	
Silver	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:51	7440-22-4	
Zinc	22.3	ug/L	20.0	1	06/01/19 09:40	06/03/19 08:51	7440-66-6	
<b>6010 MET ICP, Dissolved</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:56	7440-38-2	
Barium, Dissolved	123	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:56	7440-39-3	
Cadmium, Dissolved	ND	ug/L	2.0	1	05/28/19 06:02	05/29/19 02:56	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:56	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:56	7440-50-8	
Lead, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:56	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:56	7782-49-2	
Silver, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:56	7440-22-4	
Zinc, Dissolved	ND	ug/L	20.0	1	05/28/19 06:02	05/29/19 02:56	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/28/19 00:26	7439-97-6	
<b>7470 Mercury, Dissolved</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/19 21:24	05/31/19 08:46	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	83-32-9	
Acenaphthylene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	208-96-8	
Anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:11	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:11	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:11	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:11	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:11	191-24-2	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP14-GW1	Lab ID: 50226102005	Collected: 05/22/19 11:44	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:11	207-08-9	
Chrysene	ND	ug/L	0.50	1	05/29/19 09:17	05/30/19 23:11	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:11	53-70-3	
Fluoranthene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	206-44-0	
Fluorene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:11	193-39-5	
1-Methylnaphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	90-12-0	N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	91-57-6	
Naphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	91-20-3	
Phenanthrene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	85-01-8	
Pyrene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:11	129-00-0	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	71	%	10-105	1	05/29/19 09:17	05/30/19 23:11	321-60-8	
p-Terphenyl-d14 (S)	69	%	10-142	1	05/29/19 09:17	05/30/19 23:11	1718-51-0	
<b>8260/5030 MSV</b>								
Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	1		05/31/19 03:51	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/31/19 03:51	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/31/19 03:51	107-13-1	
Benzene	ND	ug/L	5.0	1		05/31/19 03:51	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/31/19 03:51	108-86-1	L1
Bromochloromethane	ND	ug/L	5.0	1		05/31/19 03:51	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/31/19 03:51	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/31/19 03:51	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/31/19 03:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/31/19 03:51	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/31/19 03:51	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/31/19 03:51	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/31/19 03:51	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/31/19 03:51	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/31/19 03:51	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/31/19 03:51	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/31/19 03:51	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/31/19 03:51	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/31/19 03:51	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 03:51	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 03:51	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/31/19 03:51	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/31/19 03:51	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/31/19 03:51	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:51	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/31/19 03:51	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/31/19 03:51	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/31/19 03:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/31/19 03:51	107-06-2	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP14-GW1	Lab ID: 50226102005	Collected: 05/22/19 11:44	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
1,1-Dichloroethene	ND	ug/L	5.0	1		05/31/19 03:51	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 03:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 03:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 03:51	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/31/19 03:51	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 03:51	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/31/19 03:51	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 03:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 03:51	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/31/19 03:51	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/31/19 03:51	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/31/19 03:51	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/31/19 03:51	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/31/19 03:51	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/31/19 03:51	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/31/19 03:51	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		05/31/19 03:51	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/31/19 03:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/31/19 03:51	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/31/19 03:51	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/31/19 03:51	103-65-1	
Styrene	ND	ug/L	5.0	1		05/31/19 03:51	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 03:51	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 03:51	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/31/19 03:51	127-18-4	
Toluene	ND	ug/L	5.0	1		05/31/19 03:51	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:51	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 03:51	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/31/19 03:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/31/19 03:51	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/31/19 03:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/31/19 03:51	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/31/19 03:51	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 03:51	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 03:51	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/31/19 03:51	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/31/19 03:51	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/31/19 03:51	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	104	%.	80-122	1		05/31/19 03:51	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	85-114	1		05/31/19 03:51	460-00-4	
Toluene-d8 (S)	98	%.	85-114	1		05/31/19 03:51	2037-26-5	

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## ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP15-GW1	Lab ID: 50226102006	Collected: 05/22/19 18:08	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	06/02/19 10:12	06/02/19 22:12	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	06/02/19 10:12	06/02/19 22:12	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	06/02/19 10:12	06/02/19 22:12	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	06/02/19 10:12	06/02/19 22:12	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	06/02/19 10:12	06/02/19 22:12	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	06/02/19 10:12	06/02/19 22:12	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	06/02/19 10:12	06/02/19 22:12	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	67	%	10-148	1	06/02/19 10:12	06/02/19 22:12	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:54	7440-38-2	
Barium	150	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:54	7440-39-3	
Cadmium	ND	ug/L	2.0	1	06/01/19 09:40	06/03/19 08:54	7440-43-9	
Chromium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:54	7440-47-3	
Copper	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:54	7440-50-8	
Lead	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:54	7439-92-1	
Selenium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:54	7782-49-2	
Silver	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 08:54	7440-22-4	
Zinc	ND	ug/L	20.0	1	06/01/19 09:40	06/03/19 08:54	7440-66-6	
<b>6010 MET ICP, Dissolved</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:59	7440-38-2	
Barium, Dissolved	131	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:59	7440-39-3	
Cadmium, Dissolved	ND	ug/L	2.0	1	05/28/19 06:02	05/29/19 02:59	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:59	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:59	7440-50-8	
Lead, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:59	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:59	7782-49-2	
Silver, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 02:59	7440-22-4	
Zinc, Dissolved	ND	ug/L	20.0	1	05/28/19 06:02	05/29/19 02:59	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/28/19 00:28	7439-97-6	
<b>7470 Mercury, Dissolved</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/19 21:24	05/31/19 08:48	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	83-32-9	
Acenaphthylene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	208-96-8	
Anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:20	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:20	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:20	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:20	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:20	191-24-2	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP15-GW1	Lab ID: 50226102006	Collected: 05/22/19 18:08	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:20	207-08-9	
Chrysene	ND	ug/L	0.50	1	05/29/19 09:17	05/30/19 23:20	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:20	53-70-3	
Fluoranthene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	206-44-0	
Fluorene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:20	193-39-5	
1-Methylnaphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	90-12-0	N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	91-57-6	
Naphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	91-20-3	
Phenanthrene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	85-01-8	
Pyrene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:20	129-00-0	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%	10-105	1	05/29/19 09:17	05/30/19 23:20	321-60-8	
p-Terphenyl-d14 (S)	80	%	10-142	1	05/29/19 09:17	05/30/19 23:20	1718-51-0	
<b>8260/5030 MSV</b>								
Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	1		05/31/19 04:24	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/31/19 04:24	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/31/19 04:24	107-13-1	
Benzene	ND	ug/L	5.0	1		05/31/19 04:24	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/31/19 04:24	108-86-1	L1
Bromochloromethane	ND	ug/L	5.0	1		05/31/19 04:24	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/31/19 04:24	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/31/19 04:24	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/31/19 04:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/31/19 04:24	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/31/19 04:24	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/31/19 04:24	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/31/19 04:24	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/31/19 04:24	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/31/19 04:24	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/31/19 04:24	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/31/19 04:24	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/31/19 04:24	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/31/19 04:24	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 04:24	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 04:24	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/31/19 04:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/31/19 04:24	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/31/19 04:24	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:24	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/31/19 04:24	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/31/19 04:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/31/19 04:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/31/19 04:24	107-06-2	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GP15-GW1	Lab ID: 50226102006	Collected: 05/22/19 18:08	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
1,1-Dichloroethene	ND	ug/L	5.0	1		05/31/19 04:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 04:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 04:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 04:24	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/31/19 04:24	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 04:24	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/31/19 04:24	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 04:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 04:24	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/31/19 04:24	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/31/19 04:24	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/31/19 04:24	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/31/19 04:24	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/31/19 04:24	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/31/19 04:24	74-88-4	R1
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/31/19 04:24	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		05/31/19 04:24	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/31/19 04:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/31/19 04:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/31/19 04:24	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/31/19 04:24	103-65-1	
Styrene	ND	ug/L	5.0	1		05/31/19 04:24	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 04:24	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 04:24	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/31/19 04:24	127-18-4	
Toluene	ND	ug/L	5.0	1		05/31/19 04:24	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:24	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/31/19 04:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/31/19 04:24	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/31/19 04:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/31/19 04:24	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/31/19 04:24	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 04:24	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 04:24	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/31/19 04:24	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/31/19 04:24	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/31/19 04:24	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	104	%.	80-122	1		05/31/19 04:24	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	85-114	1		05/31/19 04:24	460-00-4	
Toluene-d8 (S)	100	%.	85-114	1		05/31/19 04:24	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GPGW-FD1	Lab ID: 50226102007	Collected: 05/22/19 08:00	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:40	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	06/01/19 11:47	06/03/19 03:40	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:40	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:40	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:40	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:40	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:40	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	64	%	10-148	1	06/01/19 11:47	06/03/19 03:40	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:09	7440-38-2	
Barium	133	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:09	7440-39-3	
Cadmium	ND	ug/L	2.0	1	06/01/19 09:40	06/03/19 09:09	7440-43-9	
Chromium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:09	7440-47-3	
Copper	10.2	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:09	7440-50-8	
Lead	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:09	7439-92-1	
Selenium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:09	7782-49-2	
Silver	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:09	7440-22-4	
Zinc	54.4	ug/L	20.0	1	06/01/19 09:40	06/03/19 09:09	7440-66-6	
<b>6010 MET ICP, Dissolved</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 03:10	7440-38-2	
Barium, Dissolved	116	ug/L	10.0	1	05/28/19 06:02	05/29/19 03:10	7440-39-3	
Cadmium, Dissolved	ND	ug/L	2.0	1	05/28/19 06:02	05/29/19 03:10	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 03:10	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 03:10	7440-50-8	
Lead, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 03:10	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 03:10	7782-49-2	
Silver, Dissolved	ND	ug/L	10.0	1	05/28/19 06:02	05/29/19 03:10	7440-22-4	
Zinc, Dissolved	22.8	ug/L	20.0	1	05/28/19 06:02	05/29/19 03:10	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/28/19 00:34	7439-97-6	
<b>7470 Mercury, Dissolved</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/19 21:24	05/31/19 09:00	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	83-32-9	
Acenaphthylene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	208-96-8	
Anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:49	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:49	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:49	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:49	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:49	191-24-2	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GPGW-FD1	Lab ID: 50226102007	Collected: 05/22/19 08:00	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:49	207-08-9	
Chrysene	ND	ug/L	0.50	1	05/29/19 09:17	05/30/19 23:49	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:49	53-70-3	
Fluoranthene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	206-44-0	
Fluorene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:49	193-39-5	
1-Methylnaphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	90-12-0	N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	91-57-6	
Naphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	91-20-3	
Phenanthrene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	85-01-8	
Pyrene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:49	129-00-0	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	73	%	10-105	1	05/29/19 09:17	05/30/19 23:49	321-60-8	
p-Terphenyl-d14 (S)	73	%	10-142	1	05/29/19 09:17	05/30/19 23:49	1718-51-0	
<b>8260/5030 MSV</b>								
Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	1		05/31/19 04:57	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/31/19 04:57	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/31/19 04:57	107-13-1	
Benzene	ND	ug/L	5.0	1		05/31/19 04:57	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/31/19 04:57	108-86-1	L1
Bromochloromethane	ND	ug/L	5.0	1		05/31/19 04:57	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/31/19 04:57	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/31/19 04:57	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/31/19 04:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/31/19 04:57	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/31/19 04:57	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/31/19 04:57	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/31/19 04:57	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/31/19 04:57	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/31/19 04:57	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/31/19 04:57	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/31/19 04:57	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/31/19 04:57	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/31/19 04:57	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 04:57	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 04:57	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/31/19 04:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/31/19 04:57	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/31/19 04:57	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:57	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:57	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:57	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/31/19 04:57	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/31/19 04:57	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/31/19 04:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/31/19 04:57	107-06-2	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-GPGW-FD1	Lab ID: 50226102007	Collected: 05/22/19 08:00	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>	Analytical Method: EPA 8260							
1,1-Dichloroethene	ND	ug/L	5.0	1		05/31/19 04:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 04:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 04:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 04:57	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/31/19 04:57	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 04:57	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/31/19 04:57	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 04:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 04:57	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/31/19 04:57	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/31/19 04:57	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/31/19 04:57	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/31/19 04:57	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/31/19 04:57	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/31/19 04:57	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/31/19 04:57	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		05/31/19 04:57	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/31/19 04:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/31/19 04:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/31/19 04:57	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/31/19 04:57	103-65-1	
Styrene	ND	ug/L	5.0	1		05/31/19 04:57	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 04:57	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 04:57	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/31/19 04:57	127-18-4	
Toluene	ND	ug/L	5.0	1		05/31/19 04:57	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:57	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 04:57	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/31/19 04:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/31/19 04:57	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/31/19 04:57	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/31/19 04:57	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/31/19 04:57	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 04:57	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 04:57	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/31/19 04:57	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/31/19 04:57	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/31/19 04:57	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	103	%.	80-122	1		05/31/19 04:57	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	85-114	1		05/31/19 04:57	460-00-4	
Toluene-d8 (S)	100	%.	85-114	1		05/31/19 04:57	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-EB-GW1	Lab ID: 50226102008	Collected: 05/22/19 11:20	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8082 GCS PCB RV Waters</b>								
Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:54	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	1	06/01/19 11:47	06/03/19 03:54	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:54	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:54	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:54	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:54	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	06/01/19 11:47	06/03/19 03:54	11096-82-5	
<b>Surrogates</b>								
Tetrachloro-m-xylene (S)	49	%.	10-148	1	06/01/19 11:47	06/03/19 03:54	877-09-8	
<b>6010 MET ICP</b>								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:11	7440-38-2	
Barium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:11	7440-39-3	
Cadmium	ND	ug/L	2.0	1	06/01/19 09:40	06/03/19 09:11	7440-43-9	
Chromium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:11	7440-47-3	
Copper	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:11	7440-50-8	
Lead	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:11	7439-92-1	
Selenium	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:11	7782-49-2	
Silver	ND	ug/L	10.0	1	06/01/19 09:40	06/03/19 09:11	7440-22-4	
Zinc	ND	ug/L	20.0	1	06/01/19 09:40	06/03/19 09:11	7440-66-6	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	2.0	1	05/26/19 20:13	05/28/19 00:36	7439-97-6	
<b>8270 MSSV PAHLV</b>								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	83-32-9	
Acenaphthylene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	208-96-8	
Anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:59	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:59	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:59	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:59	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:59	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:59	207-08-9	
Chrysene	ND	ug/L	0.50	1	05/29/19 09:17	05/30/19 23:59	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:59	53-70-3	
Fluoranthene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	206-44-0	
Fluorene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	05/29/19 09:17	05/30/19 23:59	193-39-5	
1-Methylnaphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	90-12-0	N2
2-Methylnaphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	91-57-6	
Naphthalene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	91-20-3	
Phenanthrene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	85-01-8	
Pyrene	ND	ug/L	1.0	1	05/29/19 09:17	05/30/19 23:59	129-00-0	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	59	%.	10-105	1	05/29/19 09:17	05/30/19 23:59	321-60-8	
p-Terphenyl-d14 (S)	77	%.	10-142	1	05/29/19 09:17	05/30/19 23:59	1718-51-0	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-EB-GW1	Lab ID: 50226102008	Collected: 05/22/19 11:20	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		05/31/19 05:30	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/31/19 05:30	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/31/19 05:30	107-13-1	
Benzene	ND	ug/L	5.0	1		05/31/19 05:30	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/31/19 05:30	108-86-1	L1
Bromochloromethane	ND	ug/L	5.0	1		05/31/19 05:30	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/31/19 05:30	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/31/19 05:30	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/31/19 05:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/31/19 05:30	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/31/19 05:30	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/31/19 05:30	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/31/19 05:30	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/31/19 05:30	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/31/19 05:30	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/31/19 05:30	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/31/19 05:30	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/31/19 05:30	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/31/19 05:30	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 05:30	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 05:30	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/31/19 05:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/31/19 05:30	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/31/19 05:30	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 05:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 05:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 05:30	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/31/19 05:30	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/31/19 05:30	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/31/19 05:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/31/19 05:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		05/31/19 05:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 05:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 05:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 05:30	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/31/19 05:30	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 05:30	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/31/19 05:30	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 05:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 05:30	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/31/19 05:30	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/31/19 05:30	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/31/19 05:30	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/31/19 05:30	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/31/19 05:30	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/31/19 05:30	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/31/19 05:30	98-82-8	

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-EB-GW1		Lab ID: 50226102008	Collected: 05/22/19 11:20	Received: 05/24/19 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
p-Isopropyltoluene	ND	ug/L	5.0	1		05/31/19 05:30	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/31/19 05:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/31/19 05:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/31/19 05:30	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/31/19 05:30	103-65-1	
Styrene	ND	ug/L	5.0	1		05/31/19 05:30	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 05:30	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 05:30	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/31/19 05:30	127-18-4	
Toluene	ND	ug/L	5.0	1		05/31/19 05:30	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 05:30	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 05:30	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/31/19 05:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/31/19 05:30	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/31/19 05:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/31/19 05:30	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/31/19 05:30	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 05:30	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 05:30	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/31/19 05:30	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/31/19 05:30	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/31/19 05:30	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	105	%	80-122	1		05/31/19 05:30	1868-53-7	
4-Bromofluorobenzene (S)	99	%	85-114	1		05/31/19 05:30	460-00-4	
Toluene-d8 (S)	99	%	85-114	1		05/31/19 05:30	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-TB1	Lab ID: 50226102009	Collected: 05/22/19 08:00	Received: 05/24/19 08:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		05/31/19 06:03	67-64-1	
Acrolein	ND	ug/L	50.0	1		05/31/19 06:03	107-02-8	
Acrylonitrile	ND	ug/L	100	1		05/31/19 06:03	107-13-1	
Benzene	ND	ug/L	5.0	1		05/31/19 06:03	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		05/31/19 06:03	108-86-1	L1
Bromochloromethane	ND	ug/L	5.0	1		05/31/19 06:03	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		05/31/19 06:03	75-27-4	
Bromoform	ND	ug/L	5.0	1		05/31/19 06:03	75-25-2	
Bromomethane	ND	ug/L	5.0	1		05/31/19 06:03	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		05/31/19 06:03	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		05/31/19 06:03	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		05/31/19 06:03	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		05/31/19 06:03	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		05/31/19 06:03	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		05/31/19 06:03	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		05/31/19 06:03	108-90-7	
Chloroethane	ND	ug/L	5.0	1		05/31/19 06:03	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/31/19 06:03	67-66-3	
Chloromethane	ND	ug/L	5.0	1		05/31/19 06:03	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 06:03	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		05/31/19 06:03	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		05/31/19 06:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		05/31/19 06:03	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		05/31/19 06:03	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 06:03	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 06:03	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		05/31/19 06:03	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		05/31/19 06:03	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		05/31/19 06:03	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		05/31/19 06:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		05/31/19 06:03	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		05/31/19 06:03	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 06:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		05/31/19 06:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 06:03	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		05/31/19 06:03	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		05/31/19 06:03	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		05/31/19 06:03	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 06:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		05/31/19 06:03	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		05/31/19 06:03	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		05/31/19 06:03	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		05/31/19 06:03	87-68-3	
n-Hexane	ND	ug/L	5.0	1		05/31/19 06:03	110-54-3	
2-Hexanone	ND	ug/L	25.0	1		05/31/19 06:03	591-78-6	
Iodomethane	ND	ug/L	10.0	1		05/31/19 06:03	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/31/19 06:03	98-82-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: The Butler Co.

Pace Project No.: 50226102

Sample: BC-TB1		Lab ID: 50226102009	Collected: 05/22/19 08:00	Received: 05/24/19 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260/5030 MSV</b>		Analytical Method: EPA 8260						
p-Isopropyltoluene	ND	ug/L	5.0	1		05/31/19 06:03	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/31/19 06:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		05/31/19 06:03	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		05/31/19 06:03	1634-04-4	
n-Propylbenzene	ND	ug/L	5.0	1		05/31/19 06:03	103-65-1	
Styrene	ND	ug/L	5.0	1		05/31/19 06:03	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 06:03	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		05/31/19 06:03	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		05/31/19 06:03	127-18-4	
Toluene	ND	ug/L	5.0	1		05/31/19 06:03	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 06:03	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		05/31/19 06:03	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		05/31/19 06:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		05/31/19 06:03	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		05/31/19 06:03	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		05/31/19 06:03	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		05/31/19 06:03	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 06:03	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		05/31/19 06:03	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		05/31/19 06:03	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		05/31/19 06:03	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		05/31/19 06:03	1330-20-7	
<b>Surrogates</b>								
Dibromofluoromethane (S)	105	%	80-122	1		05/31/19 06:03	1868-53-7	
4-Bromofluorobenzene (S)	99	%	85-114	1		05/31/19 06:03	460-00-4	
Toluene-d8 (S)	99	%	85-114	1		05/31/19 06:03	2037-26-5	

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### QUALITY CONTROL DATA

Project: The Butler Co.  
Pace Project No.: 50226102

QC Batch: 502628 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007, 50226102008

METHOD BLANK: 2320066 Matrix: Water  
Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007, 50226102008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	2.0	05/27/19 23:52	

LABORATORY CONTROL SAMPLE: 2320067

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.6	112	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320068 2320069

Parameter	Units	50226102006		2320068		2320069		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Mercury	ug/L	ND	5	5	5.3	5.4	106	108	75-125	2	20

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch: 502748 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury Dissolved  
 Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007

METHOD BLANK: 2320390 Matrix: Water  
 Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	ND	2.0	05/31/19 08:31	

LABORATORY CONTROL SAMPLE: 2320391

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.0	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320392 2320393

Parameter	Units	50226102006		MS		MSD		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Mercury, Dissolved	ug/L	ND	5	5	5	4.8	4.8	94	95	75-125	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320841 2320842

Parameter	Units	50226182003		MS		MSD		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Mercury, Dissolved	ug/L	ND	5	5	5	4.0	3.9	80	78	75-125	3	20	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch: 502604 Analysis Method: EPA 6010  
 QC Batch Method: EPA 3010 Analysis Description: 6010 MET  
 Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007, 50226102008

METHOD BLANK: 2319993 Matrix: Water  
 Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007, 50226102008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	06/03/19 08:33	
Barium	ug/L	ND	10.0	06/03/19 08:33	
Cadmium	ug/L	ND	2.0	06/03/19 08:33	
Chromium	ug/L	ND	10.0	06/03/19 08:33	
Copper	ug/L	ND	10.0	06/03/19 08:33	
Lead	ug/L	ND	10.0	06/03/19 08:33	
Selenium	ug/L	ND	10.0	06/03/19 08:33	
Silver	ug/L	ND	10.0	06/03/19 08:33	
Zinc	ug/L	ND	20.0	06/03/19 08:33	

LABORATORY CONTROL SAMPLE: 2319994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	966	97	80-120	
Barium	ug/L	1000	956	96	80-120	
Cadmium	ug/L	1000	953	95	80-120	
Chromium	ug/L	1000	940	94	80-120	
Copper	ug/L	1000	942	94	80-120	
Lead	ug/L	1000	913	91	80-120	
Selenium	ug/L	1000	961	96	80-120	
Silver	ug/L	500	466	93	80-120	
Zinc	ug/L	1000	953	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2319995 2319996

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		50226102006	Spike Conc.	Spike Conc.	Result							Result
Arsenic	ug/L	ND	1000	1000	1010	995	101	99	75-125	2	20	
Barium	ug/L	150	1000	1000	1130	1110	98	96	75-125	2	20	
Cadmium	ug/L	ND	1000	1000	977	962	98	96	75-125	2	20	
Chromium	ug/L	ND	1000	1000	945	925	94	92	75-125	2	20	
Copper	ug/L	ND	1000	1000	976	950	97	95	75-125	3	20	
Lead	ug/L	ND	1000	1000	890	880	89	88	75-125	1	20	
Selenium	ug/L	ND	1000	1000	999	986	100	99	75-125	1	20	
Silver	ug/L	ND	500	500	488	481	98	96	75-125	2	20	
Zinc	ug/L	ND	1000	1000	945	935	94	93	75-125	1	20	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch:	502664	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET Dissolved
Associated Lab Samples:	50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007		

METHOD BLANK: 2320143 Matrix: Water  
Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	10.0	05/29/19 02:40	
Barium, Dissolved	ug/L	ND	10.0	05/29/19 02:40	
Cadmium, Dissolved	ug/L	ND	2.0	05/29/19 02:40	
Chromium, Dissolved	ug/L	ND	10.0	05/29/19 02:40	
Copper, Dissolved	ug/L	ND	10.0	05/29/19 02:40	
Lead, Dissolved	ug/L	ND	10.0	05/29/19 02:40	
Selenium, Dissolved	ug/L	ND	10.0	05/29/19 02:40	
Silver, Dissolved	ug/L	ND	10.0	05/29/19 02:40	
Zinc, Dissolved	ug/L	ND	20.0	05/29/19 02:40	

LABORATORY CONTROL SAMPLE: 2320144

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	1000	948	95	80-120	
Barium, Dissolved	ug/L	1000	981	98	80-120	
Cadmium, Dissolved	ug/L	1000	969	97	80-120	
Chromium, Dissolved	ug/L	1000	956	96	80-120	
Copper, Dissolved	ug/L	1000	957	96	80-120	
Lead, Dissolved	ug/L	1000	923	92	80-120	
Selenium, Dissolved	ug/L	1000	996	100	80-120	
Silver, Dissolved	ug/L	500	492	98	80-120	
Zinc, Dissolved	ug/L	1000	986	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320145 2320146

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		50226102006	Spike Conc.	Spike Conc.	Result								
Arsenic, Dissolved	ug/L	ND	1000	1000	996	1010	100	101	75-125	1	20		
Barium, Dissolved	ug/L	131	1000	1000	1130	1140	100	101	75-125	1	20		
Cadmium, Dissolved	ug/L	ND	1000	1000	1010	1020	101	102	75-125	1	20		
Chromium, Dissolved	ug/L	ND	1000	1000	974	978	97	98	75-125	0	20		
Copper, Dissolved	ug/L	ND	1000	1000	999	1000	100	100	75-125	1	20		
Lead, Dissolved	ug/L	ND	1000	1000	901	912	90	91	75-125	1	20		
Selenium, Dissolved	ug/L	ND	1000	1000	1030	1040	103	104	75-125	1	20		
Silver, Dissolved	ug/L	ND	500	500	514	517	103	103	75-125	1	20		
Zinc, Dissolved	ug/L	ND	1000	1000	973	980	97	98	75-125	1	20		

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch: 503416

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV

Associated Lab Samples: 50226102001

METHOD BLANK: 2322817

Matrix: Water

Associated Lab Samples: 50226102001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	5.0	05/30/19 13:52	
1,1,1-Trichloroethane	ug/L	ND	5.0	05/30/19 13:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	5.0	05/30/19 13:52	
1,1,2-Trichloroethane	ug/L	ND	5.0	05/30/19 13:52	
1,1-Dichloroethane	ug/L	ND	5.0	05/30/19 13:52	
1,1-Dichloroethene	ug/L	ND	5.0	05/30/19 13:52	
1,1-Dichloropropene	ug/L	ND	5.0	05/30/19 13:52	
1,2,3-Trichlorobenzene	ug/L	ND	5.0	05/30/19 13:52	
1,2,3-Trichloropropane	ug/L	ND	5.0	05/30/19 13:52	
1,2,4-Trichlorobenzene	ug/L	ND	5.0	05/30/19 13:52	
1,2,4-Trimethylbenzene	ug/L	ND	5.0	05/30/19 13:52	
1,2-Dibromoethane (EDB)	ug/L	ND	5.0	05/30/19 13:52	
1,2-Dichlorobenzene	ug/L	ND	5.0	05/30/19 13:52	
1,2-Dichloroethane	ug/L	ND	5.0	05/30/19 13:52	
1,2-Dichloropropane	ug/L	ND	5.0	05/30/19 13:52	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	05/30/19 13:52	
1,3-Dichlorobenzene	ug/L	ND	5.0	05/30/19 13:52	
1,3-Dichloropropane	ug/L	ND	5.0	05/30/19 13:52	
1,4-Dichlorobenzene	ug/L	ND	5.0	05/30/19 13:52	
2,2-Dichloropropane	ug/L	ND	5.0	05/30/19 13:52	
2-Butanone (MEK)	ug/L	ND	25.0	05/30/19 13:52	
2-Chlorotoluene	ug/L	ND	5.0	05/30/19 13:52	
2-Hexanone	ug/L	ND	25.0	05/30/19 13:52	
4-Chlorotoluene	ug/L	ND	5.0	05/30/19 13:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	25.0	05/30/19 13:52	
Acetone	ug/L	ND	100	05/30/19 13:52	
Acrolein	ug/L	ND	50.0	05/30/19 13:52	
Acrylonitrile	ug/L	ND	100	05/30/19 13:52	
Benzene	ug/L	ND	5.0	05/30/19 13:52	
Bromobenzene	ug/L	ND	5.0	05/30/19 13:52	
Bromochloromethane	ug/L	ND	5.0	05/30/19 13:52	
Bromodichloromethane	ug/L	ND	5.0	05/30/19 13:52	
Bromoform	ug/L	ND	5.0	05/30/19 13:52	
Bromomethane	ug/L	ND	5.0	05/30/19 13:52	
Carbon disulfide	ug/L	ND	10.0	05/30/19 13:52	
Carbon tetrachloride	ug/L	ND	5.0	05/30/19 13:52	
Chlorobenzene	ug/L	ND	5.0	05/30/19 13:52	
Chloroethane	ug/L	ND	5.0	05/30/19 13:52	
Chloroform	ug/L	ND	5.0	05/30/19 13:52	
Chloromethane	ug/L	ND	5.0	05/30/19 13:52	
cis-1,2-Dichloroethene	ug/L	ND	5.0	05/30/19 13:52	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

METHOD BLANK: 2322817

Matrix: Water

Associated Lab Samples: 50226102001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,3-Dichloropropene	ug/L	ND	5.0	05/30/19 13:52	
Dibromochloromethane	ug/L	ND	5.0	05/30/19 13:52	
Dibromomethane	ug/L	ND	5.0	05/30/19 13:52	
Dichlorodifluoromethane	ug/L	ND	5.0	05/30/19 13:52	
Ethyl methacrylate	ug/L	ND	100	05/30/19 13:52	
Ethylbenzene	ug/L	ND	5.0	05/30/19 13:52	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	05/30/19 13:52	
Iodomethane	ug/L	ND	10.0	05/30/19 13:52	
Isopropylbenzene (Cumene)	ug/L	ND	5.0	05/30/19 13:52	
Methyl-tert-butyl ether	ug/L	ND	4.0	05/30/19 13:52	
Methylene Chloride	ug/L	ND	5.0	05/30/19 13:52	
n-Butylbenzene	ug/L	ND	5.0	05/30/19 13:52	
n-Hexane	ug/L	ND	5.0	05/30/19 13:52	
n-Propylbenzene	ug/L	ND	5.0	05/30/19 13:52	
p-Isopropyltoluene	ug/L	ND	5.0	05/30/19 13:52	
sec-Butylbenzene	ug/L	ND	5.0	05/30/19 13:52	
Styrene	ug/L	ND	5.0	05/30/19 13:52	
tert-Butylbenzene	ug/L	ND	5.0	05/30/19 13:52	
Tetrachloroethene	ug/L	ND	5.0	05/30/19 13:52	
Toluene	ug/L	ND	5.0	05/30/19 13:52	
trans-1,2-Dichloroethene	ug/L	ND	5.0	05/30/19 13:52	
trans-1,3-Dichloropropene	ug/L	ND	5.0	05/30/19 13:52	
trans-1,4-Dichloro-2-butene	ug/L	ND	100	05/30/19 13:52	
Trichloroethene	ug/L	ND	5.0	05/30/19 13:52	
Trichlorofluoromethane	ug/L	ND	5.0	05/30/19 13:52	
Vinyl acetate	ug/L	ND	50.0	05/30/19 13:52	
Vinyl chloride	ug/L	ND	2.0	05/30/19 13:52	
Xylene (Total)	ug/L	ND	10.0	05/30/19 13:52	
4-Bromofluorobenzene (S)	%	96	85-114	05/30/19 13:52	
Dibromofluoromethane (S)	%	101	80-122	05/30/19 13:52	
Toluene-d8 (S)	%	99	85-114	05/30/19 13:52	

LABORATORY CONTROL SAMPLE: 2322818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	52.0	104	78-120	
1,1,1-Trichloroethane	ug/L	50	56.7	113	72-127	
1,1,2,2-Tetrachloroethane	ug/L	50	48.0	96	70-124	
1,1,2-Trichloroethane	ug/L	50	52.0	104	79-121	
1,1-Dichloroethane	ug/L	50	51.1	102	70-119	
1,1-Dichloroethene	ug/L	50	57.7	115	71-126	
1,1-Dichloropropene	ug/L	50	54.1	108	76-122	
1,2,3-Trichlorobenzene	ug/L	50	51.4	103	71-126	
1,2,3-Trichloropropane	ug/L	50	53.4	107	75-119	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

LABORATORY CONTROL SAMPLE: 2322818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	55.2	110	68-130	
1,2,4-Trimethylbenzene	ug/L	50	48.7	97	79-117	
1,2-Dibromoethane (EDB)	ug/L	50	51.8	104	81-119	
1,2-Dichlorobenzene	ug/L	50	49.9	100	78-114	
1,2-Dichloroethane	ug/L	50	50.2	100	68-119	
1,2-Dichloropropane	ug/L	50	52.4	105	79-126	
1,3,5-Trimethylbenzene	ug/L	50	48.6	97	78-118	
1,3-Dichlorobenzene	ug/L	50	49.0	98	77-114	
1,3-Dichloropropane	ug/L	50	50.1	100	82-124	
1,4-Dichlorobenzene	ug/L	50	48.9	98	77-111	
2,2-Dichloropropane	ug/L	50	72.5	145	53-137	L1
2-Butanone (MEK)	ug/L	250	258	103	62-140	
2-Chlorotoluene	ug/L	50	48.5	97	76-120	
2-Hexanone	ug/L	250	240	96	62-143	
4-Chlorotoluene	ug/L	50	49.4	99	78-114	
4-Methyl-2-pentanone (MIBK)	ug/L	250	240	96	60-143	
Acetone	ug/L	250	218	87	44-156	
Acrolein	ug/L	1000	940	94	17-189	
Acrylonitrile	ug/L	200	197	98	58-139	
Benzene	ug/L	50	47.0	94	78-117	
Bromobenzene	ug/L	50	55.7	111	76-114	
Bromochloromethane	ug/L	50	51.0	102	70-122	
Bromodichloromethane	ug/L	50	51.1	102	72-121	
Bromoform	ug/L	50	49.9	100	66-117	
Bromomethane	ug/L	50	54.2	108	20-176	
Carbon disulfide	ug/L	50	52.1	104	65-124	
Carbon tetrachloride	ug/L	50	54.8	110	68-132	
Chlorobenzene	ug/L	50	47.5	95	79-113	
Chloroethane	ug/L	50	56.9	114	62-140	
Chloroform	ug/L	50	49.9	100	73-118	
Chloromethane	ug/L	50	44.4	89	36-132	
cis-1,2-Dichloroethene	ug/L	50	53.6	107	74-122	
cis-1,3-Dichloropropene	ug/L	50	55.0	110	79-126	
Dibromochloromethane	ug/L	50	52.0	104	75-121	
Dibromomethane	ug/L	50	55.6	111	75-123	
Dichlorodifluoromethane	ug/L	50	79.6	159	27-172	
Ethyl methacrylate	ug/L	200	209	104	72-134	
Ethylbenzene	ug/L	50	48.8	98	80-118	
Hexachloro-1,3-butadiene	ug/L	50	57.3	115	71-141	
Iodomethane	ug/L	100	87.0	87	10-186	
Isopropylbenzene (Cumene)	ug/L	50	50.4	101	82-120	
Methyl-tert-butyl ether	ug/L	50	54.1	108	72-128	
Methylene Chloride	ug/L	50	51.0	102	70-121	
n-Butylbenzene	ug/L	50	52.7	105	76-123	
n-Hexane	ug/L	50	79.6	159	58-149	L1
n-Propylbenzene	ug/L	50	48.2	96	80-122	
p-Isopropyltoluene	ug/L	50	51.0	102	79-121	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

LABORATORY CONTROL SAMPLE: 2322818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
sec-Butylbenzene	ug/L	50	50.3	101	78-124	
Styrene	ug/L	50	50.9	102	80-119	
tert-Butylbenzene	ug/L	50	42.9	86	62-102	
Tetrachloroethene	ug/L	50	52.1	104	76-124	
Toluene	ug/L	50	46.4	93	78-116	
trans-1,2-Dichloroethene	ug/L	50	57.7	115	73-121	
trans-1,3-Dichloropropene	ug/L	50	53.3	107	73-126	
trans-1,4-Dichloro-2-butene	ug/L	200	243	122	42-138	
Trichloroethene	ug/L	50	51.3	103	76-120	
Trichlorofluoromethane	ug/L	50	59.7	119	60-138	
Vinyl acetate	ug/L	200	167	83	29-200	
Vinyl chloride	ug/L	50	53.8	108	70-136	
Xylene (Total)	ug/L	150	147	98	79-119	
4-Bromofluorobenzene (S)	%			101	85-114	
Dibromofluoromethane (S)	%			101	80-122	
Toluene-d8 (S)	%			98	85-114	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch: 503474

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV

Associated Lab Samples: 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007, 50226102008, 50226102009

METHOD BLANK: 2323137

Matrix: Water

Associated Lab Samples: 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007, 50226102008, 50226102009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	5.0	05/31/19 01:40	
1,1,1-Trichloroethane	ug/L	ND	5.0	05/31/19 01:40	
1,1,2,2-Tetrachloroethane	ug/L	ND	5.0	05/31/19 01:40	
1,1,2-Trichloroethane	ug/L	ND	5.0	05/31/19 01:40	
1,1-Dichloroethane	ug/L	ND	5.0	05/31/19 01:40	
1,1-Dichloroethene	ug/L	ND	5.0	05/31/19 01:40	
1,1-Dichloropropene	ug/L	ND	5.0	05/31/19 01:40	
1,2,3-Trichlorobenzene	ug/L	ND	5.0	05/31/19 01:40	
1,2,3-Trichloropropane	ug/L	ND	5.0	05/31/19 01:40	
1,2,4-Trichlorobenzene	ug/L	ND	5.0	05/31/19 01:40	
1,2,4-Trimethylbenzene	ug/L	ND	5.0	05/31/19 01:40	
1,2-Dibromoethane (EDB)	ug/L	ND	5.0	05/31/19 01:40	
1,2-Dichlorobenzene	ug/L	ND	5.0	05/31/19 01:40	
1,2-Dichloroethane	ug/L	ND	5.0	05/31/19 01:40	
1,2-Dichloropropane	ug/L	ND	5.0	05/31/19 01:40	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	05/31/19 01:40	
1,3-Dichlorobenzene	ug/L	ND	5.0	05/31/19 01:40	
1,3-Dichloropropane	ug/L	ND	5.0	05/31/19 01:40	
1,4-Dichlorobenzene	ug/L	ND	5.0	05/31/19 01:40	
2,2-Dichloropropane	ug/L	ND	5.0	05/31/19 01:40	
2-Butanone (MEK)	ug/L	ND	25.0	05/31/19 01:40	
2-Chlorotoluene	ug/L	ND	5.0	05/31/19 01:40	
2-Hexanone	ug/L	ND	25.0	05/31/19 01:40	
4-Chlorotoluene	ug/L	ND	5.0	05/31/19 01:40	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	25.0	05/31/19 01:40	
Acetone	ug/L	ND	100	05/31/19 01:40	
Acrolein	ug/L	ND	50.0	05/31/19 01:40	
Acrylonitrile	ug/L	ND	100	05/31/19 01:40	
Benzene	ug/L	ND	5.0	05/31/19 01:40	
Bromobenzene	ug/L	ND	5.0	05/31/19 01:40	
Bromochloromethane	ug/L	ND	5.0	05/31/19 01:40	
Bromodichloromethane	ug/L	ND	5.0	05/31/19 01:40	
Bromoform	ug/L	ND	5.0	05/31/19 01:40	
Bromomethane	ug/L	ND	5.0	05/31/19 01:40	
Carbon disulfide	ug/L	ND	10.0	05/31/19 01:40	
Carbon tetrachloride	ug/L	ND	5.0	05/31/19 01:40	
Chlorobenzene	ug/L	ND	5.0	05/31/19 01:40	
Chloroethane	ug/L	ND	5.0	05/31/19 01:40	
Chloroform	ug/L	ND	5.0	05/31/19 01:40	
Chloromethane	ug/L	ND	5.0	05/31/19 01:40	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

METHOD BLANK: 2323137

Matrix: Water

Associated Lab Samples: 50226102002, 50226102003, 50226102004, 50226102005, 50226102006, 50226102007, 50226102008, 50226102009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	5.0	05/31/19 01:40	
cis-1,3-Dichloropropene	ug/L	ND	5.0	05/31/19 01:40	
Dibromochloromethane	ug/L	ND	5.0	05/31/19 01:40	
Dibromomethane	ug/L	ND	5.0	05/31/19 01:40	
Dichlorodifluoromethane	ug/L	ND	5.0	05/31/19 01:40	
Ethyl methacrylate	ug/L	ND	100	05/31/19 01:40	
Ethylbenzene	ug/L	ND	5.0	05/31/19 01:40	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	05/31/19 01:40	
Iodomethane	ug/L	ND	10.0	05/31/19 01:40	
Isopropylbenzene (Cumene)	ug/L	ND	5.0	05/31/19 01:40	
Methyl-tert-butyl ether	ug/L	ND	4.0	05/31/19 01:40	
Methylene Chloride	ug/L	ND	5.0	05/31/19 01:40	
n-Butylbenzene	ug/L	ND	5.0	05/31/19 01:40	
n-Hexane	ug/L	ND	5.0	05/31/19 01:40	
n-Propylbenzene	ug/L	ND	5.0	05/31/19 01:40	
p-Isopropyltoluene	ug/L	ND	5.0	05/31/19 01:40	
sec-Butylbenzene	ug/L	ND	5.0	05/31/19 01:40	
Styrene	ug/L	ND	5.0	05/31/19 01:40	
tert-Butylbenzene	ug/L	ND	5.0	05/31/19 01:40	
Tetrachloroethene	ug/L	ND	5.0	05/31/19 01:40	
Toluene	ug/L	ND	5.0	05/31/19 01:40	
trans-1,2-Dichloroethene	ug/L	ND	5.0	05/31/19 01:40	
trans-1,3-Dichloropropene	ug/L	ND	5.0	05/31/19 01:40	
trans-1,4-Dichloro-2-butene	ug/L	ND	100	05/31/19 01:40	
Trichloroethene	ug/L	ND	5.0	05/31/19 01:40	
Trichlorofluoromethane	ug/L	ND	5.0	05/31/19 01:40	
Vinyl acetate	ug/L	ND	50.0	05/31/19 01:40	
Vinyl chloride	ug/L	ND	2.0	05/31/19 01:40	
Xylene (Total)	ug/L	ND	10.0	05/31/19 01:40	
4-Bromofluorobenzene (S)	%	98	85-114	05/31/19 01:40	
Dibromofluoromethane (S)	%	104	80-122	05/31/19 01:40	
Toluene-d8 (S)	%	97	85-114	05/31/19 01:40	

LABORATORY CONTROL SAMPLE: 2323138

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	55.7	111	78-120	
1,1,1-Trichloroethane	ug/L	50	62.1	124	72-127	
1,1,2,2-Tetrachloroethane	ug/L	50	55.3	111	70-124	
1,1,2-Trichloroethane	ug/L	50	57.1	114	79-121	
1,1-Dichloroethane	ug/L	50	53.5	107	70-119	
1,1-Dichloroethene	ug/L	50	63.0	126	71-126	
1,1-Dichloropropene	ug/L	50	57.4	115	76-122	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

LABORATORY CONTROL SAMPLE: 2323138

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,3-Trichlorobenzene	ug/L	50	58.8	118	71-126	
1,2,3-Trichloropropane	ug/L	50	56.7	113	75-119	
1,2,4-Trichlorobenzene	ug/L	50	60.0	120	68-130	
1,2,4-Trimethylbenzene	ug/L	50	57.0	114	79-117	
1,2-Dibromoethane (EDB)	ug/L	50	58.5	117	81-119	
1,2-Dichlorobenzene	ug/L	50	54.4	109	78-114	
1,2-Dichloroethane	ug/L	50	55.4	111	68-119	
1,2-Dichloropropane	ug/L	50	57.9	116	79-126	
1,3,5-Trimethylbenzene	ug/L	50	54.1	108	78-118	
1,3-Dichlorobenzene	ug/L	50	55.0	110	77-114	
1,3-Dichloropropane	ug/L	50	55.7	111	82-124	
1,4-Dichlorobenzene	ug/L	50	54.0	108	77-111	
2,2-Dichloropropane	ug/L	50	59.7	119	53-137	
2-Butanone (MEK)	ug/L	250	348	139	62-140	
2-Chlorotoluene	ug/L	50	53.9	108	76-120	
2-Hexanone	ug/L	250	297	119	62-143	
4-Chlorotoluene	ug/L	50	54.8	110	78-114	
4-Methyl-2-pentanone (MIBK)	ug/L	250	291	116	60-143	
Acetone	ug/L	250	310	124	44-156	
Acrolein	ug/L	1000	1010	101	17-189	
Acrylonitrile	ug/L	200	238	119	58-139	
Benzene	ug/L	50	52.5	105	78-117	
Bromobenzene	ug/L	50	63.0	126	76-114	L1
Bromochloromethane	ug/L	50	51.7	103	70-122	
Bromodichloromethane	ug/L	50	56.3	113	72-121	
Bromoform	ug/L	50	55.9	112	66-117	
Bromomethane	ug/L	50	27.0	54	20-176	
Carbon disulfide	ug/L	50	56.5	113	65-124	
Carbon tetrachloride	ug/L	50	61.4	123	68-132	
Chlorobenzene	ug/L	50	53.5	107	79-113	
Chloroethane	ug/L	50	63.9	128	62-140	
Chloroform	ug/L	50	56.3	113	73-118	
Chloromethane	ug/L	50	41.7	83	36-132	
cis-1,2-Dichloroethene	ug/L	50	58.1	116	74-122	
cis-1,3-Dichloropropene	ug/L	50	56.1	112	79-126	
Dibromochloromethane	ug/L	50	56.3	113	75-121	
Dibromomethane	ug/L	50	59.5	119	75-123	
Dichlorodifluoromethane	ug/L	50	74.8	150	27-172	
Ethyl methacrylate	ug/L	200	239	119	72-134	
Ethylbenzene	ug/L	50	55.2	110	80-118	
Hexachloro-1,3-butadiene	ug/L	50	52.7	105	71-141	
Iodomethane	ug/L	100	44.8	45	10-186	
Isopropylbenzene (Cumene)	ug/L	50	58.8	118	82-120	
Methyl-tert-butyl ether	ug/L	50	57.7	115	72-128	
Methylene Chloride	ug/L	50	54.7	109	70-121	
n-Butylbenzene	ug/L	50	54.6	109	76-123	
n-Hexane	ug/L	50	59.8	120	58-149	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

LABORATORY CONTROL SAMPLE: 2323138

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
n-Propylbenzene	ug/L	50	55.3	111	80-122	
p-Isopropyltoluene	ug/L	50	55.6	111	79-121	
sec-Butylbenzene	ug/L	50	54.2	108	78-124	
Styrene	ug/L	50	56.8	114	80-119	
tert-Butylbenzene	ug/L	50	47.9	96	62-102	
Tetrachloroethene	ug/L	50	54.4	109	76-124	
Toluene	ug/L	50	50.9	102	78-116	
trans-1,2-Dichloroethene	ug/L	50	60.2	120	73-121	
trans-1,3-Dichloropropene	ug/L	50	55.0	110	73-126	
trans-1,4-Dichloro-2-butene	ug/L	200	206	103	42-138	
Trichloroethene	ug/L	50	58.4	117	76-120	
Trichlorofluoromethane	ug/L	50	61.0	122	60-138	
Vinyl acetate	ug/L	200	209	104	29-200	
Vinyl chloride	ug/L	50	53.8	108	70-136	
Xylene (Total)	ug/L	150	167	111	79-119	
4-Bromofluorobenzene (S)	%			102	85-114	
Dibromofluoromethane (S)	%			100	80-122	
Toluene-d8 (S)	%			98	85-114	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2323139 2323140

Parameter	Units	50226102006		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
1,1,1,2-Tetrachloroethane	ug/L	ND	50	50	50.3	51.2	101	102	44-142	2	20		
1,1,1-Trichloroethane	ug/L	ND	50	50	56.8	58.9	114	118	48-145	4	20		
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	49.6	50.6	99	101	44-139	2	20		
1,1,2-Trichloroethane	ug/L	ND	50	50	52.0	53.2	104	106	49-140	2	20		
1,1-Dichloroethane	ug/L	ND	50	50	49.7	51.7	99	103	38-142	4	20		
1,1-Dichloroethene	ug/L	ND	50	50	58.0	60.5	116	121	46-148	4	20		
1,1-Dichloropropene	ug/L	ND	50	50	52.3	54.8	105	110	47-142	5	20		
1,2,3-Trichlorobenzene	ug/L	ND	50	50	47.9	49.4	96	99	34-139	3	20		
1,2,3-Trichloropropane	ug/L	ND	50	50	50.4	50.7	101	101	44-140	0	20		
1,2,4-Trichlorobenzene	ug/L	ND	50	50	48.5	50.8	97	102	31-142	5	20		
1,2,4-Trimethylbenzene	ug/L	ND	50	50	49.0	51.0	98	102	39-140	4	20		
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	52.0	52.5	104	105	47-143	1	20		
1,2-Dichlorobenzene	ug/L	ND	50	50	47.4	49.3	95	99	40-135	4	20		
1,2-Dichloroethane	ug/L	ND	50	50	49.0	51.1	98	102	44-138	4	20		
1,2-Dichloropropane	ug/L	ND	50	50	51.4	52.7	103	105	53-142	2	20		
1,3,5-Trimethylbenzene	ug/L	ND	50	50	46.9	48.8	94	98	36-142	4	20		
1,3-Dichlorobenzene	ug/L	ND	50	50	46.7	48.4	93	97	37-136	4	20		
1,3-Dichloropropane	ug/L	ND	50	50	50.5	51.3	101	103	47-145	2	20		
1,4-Dichlorobenzene	ug/L	ND	50	50	46.5	48.1	93	96	38-132	3	20		
2,2-Dichloropropane	ug/L	ND	50	50	46.4	47.4	93	95	19-147	2	20		
2-Butanone (MEK)	ug/L	ND	250	250	296	303	118	121	36-153	2	20		
2-Chlorotoluene	ug/L	ND	50	50	47.4	49.4	95	99	37-143	4	20		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2323139 2323140												
Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		50226102006	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
2-Hexanone	ug/L	ND	250	250	262	265	105	106	38-149	1	20	
4-Chlorotoluene	ug/L	ND	50	50	48.0	50.1	96	100	38-137	4	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	250	250	256	261	102	104	43-145	2	20	
Acetone	ug/L	ND	250	250	270	281	108	112	21-161	4	20	
Acrolein	ug/L	ND	1000	1000	707	753	71	75	17-153	6	20	
Acrylonitrile	ug/L	ND	200	200	210	212	105	106	40-141	1	20	
Benzene	ug/L	ND	50	50	47.5	48.7	95	97	49-140	2	20	
Bromobenzene	ug/L	ND	50	50	56.0	56.7	112	113	39-137	1	20	
Bromochloromethane	ug/L	ND	50	50	49.4	48.5	99	97	50-132	2	20	
Bromodichloromethane	ug/L	ND	50	50	50.3	51.7	101	103	42-139	3	20	
Bromoform	ug/L	ND	50	50	49.5	50.7	99	101	29-135	2	20	
Bromomethane	ug/L	ND	50	50	25.7	30.4	51	61	10-162	17	20	
Carbon disulfide	ug/L	ND	50	50	51.4	52.8	103	106	33-144	3	20	
Carbon tetrachloride	ug/L	ND	50	50	55.5	58.5	111	117	45-148	5	20	
Chlorobenzene	ug/L	ND	50	50	47.7	48.7	95	97	47-135	2	20	
Chloroethane	ug/L	ND	50	50	57.4	57.3	115	115	41-149	0	20	
Chloroform	ug/L	ND	50	50	50.5	52.4	101	105	49-136	4	20	
Chloromethane	ug/L	ND	50	50	36.5	40.3	73	81	17-138	10	20	
cis-1,2-Dichloroethene	ug/L	ND	50	50	52.2	53.8	104	108	46-143	3	20	
cis-1,3-Dichloropropene	ug/L	ND	50	50	48.8	49.4	98	99	44-142	1	20	
Dibromochloromethane	ug/L	ND	50	50	51.1	51.3	102	103	41-141	0	20	
Dibromomethane	ug/L	ND	50	50	53.2	54.2	106	108	46-140	2	20	
Dichlorodifluoromethane	ug/L	ND	50	50	60.8	64.0	122	128	10-193	5	20	
Ethyl methacrylate	ug/L	ND	200	200	212	214	106	107	45-145	1	20	
Ethylbenzene	ug/L	ND	50	50	48.4	50.4	97	101	44-145	4	20	
Hexachloro-1,3-butadiene	ug/L	ND	50	50	43.0	44.9	86	90	27-158	4	20	
Iodomethane	ug/L	ND	100	100	22.9	46.5	23	47	10-172	68	20	R1
Isopropylbenzene (Cumene)	ug/L	ND	50	50	51.5	54.2	103	108	43-148	5	20	
Methyl-tert-butyl ether	ug/L	ND	50	50	51.8	53.0	104	106	38-158	2	20	
Methylene Chloride	ug/L	ND	50	50	48.1	49.4	96	99	33-140	3	20	
n-Butylbenzene	ug/L	ND	50	50	44.9	48.0	90	96	35-142	7	20	
n-Hexane	ug/L	ND	50	50	49.3	51.7	99	103	32-159	5	20	
n-Propylbenzene	ug/L	ND	50	50	48.5	50.7	97	101	37-145	4	20	
p-Isopropyltoluene	ug/L	ND	50	50	47.4	50.2	95	100	37-143	6	20	
sec-Butylbenzene	ug/L	ND	50	50	47.6	49.7	95	99	40-144	4	20	
Styrene	ug/L	ND	50	50	50.0	51.0	100	102	37-143	2	20	
tert-Butylbenzene	ug/L	ND	50	50	37.6	40.3	75	81	35-114	7	20	
Tetrachloroethene	ug/L	ND	50	50	47.3	49.8	95	100	41-145	5	20	
Toluene	ug/L	ND	50	50	45.8	47.0	92	94	48-139	3	20	
trans-1,2-Dichloroethene	ug/L	ND	50	50	55.0	56.1	110	112	46-140	2	20	
trans-1,3-Dichloropropene	ug/L	ND	50	50	47.9	48.6	96	97	37-141	1	20	
trans-1,4-Dichloro-2-butene	ug/L	ND	200	200	176	181	88	91	10-166	3	20	
Trichloroethene	ug/L	ND	50	50	51.6	54.2	103	108	43-147	5	20	
Trichlorofluoromethane	ug/L	ND	50	50	56.6	58.0	113	116	39-154	2	20	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2323139		2323140		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		50226102006 Result	MS Spike Conc.	MSD Spike Conc.									
Vinyl acetate	ug/L	ND	200	200	92.1	97.2	46	49	10-181	5	20		
Vinyl chloride	ug/L	ND	50	50	49.8	51.6	100	103	49-153	3	20		
Xylene (Total)	ug/L	ND	150	150	147	152	98	101	44-147	4	20		
4-Bromofluorobenzene (S)	%						101	101	85-114				
Dibromofluoromethane (S)	%						98	100	80-122				
Toluene-d8 (S)	%						99	99	85-114				

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch: 503793 Analysis Method: EPA 8082  
 QC Batch Method: EPA 3510 Analysis Description: 8082 GCS PCB Mod  
 Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102007, 50226102008

METHOD BLANK: 2324951 Matrix: Water  
 Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004, 50226102005, 50226102007, 50226102008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.10	06/02/19 23:52	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.20	06/02/19 23:52	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.10	06/02/19 23:52	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.10	06/02/19 23:52	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.10	06/02/19 23:52	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.10	06/02/19 23:52	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.10	06/02/19 23:52	
Tetrachloro-m-xylene (S)	%	31	10-148	06/02/19 23:52	

LABORATORY CONTROL SAMPLE: 2324952

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	5	2.3	46	45-157	
PCB-1260 (Aroclor 1260)	ug/L	5	2.4	48	42-155	
Tetrachloro-m-xylene (S)	%			24	10-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2324953 2324954

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		50225327003 Result	Spike Conc.	Spike Conc.	Conc.								
PCB-1016 (Aroclor 1016)	ug/L	<0.20	5	5	5	2.3	2.2	46	43	27-174	5	20	
PCB-1260 (Aroclor 1260)	ug/L	<0.20	5	5	5	2.3	2.2	46	43	10-157	6	20	
Tetrachloro-m-xylene (S)	%							21	22	10-148			

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch: 503850

Analysis Method: EPA 8082

QC Batch Method: EPA 3510

Analysis Description: 8082 GCS PCB Mod

Associated Lab Samples: 50226102006

METHOD BLANK: 2325434

Matrix: Water

Associated Lab Samples: 50226102006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.10	06/02/19 21:43	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.20	06/02/19 21:43	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.10	06/02/19 21:43	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.10	06/02/19 21:43	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.10	06/02/19 21:43	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.10	06/02/19 21:43	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.10	06/02/19 21:43	
Tetrachloro-m-xylene (S)	%	58	10-148	06/02/19 21:43	

LABORATORY CONTROL SAMPLE: 2325435

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	5	3.4	69	45-157	
PCB-1260 (Aroclor 1260)	ug/L	5	3.0	60	42-155	
Tetrachloro-m-xylene (S)	%			44	10-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2325436 2325437

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		50226102006 Result	Spike Conc.	Spike Conc.	Conc.							
PCB-1016 (Aroclor 1016)	ug/L	ND	5	5	5	3.9	3.2	77	64	27-174	18	20
PCB-1260 (Aroclor 1260)	ug/L	ND	5	5	5	2.9	2.7	57	54	10-157	6	20
Tetrachloro-m-xylene (S)	%							65	58	10-148		

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch: 502738

Analysis Method: EPA 8270 by SIM LVE

QC Batch Method: EPA 3510

Analysis Description: 8270 Water PAH LV by SIM MSSV

Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004

METHOD BLANK: 2320358

Matrix: Water

Associated Lab Samples: 50226102001, 50226102002, 50226102003, 50226102004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	1.0	05/28/19 13:50	
2-Methylnaphthalene	ug/L	ND	1.0	05/28/19 13:50	
Acenaphthene	ug/L	ND	1.0	05/28/19 13:50	
Acenaphthylene	ug/L	ND	1.0	05/28/19 13:50	
Anthracene	ug/L	ND	0.10	05/28/19 13:50	
Benzo(a)anthracene	ug/L	ND	0.10	05/28/19 13:50	
Benzo(a)pyrene	ug/L	ND	0.10	05/28/19 13:50	
Benzo(b)fluoranthene	ug/L	ND	0.10	05/28/19 13:50	
Benzo(g,h,i)perylene	ug/L	ND	0.10	05/28/19 13:50	
Benzo(k)fluoranthene	ug/L	ND	0.10	05/28/19 13:50	
Chrysene	ug/L	ND	0.50	05/28/19 13:50	
Dibenz(a,h)anthracene	ug/L	ND	0.10	05/28/19 13:50	
Fluoranthene	ug/L	ND	1.0	05/28/19 13:50	
Fluorene	ug/L	ND	1.0	05/28/19 13:50	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.10	05/28/19 13:50	
Naphthalene	ug/L	ND	1.0	05/28/19 13:50	
Phenanthrene	ug/L	ND	1.0	05/28/19 13:50	
Pyrene	ug/L	ND	1.0	05/28/19 13:50	
2-Fluorobiphenyl (S)	%	71	10-105	05/28/19 13:50	
p-Terphenyl-d14 (S)	%	63	10-142	05/28/19 13:50	

LABORATORY CONTROL SAMPLE: 2320359

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/L	10	7.0	70	15-95	
2-Methylnaphthalene	ug/L	10	6.7	67	15-91	
Acenaphthene	ug/L	10	7.6	76	19-106	
Acenaphthylene	ug/L	10	8.1	81	24-117	
Anthracene	ug/L	10	8.2	82	34-113	
Benzo(a)anthracene	ug/L	10	8.5	85	41-141	
Benzo(a)pyrene	ug/L	10	8.8	88	42-148	
Benzo(b)fluoranthene	ug/L	10	10.9	109	36-157	
Benzo(g,h,i)perylene	ug/L	10	7.6	76	34-145	
Benzo(k)fluoranthene	ug/L	10	7.7	77	40-151	
Chrysene	ug/L	10	8.7	87	44-137	
Dibenz(a,h)anthracene	ug/L	10	8.4	84	34-146	
Fluoranthene	ug/L	10	9.3	93	39-146	
Fluorene	ug/L	10	8.4	84	30-116	
Indeno(1,2,3-cd)pyrene	ug/L	10	8.6	86	37-146	
Naphthalene	ug/L	10	6.9	69	15-96	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

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LABORATORY CONTROL SAMPLE: 2320359

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	10	8.3	83	37-124	
Pyrene	ug/L	10	9.1	91	43-131	
2-Fluorobiphenyl (S)	%.			72	10-105	
p-Terphenyl-d14 (S)	%.			80	10-142	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

QC Batch: 502969 Analysis Method: EPA 8270 by SIM LVE  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water PAH LV by SIM MSSV  
 Associated Lab Samples: 50226102005, 50226102006, 50226102007, 50226102008

METHOD BLANK: 2320958 Matrix: Water  
 Associated Lab Samples: 50226102005, 50226102006, 50226102007, 50226102008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	1.0	05/30/19 22:52	
2-Methylnaphthalene	ug/L	ND	1.0	05/30/19 22:52	
Acenaphthene	ug/L	ND	1.0	05/30/19 22:52	
Acenaphthylene	ug/L	ND	1.0	05/30/19 22:52	
Anthracene	ug/L	ND	0.10	05/30/19 22:52	
Benzo(a)anthracene	ug/L	ND	0.10	05/30/19 22:52	
Benzo(a)pyrene	ug/L	ND	0.10	05/30/19 22:52	
Benzo(b)fluoranthene	ug/L	ND	0.10	05/30/19 22:52	
Benzo(g,h,i)perylene	ug/L	ND	0.10	05/30/19 22:52	
Benzo(k)fluoranthene	ug/L	ND	0.10	05/30/19 22:52	
Chrysene	ug/L	ND	0.50	05/30/19 22:52	
Dibenz(a,h)anthracene	ug/L	ND	0.10	05/30/19 22:52	
Fluoranthene	ug/L	ND	1.0	05/30/19 22:52	
Fluorene	ug/L	ND	1.0	05/30/19 22:52	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.10	05/30/19 22:52	
Naphthalene	ug/L	ND	1.0	05/30/19 22:52	
Phenanthrene	ug/L	ND	1.0	05/30/19 22:52	
Pyrene	ug/L	ND	1.0	05/30/19 22:52	
2-Fluorobiphenyl (S)	%	64	10-105	05/30/19 22:52	
p-Terphenyl-d14 (S)	%	82	10-142	05/30/19 22:52	

LABORATORY CONTROL SAMPLE: 2320959

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/L	10	6.5	65	15-95	
2-Methylnaphthalene	ug/L	10	6.2	62	15-91	
Acenaphthene	ug/L	10	7.1	71	19-106	
Acenaphthylene	ug/L	10	7.5	75	24-117	
Anthracene	ug/L	10	8.0	80	34-113	
Benzo(a)anthracene	ug/L	10	8.2	82	41-141	
Benzo(a)pyrene	ug/L	10	8.7	87	42-148	
Benzo(b)fluoranthene	ug/L	10	8.2	82	36-157	
Benzo(g,h,i)perylene	ug/L	10	7.0	70	34-145	
Benzo(k)fluoranthene	ug/L	10	9.0	90	40-151	
Chrysene	ug/L	10	7.8	78	44-137	
Dibenz(a,h)anthracene	ug/L	10	6.8	68	34-146	
Fluoranthene	ug/L	10	8.6	86	39-146	
Fluorene	ug/L	10	7.8	78	30-116	
Indeno(1,2,3-cd)pyrene	ug/L	10	6.9	69	37-146	
Naphthalene	ug/L	10	6.4	64	15-96	

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

LABORATORY CONTROL SAMPLE: 2320959

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	10	8.0	80	37-124	
Pyrene	ug/L	10	8.4	84	43-131	
2-Fluorobiphenyl (S)	%			69	10-105	
p-Terphenyl-d14 (S)	%			80	10-142	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320960 2320961

Parameter	Units	50226102006		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec						
1-Methylnaphthalene	ug/L	ND	10	10	6.1	6.5	61	65	10-90	6	20				
2-Methylnaphthalene	ug/L	ND	10	10	5.7	6.3	57	63	10-117	9	20				
Acenaphthene	ug/L	ND	10	10	6.8	7.0	68	70	15-82	4	20				
Acenaphthylene	ug/L	ND	10	10	7.3	7.6	73	76	13-98	3	20				
Anthracene	ug/L	ND	10	10	7.4	7.3	74	73	23-113	1	20				
Benzo(a)anthracene	ug/L	ND	10	10	7.1	7.4	71	74	18-145	3	20				
Benzo(a)pyrene	ug/L	ND	10	10	4.4	4.4	44	44	18-123	0	20				
Benzo(b)fluoranthene	ug/L	ND	10	10	4.0	4.8	40	48	16-129	17	20				
Benzo(g,h,i)perylene	ug/L	ND	10	10	2.4	2.6	24	26	12-109	6	20				
Benzo(k)fluoranthene	ug/L	ND	10	10	4.9	4.5	49	45	22-118	10	20				
Chrysene	ug/L	ND	10	10	7.1	7.4	71	74	24-134	4	20				
Dibenz(a,h)anthracene	ug/L	ND	10	10	2.4	2.5	24	25	12-118	2	20				
Fluoranthene	ug/L	ND	10	10	8.2	8.1	82	81	24-149	1	20				
Fluorene	ug/L	ND	10	10	7.5	7.6	75	76	15-115	2	20				
Indeno(1,2,3-cd)pyrene	ug/L	ND	10	10	2.4	2.4	24	24	12-114	1	20				
Naphthalene	ug/L	ND	10	10	5.9	6.5	59	65	10-120	9	20				
Phenanthrene	ug/L	ND	10	10	7.6	7.7	76	77	16-131	1	20				
Pyrene	ug/L	ND	10	10	7.9	8.1	79	81	22-133	2	20				
2-Fluorobiphenyl (S)	%						66	67	10-105						
p-Terphenyl-d14 (S)	%						67	70	10-142						

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320962 2320963

Parameter	Units	50226214005		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec						
1-Methylnaphthalene	ug/L	ND	10	10	5.4	6.4	54	64	10-90	16	20				
2-Methylnaphthalene	ug/L	ND	10	10	5.2	6.3	52	63	10-117	20	20				
Acenaphthene	ug/L	ND	10	10	6.3	7.2	63	72	15-82	13	20				
Acenaphthylene	ug/L	ND	10	10	6.8	7.7	68	77	13-98	14	20				
Anthracene	ug/L	ND	10	10	7.1	7.6	71	76	23-113	7	20				
Benzo(a)anthracene	ug/L	ND	10	10	6.5	7.3	65	73	18-145	12	20				
Benzo(a)pyrene	ug/L	ND	10	10	3.7	4.4	37	44	18-123	18	20				
Benzo(b)fluoranthene	ug/L	ND	10	10	3.3	4.1	33	41	16-129	24	20	R1			
Benzo(g,h,i)perylene	ug/L	ND	10	10	1.8	1.9	18	19	12-109	3	20				
Benzo(k)fluoranthene	ug/L	ND	10	10	4.2	5.0	42	50	22-118	18	20				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: The Butler Co.

Pace Project No.: 50226102

Parameter	Units	2320962		2320963		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		50226214005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Chrysene	ug/L	ND	10	10	6.2	6.5	62	65	24-134	5	20		
Dibenz(a,h)anthracene	ug/L	ND	10	10	1.7	1.7	17	17	12-118	1	20		
Fluoranthene	ug/L	ND	10	10	7.8	8.1	78	81	24-149	4	20		
Fluorene	ug/L	ND	10	10	7.1	8.1	71	81	15-115	13	20		
Indeno(1,2,3-cd)pyrene	ug/L	ND	10	10	1.7	1.8	17	18	12-114	5	20		
Naphthalene	ug/L	ND	10	10	5.5	6.5	55	65	10-120	18	20		
Phenanthrene	ug/L	ND	10	10	7.0	7.7	70	77	16-131	9	20		
Pyrene	ug/L	ND	10	10	7.5	8.4	75	84	22-133	10	20		
2-Fluorobiphenyl (S)	%							56	67	10-105			
p-Terphenyl-d14 (S)	%							61	69	10-142			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: The Butler Co.

Pace Project No.: 50226102

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

### BATCH QUALIFIERS

Batch: 502738

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

1d A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: The Butler Co.

Pace Project No.: 50226102

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50226102001	BC-GP10-GW1	EPA 3510	503793	EPA 8082	503873
50226102002	BC-GP11-GW1	EPA 3510	503793	EPA 8082	503873
50226102003	BC-GP12-GW1	EPA 3510	503793	EPA 8082	503873
50226102004	BC-GP13-GW1	EPA 3510	503793	EPA 8082	503873
50226102005	BC-GP14-GW1	EPA 3510	503793	EPA 8082	503873
50226102006	BC-GP15-GW1	EPA 3510	503850	EPA 8082	503872
50226102007	BC-GPGW-FD1	EPA 3510	503793	EPA 8082	503873
50226102008	BC-EB-GW1	EPA 3510	503793	EPA 8082	503873
50226102001	BC-GP10-GW1	EPA 3010	502604	EPA 6010	503902
50226102002	BC-GP11-GW1	EPA 3010	502604	EPA 6010	503902
50226102003	BC-GP12-GW1	EPA 3010	502604	EPA 6010	503902
50226102004	BC-GP13-GW1	EPA 3010	502604	EPA 6010	503902
50226102005	BC-GP14-GW1	EPA 3010	502604	EPA 6010	503902
50226102006	BC-GP15-GW1	EPA 3010	502604	EPA 6010	503902
50226102007	BC-GPGW-FD1	EPA 3010	502604	EPA 6010	503902
50226102008	BC-EB-GW1	EPA 3010	502604	EPA 6010	503902
50226102001	BC-GP10-GW1	EPA 3010	502664	EPA 6010	502937
50226102002	BC-GP11-GW1	EPA 3010	502664	EPA 6010	502937
50226102003	BC-GP12-GW1	EPA 3010	502664	EPA 6010	502937
50226102004	BC-GP13-GW1	EPA 3010	502664	EPA 6010	502937
50226102005	BC-GP14-GW1	EPA 3010	502664	EPA 6010	502937
50226102006	BC-GP15-GW1	EPA 3010	502664	EPA 6010	502937
50226102007	BC-GPGW-FD1	EPA 3010	502664	EPA 6010	502937
50226102001	BC-GP10-GW1	EPA 7470	502628	EPA 7470	502700
50226102002	BC-GP11-GW1	EPA 7470	502628	EPA 7470	502700
50226102003	BC-GP12-GW1	EPA 7470	502628	EPA 7470	502700
50226102004	BC-GP13-GW1	EPA 7470	502628	EPA 7470	502700
50226102005	BC-GP14-GW1	EPA 7470	502628	EPA 7470	502700
50226102006	BC-GP15-GW1	EPA 7470	502628	EPA 7470	502700
50226102007	BC-GPGW-FD1	EPA 7470	502628	EPA 7470	502700
50226102008	BC-EB-GW1	EPA 7470	502628	EPA 7470	502700
50226102001	BC-GP10-GW1	EPA 7470	502748	EPA 7470	503555
50226102002	BC-GP11-GW1	EPA 7470	502748	EPA 7470	503555
50226102003	BC-GP12-GW1	EPA 7470	502748	EPA 7470	503555
50226102004	BC-GP13-GW1	EPA 7470	502748	EPA 7470	503555
50226102005	BC-GP14-GW1	EPA 7470	502748	EPA 7470	503555
50226102006	BC-GP15-GW1	EPA 7470	502748	EPA 7470	503555
50226102007	BC-GPGW-FD1	EPA 7470	502748	EPA 7470	503555
50226102001	BC-GP10-GW1	EPA 3510	502738	EPA 8270 by SIM LVE	502850
50226102002	BC-GP11-GW1	EPA 3510	502738	EPA 8270 by SIM LVE	502850
50226102003	BC-GP12-GW1	EPA 3510	502738	EPA 8270 by SIM LVE	502850
50226102004	BC-GP13-GW1	EPA 3510	502738	EPA 8270 by SIM LVE	502850
50226102005	BC-GP14-GW1	EPA 3510	502969	EPA 8270 by SIM LVE	503498
50226102006	BC-GP15-GW1	EPA 3510	502969	EPA 8270 by SIM LVE	503498
50226102007	BC-GPGW-FD1	EPA 3510	502969	EPA 8270 by SIM LVE	503498

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: The Butler Co.

Pace Project No.: 50226102

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50226102008	BC-EB-GW1	EPA 3510	502969	EPA 8270 by SIM LVE	503498
50226102001	BC-GP10-GW1	EPA 8260	503416		
50226102002	BC-GP11-GW1	EPA 8260	503474		
50226102003	BC-GP12-GW1	EPA 8260	503474		
50226102004	BC-GP13-GW1	EPA 8260	503474		
50226102005	BC-GP14-GW1	EPA 8260	503474		
50226102006	BC-GP15-GW1	EPA 8260	503474		
50226102007	BC-GPGW-FD1	EPA 8260	503474		
50226102008	BC-EB-GW1	EPA 8260	503474		
50226102009	BC-TB1	EPA 8260	503474		

### REPORT OF LABORATORY ANALYSIS

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# SAMPLE CONDITION UPON RECEIPT FORM

Project #: 50226102

Date/Time and Initials of person examining contents: ZL 5/24/19 12:44

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other Now

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  Yes  No      Seals Intact:  Yes  No

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer: 1 2 3 4 5 6 A(B) C D E F      Ice Type:  Wet  Blue  None | Samples collected today and on ice:  Yes  No  N/A

Cooler Temperature: 1.5/1.7, 0.1/0.3      Ice Visible in Sample Containers?:  Yes  No  N/A

(Initial/Corrected) Temp should be above freezing to 6°C      If temp. is Over 6°C or under 0°C, was the PM Notified?:  Yes  No  N/A

All discrepancies will be written out in the comments section below.

	Yes	No		Yes	No	N/A
Are samples from West Virginia? Document any containers out of temp.		<input checked="" type="checkbox"/>	All containers needing acid/base pres. Have been checked?: exceptions: VOA, coliform, LLHg, O&G, and any container with a septum cap or preserved with HCl.			
USDA Regulated Soils? (ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		<input checked="" type="checkbox"/>	All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.	<input checked="" type="checkbox"/>		
Chain of Custody Present:	<input checked="" type="checkbox"/>		Circle: <u>HNO3</u> H2SO4 NaOH NaOH/ZnAc			
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>		Dissolved Metals field filtered?:	<input checked="" type="checkbox"/>		
Short Hold Time Analysis (<72hr)? Analysis: <u>VOC</u>	<input checked="" type="checkbox"/>		Headspace Wisconsin Sulfide			<input checked="" type="checkbox"/>
Time 5035A TC placed in Freezer or Short Holds To Lab: <u>13:04</u>			Residual Chlorine Check (SVOC 625 Pest/PCB 608)	Present	Absent	N/A
			Residual Chlorine Check (Total/Amenable/Free Cyanide)			<input checked="" type="checkbox"/>
Rush TAT Requested:		<input checked="" type="checkbox"/>	Headspace in VOA Vials (>6mm):		<input checked="" type="checkbox"/>	
Containers Intact?:	<input checked="" type="checkbox"/>		Trip Blank Present?:	<input checked="" type="checkbox"/>		
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID	<input checked="" type="checkbox"/>		Trip Blank Custody Seals?:	<input checked="" type="checkbox"/>		

Comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Sample Container Count

WO#: 50226102



CLIENT: IWM

COC PAGE 1 of 1

COC ID# \_\_\_\_\_

Project # 50226102

SBS

Bulk Kit

Sample Line Item	DG9H (VG9H)	AG0U	AG1H	AG1U	AG2U	AG3S	WGFU	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	R	Matrix Si/ (Soil/Wat Aqueous)	pH <2	pH >9	pH >12
1	3	4												2				WT	✓		
2	↓	↓												↓					✓		
3																			✓		
4																			✓		
5																			✓		
6	9	12												6					✓		
7	3	4												2					✓		
8	↓	↓												1					✓		
9																			✓		
10																					
11																					
12																					

Container Codes

Glass				Plastic / Misc.			
DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass	BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
DG9H	40mL HCL amber vial	AG1H	1 liter HCL amber glass	BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass	BP1S	1 liter H2SO4 plastic		
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass	BP1U	1 liter unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG1U	1 liter unpreserved amber glass	BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
DG9U	40mL unpreserved amber vial	AG2S	500mL H2SO4 amber glass	BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass	BP2O	500mL NaOH plastic	U	Summa Can
VG9T	40mL Na Thio. clear vial	AG3S	250mL H2SO4 glass amber	BP2S	500mL H2SO4 plastic	ZPLC	Ziploc Bag
VG9U	40mL unpreserved clear vial	AG3U	250mL unpreserved amber glass	BP2U	500mL unpreserved plastic		
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass	BP2Z	500mL NaOH, Zn Ac		
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass	BP3B	250mL NaOH plastic		
WGPU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass	BP3N	250mL HNO3 plastic		
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass	BP3S	250mL H2SO4 plastic		
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass				
		BG3U	250mL Unpreserved Clear Glass				



**Pace Analytical Services, LLC.**  
1700 Elm Street  
Minneapolis, MN 55414  
Phone: 612.607.1700  
Fax: 612.607.6444

### Report Prepared for:

Mark Anderson  
IWM Consulting Group, LLC.  
1015 Production Road  
Fort Wayne IN 46808

**REPORT OF  
LABORATORY  
ANALYSIS  
FOR PFAAs**

### Report Information:

**Pace Project #: 10476540**  
**Sample Receipt Date: 05/25/2019**  
**Client Project #: The Butler Co.19716-10**  
**Client Sub PO #: N/A**  
**State Cert #: 2926.01**

### Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kirsten Hogberg, your Pace Project Manager.

### This report has been reviewed by:

June 20, 2019

Kirsten Hogberg, Project Manager  
(612) 607-6407  
(612) 607-6444 (fax)  
kirsten.hogberg@pacelabs.com



### Report of Laboratory Analysis

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The results relate only to the samples included in this report.

### Report Prepared Date:

June 20, 2019



## **DISCUSSION**

This report presents the results from the analyses performed on seven samples submitted by a representative of IWM Consulting. The samples were analyzed for twenty-one perfluorinated compounds using a modified version of USEPA Method 537. Reporting limits were set to the quantitation limits.

Two laboratory method blanks were prepared and analyzed with the sample batches as part of our routine quality control procedures. With the exception of the surrogate d5-EtFOSAA, the results show the blanks was free of the target perfluorinated compounds at the reporting limits. Where surrogates failed, the sample results could be biased in the same direction.

Laboratory spike samples were also prepared with the sample batches using clean reference matrix that had been fortified with native standards. With the exception of the target surrogate d5-EtFOSAA and analytes N-MeFOSAA, N-EtFOSAA, PFTTrDA, PFTTeDA, PFHxDA, and PFODA in LCS-70815, LCS-70816, LCS-70819, LCS-70820, LCSD-70817, and LCSD-70821 (flagged "R"), the recovery results were within the method limits. LCS-70820 and LCSD-70821 also had high recoveries for the target analyte NaDONA. The RPDs (relative percent differences) between one designated spike and its duplicate were within the method limits with the exception of PFHxDA between LCS-70816 and LCSD-70817 which is due to low recoveries. N-MeFOSAA, N-EtFOSAA, PFTTrDA, PFTTeDA, PFHxDA, and PFODA were not detected in the sample material. Low recoveries indicate a low bias in the quantitation and the potential for a false negative in N-MeFOSAA, N-EtFOSAA, PFTTrDA, PFTTeDA, PFHxDA, and PFODA. The results for NaDONA were accepted as the recoveries were high and the analyte was not detected in the sample material.

Recoveries for ten of the twenty-one isotopically-labeled surrogate standards in the sample extracts were within the target ranges specified in the method. The BC-GP10-GW1, BC-GP11-GW1, BC-GP12-GW1, BC-GP13-GW1, BC-GP14-GW1, BC-GPGW-FD1, and BC-FRB3 samples had recoveries for the surrogates labeled d5-EtFOSAA, 13C2\_PFHxDA, and 13C2\_PFDA that were lower than the method limit (flagged "Fail") respectively. Where surrogates failed, the sample results could be biased in the same direction.

It should be noted that Pace Analytical has not yet completed the certification process for all analytes in this method. Therefore, the results have been marked "N2" as qualified. Results for the low level spikes that were below the calibration range were flagged "J".

## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
A2LA	2926.01	Minnesota - Pet	1240
Alabama	40770	Mississippi	MN00064
Alaska - DW	MN00064	Missouri - DW	10100
Alaska - UST	17-009	Montana	CERT0092
Arizona	AZ0014	Nebraska	NE-OS-18-06
Arkansas - DW	MN00064	Nevada	MN00064
Arkansas - WW	88-0680	New Hampshire	2081
CNMI Saipan	MP0003	New Jersey (NE)	MN002
California	2929	New York	11647
Colorado	MN00064	North Carolina	27700
Connecticut	PH-0256	North Carolina -	27700
EPA Region 8+	via MN 027-053	North Carolina -	530
Florida (NELAP)	E87605	North Dakota	R-036
Georgia	959	Ohio - DW	41244
Guam	17-001r	Ohio - VAP	CL101
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon - Primar	MN300001
Illinois	200011	Oregon - Secon	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky - DW	90062	South Dakota	NA
Kentucky - WW	90062	Tennessee	TN02818
Louisiana - DE	03086	Texas	T104704192
Louisiana - DW	MN00064	Utah (NELAP)	MN00064
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts	M-MN064	West Virginia -	382
Michigan	9909	West Virginia -	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota - De	via MN 027-053	Wyoming - UST	2926.01

## REPORT OF LABORATORY ANALYSIS

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Report No.....10462710

# Appendix A

## Sample Management



**Sample Condition Upon Receipt**      **Client Name:** IWM Consulting      **Project #:** W0# 10476540

**Courier:**  Fed Ex     UPS     USPS     Client  
 Pace     Speedee     Commercial    See Exception

**Tracking Number:** 7752 9260 0215

**Custody Seal on Cooler/Box Present?**  Yes     No      **Seals Intact?**  Yes     No      **Biological Tissue Frozen?**  Yes     No     N/A

**Packing Material:**  Bubble Wrap     Bubble Bags     None     Other: PB      **Temp Blank?**  Yes     No

**Thermometer:**  T1(0461)     T2(1336)     T3(0459)  
 T4(0254)     T5(0489)      **Type of Ice:**  Wet     Blue     None     Dry     Melted

**Note: Each West Virginia Sample must have temp taken (no temp blanks)**

Temp should be above freezing to 6°C	<b>Cooler Temp Read w/temp blank:</b> <u>0.6</u> °C	<b>Average Corrected Temp (no temp blank only):</b> <u>0.7</u> °C	See Exceptions <input type="checkbox"/>
<b>Correction Factor:</b> <u>1.0</u>	<b>Cooler Temp Corrected w/temp blank:</b> <u>0.7</u> °C		

**USDA Regulated Soil:** (  N/A, water sample/Other: \_\_\_\_\_ )      **Date/Initials of Person Examining Contents:** CG 5/25/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, HI, IL, IN, IA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)?  Yes     No      Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)?  Yes     No

**If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.**

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
<b>Short Hold Time Analysis (&lt;72 hr)?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
<b>Rush Turn Around Time Requested?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRD/8015 (water) and Dioxin (PFAS) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <b>pH Paper Lot#</b> <input type="checkbox"/> See Exception
	Res. Chlorine    0-6 Roll    0-6 Strip    0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>N/A</u>

**CLIENT NOTIFICATION/RESOLUTION**      **Field Data Required?**  Yes     No

Person Contacted: \_\_\_\_\_      Date/Time: \_\_\_\_\_

Comments/Resolution: \_\_\_\_\_

**Project Manager Review:** Kristen Hopfer      **Date:** 5/28/2019

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHHS Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: [Signature]

## Reporting Flags

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = See Discussion

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

Report No.....10462710

## **Appendix B**

### Sample Analysis Summary



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP10-GW1	Date Extracted	05/29/2019
Lab Sample ID	10476540001	Total Amount Extracted	244 mL
Filename	B190530B_023	ICAL ID	190529B02
Matrix	Ground_Water	Starting CCal	B190530B_017
Collected	05/22/2019	Ending CCal	B190530B_026
Received	05/25/2019	Method Blank Filename	B190530B_014

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.1	0.75	1	05/30/2019 18:15	375-22-4	N2
PFPeA	ND	2.1	0.40	1	05/30/2019 18:15	2706-90-3	N2
PFBS	ND	1.8	0.27	1	05/30/2019 18:15	375-73-5	N2
PFHxA	ND	2.1	0.28	1	05/30/2019 18:15	307-24-4	N2
PFPPrOPrA	ND	4.1	0.74	1	05/30/2019 18:15	13252-13-6	N2
PFHpA	ND	2.1	0.64	1	05/30/2019 18:15	375-85-9	N2
NaDONA	ND	4.1	0.66	1	05/30/2019 18:15	958445-44-8	N2
PFHxS	ND	1.9	0.66	1	05/30/2019 18:15	355-46-4	N2
PFOA	ND	2.1	0.46	1	05/30/2019 18:15	335-67-1	N2
PFNA	ND	2.1	0.52	1	05/30/2019 18:15	375-95-1	N2
PFOS	ND	2.0	0.64	1	05/30/2019 18:15	1763-23-1	N2
PFDA	ND	2.1	0.50	1	05/30/2019 18:15	335-76-2	N2
PFUdA	ND	2.1	0.47	1	05/30/2019 18:15	2058-94-8	N2
N-MeFOSAA	ND	4.1	1.3	1	05/30/2019 18:15	2355-31-9	N2
N-EtFOSAA	ND	4.1	1.1	1	05/30/2019 18:15	2991-50-6	N2
PFDS	ND	2.0	0.38	1	05/30/2019 18:15	335-77-3	N2
PFDaA	ND	2.1	0.40	1	05/30/2019 18:15	307-55-1	N2
PFTTrDA	ND	2.1	0.38	1	05/30/2019 18:15	72629-94-8	N2
PFTeDA	ND	2.1	0.36	1	05/30/2019 18:15	376-06-7	N2
PFHxDA	ND	2.1	0.43	1	05/30/2019 18:15	67905-19-5	N2
PFODA	ND	2.1	0.74	1	05/30/2019 18:15	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	2.2	111	70 - 130	Pass
13C2_PFDA	2.0	1.9	94	70 - 130	Pass
d5-EtFOSAA	8.0	4.7	59	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	210842	83480 - 250439	156765 - 313529	Pass
13C2_PFOA	463027	206779 - 620337	313232 - 626465	Pass
13C4_PFOS	596648	272812 - 818437	418594 - 837187	Pass
d3-MeFOSAA	377677	158028 - 474085	249789 - 499579	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.





**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP11-GW1	Date Extracted	05/30/2019
Lab Sample ID	10476540002	Total Amount Extracted	251 mL
Filename	B190605B_026	ICAL ID	190605A02
Matrix	Ground_Water	Starting CCal	B190605B_016
Collected	05/22/2019	Ending CCal	B190605B_027
Received	05/25/2019	Method Blank Filename	B190605B_064

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.0	0.73	1	06/05/2019 17:39	375-22-4	N2
PFPeA	ND	2.0	0.39	1	06/05/2019 17:39	2706-90-3	N2
PFBS	ND	1.8	0.26	1	06/05/2019 17:39	375-73-5	N2
PFHxA	ND	2.0	0.27	1	06/05/2019 17:39	307-24-4	N2
PFPPrOPrA	ND	4.0	0.72	1	06/05/2019 17:39	13252-13-6	N2
PFHpA	ND	2.0	0.62	1	06/05/2019 17:39	375-85-9	N2
NaDONA	ND	4.0	0.64	1	06/05/2019 17:39	958445-44-8	N2
PFHxS	ND	1.9	0.64	1	06/05/2019 17:39	355-46-4	N2
PFOA	ND	2.0	0.44	1	06/05/2019 17:39	335-67-1	N2
PFNA	ND	2.0	0.50	1	06/05/2019 17:39	375-95-1	N2
PFOS	ND	1.9	0.62	1	06/05/2019 17:39	1763-23-1	N2
PFDA	ND	2.0	0.48	1	06/05/2019 17:39	335-76-2	N2
PFUdA	ND	2.0	0.46	1	06/05/2019 17:39	2058-94-8	N2
N-MeFOSAA	ND	4.0	1.3	1	06/05/2019 17:39	2355-31-9	N2
N-EtFOSAA	ND	4.0	1.1	1	06/05/2019 17:39	2991-50-6	N2
PFDS	ND	1.9	0.37	1	06/05/2019 17:39	335-77-3	N2
PFDaA	ND	2.0	0.39	1	06/05/2019 17:39	307-55-1	N2
PFTTrDA	ND	2.0	0.37	1	06/05/2019 17:39	72629-94-8	N2
PFTeDA	ND	2.0	0.35	1	06/05/2019 17:39	376-06-7	N2
PFHxDA	ND	2.0	0.42	1	06/05/2019 17:39	67905-19-5	N2
PFODA	ND	2.0	0.71	1	06/05/2019 17:39	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.6	79	70 - 130	Pass
13C2_PFDA	2.0	1.2	59	70 - 130	Fail
d5-EtFOSAA	8.0	3.8	48	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	334826	175772 - 527315	210973 - 421945	Pass
13C2_PFOA	535569	241388 - 724164	351713 - 703427	Pass
13C4_PFOS	860042	370672 - 1112015	514556 - 1029112	Pass
d3-MeFOSAA	802850	330534 - 991601	477642 - 955284	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP12-GW1	Date Extracted	05/30/2019
Lab Sample ID	10476540003	Total Amount Extracted	259 mL
Filename	B190605B_028	ICAL ID	190605A02
Matrix	Ground_Water	Starting CCal	B190605B_027
Collected	05/22/2019	Ending CCal	B190605B_038
Received	05/25/2019	Method Blank Filename	B190605B_064

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	7.3	1.9	0.70	1	06/05/2019 18:02	375-22-4	N2
PFPeA	ND	1.9	0.38	1	06/05/2019 18:02	2706-90-3	N2
PFBS	ND	1.7	0.26	1	06/05/2019 18:02	375-73-5	N2
PFHxA	ND	1.9	0.26	1	06/05/2019 18:02	307-24-4	N2
PFPPrOPrA	ND	3.9	0.69	1	06/05/2019 18:02	13252-13-6	N2
PFHpA	ND	1.9	0.60	1	06/05/2019 18:02	375-85-9	N2
NaDONA	ND	3.9	0.62	1	06/05/2019 18:02	958445-44-8	N2
PFHxS	ND	1.8	0.62	1	06/05/2019 18:02	355-46-4	N2
PFOA	ND	1.9	0.43	1	06/05/2019 18:02	335-67-1	N2
PFNA	ND	1.9	0.49	1	06/05/2019 18:02	375-95-1	N2
PFOS	23	1.9	0.60	1	06/05/2019 18:02	1763-23-1	N2
PFDA	ND	1.9	0.47	1	06/05/2019 18:02	335-76-2	N2
PFUdA	ND	1.9	0.45	1	06/05/2019 18:02	2058-94-8	N2
N-MeFOSAA	ND	3.9	1.2	1	06/05/2019 18:02	2355-31-9	N2
N-EtFOSAA	ND	3.9	1.1	1	06/05/2019 18:02	2991-50-6	N2
PFDS	ND	1.9	0.36	1	06/05/2019 18:02	335-77-3	N2
PFDaA	ND	1.9	0.38	1	06/05/2019 18:02	307-55-1	N2
PFTTrDA	ND	1.9	0.36	1	06/05/2019 18:02	72629-94-8	N2
PFTeDA	ND	1.9	0.34	1	06/05/2019 18:02	376-06-7	N2
PFHxDA	ND	1.9	0.41	1	06/05/2019 18:02	67905-19-5	N2
PFODA	ND	1.9	0.69	1	06/05/2019 18:02	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.5	77	70 - 130	Pass
13C2_PFDA	2.0	1.5	75	70 - 130	Pass
d5-EtFOSAA	8.0	3.9	49	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	318849	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	502911	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	822586	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	844175	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP13-GW1	Date Extracted	05/30/2019
Lab Sample ID	10476540004	Total Amount Extracted	252 mL
Filename	B190605B_029	ICAL ID	190605A02
Matrix	Ground_Water	Starting CCal	B190605B_027
Collected	05/22/2019	Ending CCal	B190605B_038
Received	05/25/2019	Method Blank Filename	B190605B_064

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	13	2.0	0.72	1	06/05/2019 18:14	375-22-4	N2
PFPeA	6.0	2.0	0.39	1	06/05/2019 18:14	2706-90-3	N2
PFBS	3.2	1.7	0.26	1	06/05/2019 18:14	375-73-5	N2
PFHxA	6.8	2.0	0.27	1	06/05/2019 18:14	307-24-4	N2
PFPPrOPrA	ND	4.0	0.71	1	06/05/2019 18:14	13252-13-6	N2
PFHpA	3.0	2.0	0.62	1	06/05/2019 18:14	375-85-9	N2
NaDONA	ND	4.0	0.63	1	06/05/2019 18:14	958445-44-8	N2
PFHxS	6.7	1.9	0.64	1	06/05/2019 18:14	355-46-4	N2
PFOA	5.3	2.0	0.44	1	06/05/2019 18:14	335-67-1	N2
PFNA	ND	2.0	0.50	1	06/05/2019 18:14	375-95-1	N2
PFOS	4.6	1.9	0.62	1	06/05/2019 18:14	1763-23-1	N2
PFDA	ND	2.0	0.48	1	06/05/2019 18:14	335-76-2	N2
PFUdA	ND	2.0	0.46	1	06/05/2019 18:14	2058-94-8	N2
N-MeFOSAA	ND	4.0	1.3	1	06/05/2019 18:14	2355-31-9	N2
N-EtFOSAA	ND	4.0	1.1	1	06/05/2019 18:14	2991-50-6	N2
PFDS	ND	1.9	0.36	1	06/05/2019 18:14	335-77-3	N2
PFDaA	ND	2.0	0.39	1	06/05/2019 18:14	307-55-1	N2
PFTTrDA	ND	2.0	0.36	1	06/05/2019 18:14	72629-94-8	N2
PFTeDA	ND	2.0	0.35	1	06/05/2019 18:14	376-06-7	N2
PFHxDA	ND	2.0	0.42	1	06/05/2019 18:14	67905-19-5	N2
PFODA	ND	2.0	0.71	1	06/05/2019 18:14	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.5	73	70 - 130	Pass
13C2_PFDA	2.0	1.4	68	70 - 130	Fail
d5-EtFOSAA	8.0	2.5	32	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	341811	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	560215	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	820184	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	796951	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GP14-GW1	Date Extracted	05/30/2019
Lab Sample ID	10476540005	Total Amount Extracted	246 mL
Filename	B190605B_030	ICAL ID	190605A02
Matrix	Ground_Water	Starting CCal	B190605B_027
Collected	05/22/2019	Ending CCal	B190605B_038
Received	05/25/2019	Method Blank Filename	B190605B_064

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.0	0.74	1	06/05/2019 18:26	375-22-4	N2
PFPeA	ND	2.0	0.40	1	06/05/2019 18:26	2706-90-3	N2
PFBS	ND	1.8	0.27	1	06/05/2019 18:26	375-73-5	N2
PFHxA	ND	2.0	0.27	1	06/05/2019 18:26	307-24-4	N2
PFPPrOPrA	ND	4.1	0.73	1	06/05/2019 18:26	13252-13-6	N2
PFHpA	ND	2.0	0.63	1	06/05/2019 18:26	375-85-9	N2
NaDONA	ND	4.1	0.65	1	06/05/2019 18:26	958445-44-8	N2
PFHxS	ND	1.9	0.66	1	06/05/2019 18:26	355-46-4	N2
PFOA	ND	2.0	0.45	1	06/05/2019 18:26	335-67-1	N2
PFNA	ND	2.0	0.51	1	06/05/2019 18:26	375-95-1	N2
PFOS	ND	2.0	0.63	1	06/05/2019 18:26	1763-23-1	N2
PFDA	ND	2.0	0.49	1	06/05/2019 18:26	335-76-2	N2
PFUdA	ND	2.0	0.47	1	06/05/2019 18:26	2058-94-8	N2
N-MeFOSAA	ND	4.1	1.3	1	06/05/2019 18:26	2355-31-9	N2
N-EtFOSAA	ND	4.1	1.1	1	06/05/2019 18:26	2991-50-6	N2
PFDS	ND	2.0	0.37	1	06/05/2019 18:26	335-77-3	N2
PFDaA	ND	2.0	0.40	1	06/05/2019 18:26	307-55-1	N2
PFTTrDA	ND	2.0	0.37	1	06/05/2019 18:26	72629-94-8	N2
PFTeDA	ND	2.0	0.36	1	06/05/2019 18:26	376-06-7	N2
PFHxDA	ND	2.0	0.43	1	06/05/2019 18:26	67905-19-5	N2
PFODA	ND	2.0	0.73	1	06/05/2019 18:26	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.2	59	70 - 130	Fail
13C2_PFDA	2.0	1.1	57	70 - 130	Fail
d5-EtFOSAA	8.0	3.0	38	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	267609	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	551174	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	792848	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	776691	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-GPGW-FD1	Date Extracted	05/30/2019
Lab Sample ID	10476540006	Total Amount Extracted	249 mL
Filename	B190605B_031	ICAL ID	190605A02
Matrix	Ground_Water	Starting CCal	B190605B_027
Collected	05/22/2019	Ending CCal	B190605B_038
Received	05/25/2019	Method Blank Filename	B190605B_064

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.0	0.73	1	06/05/2019 18:37	375-22-4	N2
PFPeA	ND	2.0	0.39	1	06/05/2019 18:37	2706-90-3	N2
PFBS	ND	1.8	0.27	1	06/05/2019 18:37	375-73-5	N2
PFHxA	ND	2.0	0.27	1	06/05/2019 18:37	307-24-4	N2
PFPPrOPrA	ND	4.0	0.72	1	06/05/2019 18:37	13252-13-6	N2
PFHpA	ND	2.0	0.63	1	06/05/2019 18:37	375-85-9	N2
NaDONA	ND	4.0	0.64	1	06/05/2019 18:37	958445-44-8	N2
PFHxS	ND	1.9	0.65	1	06/05/2019 18:37	355-46-4	N2
PFOA	ND	2.0	0.45	1	06/05/2019 18:37	335-67-1	N2
PFNA	ND	2.0	0.51	1	06/05/2019 18:37	375-95-1	N2
PFOS	ND	1.9	0.63	1	06/05/2019 18:37	1763-23-1	N2
PFDA	ND	2.0	0.49	1	06/05/2019 18:37	335-76-2	N2
PFUdA	ND	2.0	0.46	1	06/05/2019 18:37	2058-94-8	N2
N-MeFOSAA	ND	4.0	1.3	1	06/05/2019 18:37	2355-31-9	N2
N-EtFOSAA	ND	4.0	1.1	1	06/05/2019 18:37	2991-50-6	N2
PFDS	ND	1.9	0.37	1	06/05/2019 18:37	335-77-3	N2
PFDaA	ND	2.0	0.39	1	06/05/2019 18:37	307-55-1	N2
PFTTrDA	ND	2.0	0.37	1	06/05/2019 18:37	72629-94-8	N2
PFTeDA	ND	2.0	0.35	1	06/05/2019 18:37	376-06-7	N2
PFHxDA	ND	2.0	0.42	1	06/05/2019 18:37	67905-19-5	N2
PFODA	ND	2.0	0.72	1	06/05/2019 18:37	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.7	86	70 - 130	Pass
13C2_PFDA	2.0	1.5	73	70 - 130	Pass
d5-EtFOSAA	8.0	3.3	41	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	372408	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	518046	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	812825	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	729649	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified)**  
Sample Analysis Summary

Client's Sample ID	BC-FRB3	Date Extracted	05/30/2019
Lab Sample ID	10476540007	Total Amount Extracted	253 mL
Filename	B190605B_032	ICAL ID	190605A02
Matrix	Water	Starting CCal	B190605B_027
Collected	05/22/2019	Ending CCal	B190605B_038
Received	05/25/2019	Method Blank Filename	B190605B_064

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.0	0.72	1	06/05/2019 18:49	375-22-4	N2
PFPeA	ND	2.0	0.38	1	06/05/2019 18:49	2706-90-3	N2
PFBS	ND	1.7	0.26	1	06/05/2019 18:49	375-73-5	N2
PFHxA	ND	2.0	0.27	1	06/05/2019 18:49	307-24-4	N2
PFPPrOPrA	ND	4.0	0.71	1	06/05/2019 18:49	13252-13-6	N2
PFHpA	ND	2.0	0.62	1	06/05/2019 18:49	375-85-9	N2
NaDONA	ND	4.0	0.63	1	06/05/2019 18:49	958445-44-8	N2
PFHxS	ND	1.9	0.64	1	06/05/2019 18:49	355-46-4	N2
PFOA	ND	2.0	0.44	1	06/05/2019 18:49	335-67-1	N2
PFNA	ND	2.0	0.50	1	06/05/2019 18:49	375-95-1	N2
PFOS	ND	1.9	0.62	1	06/05/2019 18:49	1763-23-1	N2
PFDA	ND	2.0	0.48	1	06/05/2019 18:49	335-76-2	N2
PFUdA	ND	2.0	0.46	1	06/05/2019 18:49	2058-94-8	N2
N-MeFOSAA	ND	4.0	1.3	1	06/05/2019 18:49	2355-31-9	N2
N-EtFOSAA	ND	4.0	1.1	1	06/05/2019 18:49	2991-50-6	N2
PFDS	ND	1.9	0.36	1	06/05/2019 18:49	335-77-3	N2
PFDaA	ND	2.0	0.39	1	06/05/2019 18:49	307-55-1	N2
PFTTrDA	ND	2.0	0.36	1	06/05/2019 18:49	72629-94-8	N2
PFTeDA	ND	2.0	0.35	1	06/05/2019 18:49	376-06-7	N2
PFHxDA	ND	2.0	0.42	1	06/05/2019 18:49	67905-19-5	N2
PFODA	ND	2.0	0.71	1	06/05/2019 18:49	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.7	83	70 - 130	Pass
13C2_PFDA	2.0	1.5	74	70 - 130	Pass
d5-EtFOSAA	8.0	4.3	54	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	412235	175772 - 527315	249700 - 499400	Pass
13C2_PFOA	528622	241388 - 724164	324051 - 648102	Pass
13C4_PFOS	834303	370672 - 1112015	531100 - 1062200	Pass
d3-MeFOSAA	820429	330534 - 991601	498824 - 997648	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified) Blank Analysis Summary**

Lab Sample ID	BLANK-70814	Total Amount Extracted	255 mL
Filename	B190530B_014	ICAL ID	190530A02
Matrix	Water	Starting CCal	B190530B_004
Date Extracted	05/29/2019	Ending CCal	B190530B_017

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.0	0.71	1	05/30/2019 16:30	375-22-4	N2
PFPeA	ND	2.0	0.38	1	05/30/2019 16:30	2706-90-3	N2
PFBS	ND	1.7	0.26	1	05/30/2019 16:30	375-73-5	N2
PFHxA	ND	2.0	0.26	1	05/30/2019 16:30	307-24-4	N2
PFPPrOPrA	ND	3.9	0.70	1	05/30/2019 16:30	13252-13-6	N2
PFHpA	ND	2.0	0.61	1	05/30/2019 16:30	375-85-9	N2
NaDONA	ND	3.9	0.63	1	05/30/2019 16:30	958445-44-8	N2
PFHxS	ND	1.8	0.63	1	05/30/2019 16:30	355-46-4	N2
PFOA	ND	2.0	0.44	1	05/30/2019 16:30	335-67-1	N2
PFNA	ND	2.0	0.50	1	05/30/2019 16:30	375-95-1	N2
PFOS	ND	1.9	0.61	1	05/30/2019 16:30	1763-23-1	N2
PFDA	ND	2.0	0.47	1	05/30/2019 16:30	335-76-2	N2
PFUdA	ND	2.0	0.45	1	05/30/2019 16:30	2058-94-8	N2
N-MeFOSAA	ND	3.9	1.2	1	05/30/2019 16:30	2355-31-9	N2
N-EtFOSAA	ND	3.9	1.1	1	05/30/2019 16:30	2991-50-6	N2
PFDS	ND	1.9	0.36	1	05/30/2019 16:30	335-77-3	N2
PFDaA	ND	2.0	0.39	1	05/30/2019 16:30	307-55-1	N2
PFTTrDA	ND	2.0	0.36	1	05/30/2019 16:30	72629-94-8	N2
PFTeDA	ND	2.0	0.34	1	05/30/2019 16:30	376-06-7	N2
PFHxDA	ND	2.0	0.41	1	05/30/2019 16:30	67905-19-5	N2
PFODA	ND	2.0	0.70	1	05/30/2019 16:30	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.7	86	70 - 130	Pass
13C2_PFDA	2.0	1.9	93	70 - 130	Pass
d5-EtFOSAA	8.0	3.9	49	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	219793	134260 - 402781	172867 - 345733	Pass
13C2_PFOA	475710	225330 - 675989	303311 - 606622	Pass
13C4_PFOS	593787	301397 - 904191	421516 - 843031	Pass
d3-MeFOSAA	357827	182697 - 548090	244139 - 488277	Pass

50-150% of Ical area  
70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



**Method 537 (Modified) Blank Analysis Summary**

Lab Sample ID	BLANK-70818	Total Amount Extracted	251 mL
Filename	B190605B_064	ICAL ID	190605A02
Matrix	Water	Starting CCal	B190605B_060
Date Extracted	05/30/2019	Ending CCal	B190605B_067

Compound	Concentration (ng/L)	PQL (ng/L)	MDL (ng/L)	Dilution	Analyzed	CAS No.	Qual.
PFBA	ND	2.0	0.73	1	06/06/201901:05	375-22-4	N2
PFPeA	ND	2.0	0.39	1	06/06/201901:05	2706-90-3	N2
PFBS	ND	1.8	0.26	1	06/06/201901:05	375-73-5	N2
PFHxA	ND	2.0	0.27	1	06/06/201901:05	307-24-4	N2
PFPPrOPrA	ND	4.0	0.72	1	06/06/201901:05	13252-13-6	N2
PFHpA	ND	2.0	0.62	1	06/06/201901:05	375-85-9	N2
NaDONA	ND	4.0	0.64	1	06/06/201901:05	958445-44-8	N2
PFHxS	ND	1.9	0.64	1	06/06/201901:05	355-46-4	N2
PFOA	ND	2.0	0.44	1	06/06/201901:05	335-67-1	N2
PFNA	ND	2.0	0.50	1	06/06/201901:05	375-95-1	N2
PFOS	ND	1.9	0.62	1	06/06/201901:05	1763-23-1	N2
PFDA	ND	2.0	0.48	1	06/06/201901:05	335-76-2	N2
PFUdA	ND	2.0	0.46	1	06/06/201901:05	2058-94-8	N2
N-MeFOSAA	ND	4.0	1.3	1	06/06/201901:05	2355-31-9	N2
N-EtFOSAA	ND	4.0	1.1	1	06/06/201901:05	2991-50-6	N2
PFDS	ND	1.9	0.37	1	06/06/201901:05	335-77-3	N2
PFDaA	ND	2.0	0.39	1	06/06/201901:05	307-55-1	N2
PFTTrDA	ND	2.0	0.37	1	06/06/201901:05	72629-94-8	N2
PFTeDA	ND	2.0	0.35	1	06/06/201901:05	376-06-7	N2
PFHxDA	ND	2.0	0.42	1	06/06/201901:05	67905-19-5	N2
PFODA	ND	2.0	0.71	1	06/06/201901:05	16517-11-6	N2

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.6	78	70 - 130	Pass
13C2_PFDA	2.0	1.4	71	70 - 130	Pass
d5-EtFOSAA	8.0	2.2	28	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	394146	175772 - 527315	238936 - 477872	Pass
13C2_PFOA	548161	241388 - 724164	331178 - 662356	Pass
13C4_PFOS	837313	370672 - 1112015	547148 - 1094296	Pass
d3-MeFOSAA	733003	330534 - 991601	494154 - 988308	Pass

50-150% of Ical area

70-140% of the preceding CCV area

N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.





**Method 537 (Modified) Laboratory Control Sample (LCS)**

LCS Lab Sample ID	LCS-70815	Matrix	Water
LCS Filename	B190530B_015	Dilution	1
Total Amount Extracted	236mL	Extracted	05/29/2019
ICAL ID	190530A02	Analyzed	05/30/2019 16:41
Start CCal Filename	B190530B_004	Injected By	WM
End CCal Filename	B190530B_017		
Method Blank Filename	B190530B_014		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Limits
PFBA	2.1	2.6	121	50.0 - 150.0
PFPeA	2.1	2.1	101	50.0 - 150.0
PFBS	1.9	2.0	107	50.0 - 150.0
PFHxA	2.1	2.2	105	50.0 - 150.0
PFPrOPrA	4.2	4.4	104	50.0 - 150.0
PFHpA	2.1	2.1 J	98	50.0 - 150.0
NaDONA	4.2	5.2	122	50.0 - 150.0
PFHxS	2.0	2.1	107	50.0 - 150.0
PFOA	2.1	2.4	113	50.0 - 150.0
PFNA	2.1	2.1	100	50.0 - 150.0
PFOS	2.0	2.3	112	50.0 - 150.0
PFDA	2.1	1.7 J	82	50.0 - 150.0
PFUdA	2.1	1.5 J	71	50.0 - 150.0
N-MeFOSAA	4.2	2.6 J	61	50.0 - 150.0
N-EtFOSAA	4.2	2.5 J	59	50.0 - 150.0
PFDS	2.0	1.1 J	56	50.0 - 150.0
PFDoA	2.1	1.1 J	54	50.0 - 150.0
PFTTrDA	2.1	1.2 J	55	50.0 - 150.0
PFTeDA	2.1	0.97 JR	46	50.0 - 150.0
PFHxDA	2.1	0.87 JR	41	50.0 - 150.0
PFODA	2.1	0.77 JR	36	50.0 - 150.0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	92	70 - 130	Pass
13C2_PFDA	2.0	1.9	96	70 - 130	Pass
d5-EtFOSAA	8.0	4.1	52	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	351472	175772 - 527315	210973 - 421945	Pass
13C2_PFOA	513219	241388 - 724164	351713 - 703427	Pass
13C4_PFOS	872215	370672 - 1112015	514556 - 1029112	Pass
d3-MeFOSAA	916735	330534 - 991601	477642 - 955284	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample (LCS)**

LCS Lab Sample ID	LCS-70816	Matrix	Water
LCS Filename	B190530B_019	Dilution	1
Total Amount Extracted	251mL	Extracted	05/29/2019
ICAL ID	190530A02	Analyzed	05/30/2019 17:28
Start CCal Filename	B190530B_017	Injected By	WM
End CCal Filename	B190530B_026		
Method Blank Filename	B190530B_014		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Limits
PFBA	40	36	90	70.0 - 130.0
PFPeA	40	36	90	70.0 - 130.0
PFBS	35	35	98	70.0 - 130.0
PFHxA	40	33	84	70.0 - 130.0
PFPrOPrA	80	81	101	70.0 - 130.0
PFHpA	40	33	82	70.0 - 130.0
NaDONA	80	89	111	70.0 - 130.0
PFHxS	38	37	99	70.0 - 130.0
PFOA	40	38	95	70.0 - 130.0
PFNA	40	40	100	70.0 - 130.0
PFOS	38	39	102	70.0 - 130.0
PFDA	40	38	97	70.0 - 130.0
PFUdA	40	36	91	70.0 - 130.0
N-MeFOSAA	80	55 R	68	70.0 - 130.0
N-EtFOSAA	80	47 R	59	70.0 - 130.0
PFDS	38	30	77	70.0 - 130.0
PFDoA	40	29	73	70.0 - 130.0
PFTTrDA	40	29	72	70.0 - 130.0
PFTeDA	40	26 R	65	70.0 - 130.0
PFHxDA	40	24 R	60	70.0 - 130.0
PFODA	40	24 R	61	70.0 - 130.0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.9	94	70 - 130	Pass
13C2_PFDA	2.0	2.1	105	70 - 130	Pass
d5-EtFOSAA	8.0	4.9	61	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	213660	134260 - 402781	156765 - 313529	Pass
13C2_PFOA	460016	225330 - 675989	313232 - 626465	Pass
13C4_PFOS	613807	301397 - 904191	418594 - 837187	Pass
d3-MeFOSAA	354376	182697 - 548090	249789 - 499579	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample (LCS)**

LCS Lab Sample ID	LCS-70819	Matrix	Water
LCS Filename	B190604A_008	Dilution	1
Total Amount Extracted	253mL	Extracted	05/30/2019
ICAL ID	190603A02	Analyzed	06/04/2019 12:27
Start CCal Filename	B190604A_007	Injected By	WM
End CCal Filename	B190604A_018		
Method Blank Filename	B190605B_064		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Limits
PFBA	2.0	1.9 J	95	50.0 - 150.0
PFPeA	2.0	1.9 J	94	50.0 - 150.0
PFBS	1.7	1.6 J	92	50.0 - 150.0
PFHxA	2.0	2.4	120	50.0 - 150.0
PFPPrA	4.0	5.3	133	50.0 - 150.0
PFHpA	2.0	1.7 J	85	50.0 - 150.0
NaDONA	4.0	4.6	116	50.0 - 150.0
PFHxS	1.9	1.8 J	94	50.0 - 150.0
PFOA	2.0	1.6 J	80	50.0 - 150.0
PFNA	2.0	1.7 J	86	50.0 - 150.0
PFOS	1.9	1.7 J	88	50.0 - 150.0
PFDA	2.0	1.7 J	87	50.0 - 150.0
PFUdA	2.0	1.5 J	75	50.0 - 150.0
N-MeFOSAA	4.0	1.0 JR	26	50.0 - 150.0
N-EtFOSAA	4.0	0.99 JR	25	50.0 - 150.0
PFDS	1.9	1.2 J	63	50.0 - 150.0
PFDoA	2.0	1.2 J	61	50.0 - 150.0
PFTTrDA	2.0	0.97 JR	49	50.0 - 150.0
PFTeDA	2.0	1.0 J	51	50.0 - 150.0
PFHxDA	2.0	0.90 JR	46	50.0 - 150.0
PFODA	2.0	0.88 JR	45	50.0 - 150.0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.5	76	70 - 130	Pass
13C2_PFDA	2.0	1.5	76	70 - 130	Pass
d5-EtFOSAA	8.0	1.8	23	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrA	308459	215569 - 646707	221929 - 443859	Pass
13C2_PFOA	498547	255932 - 767795	343323 - 686646	Pass
13C4_PFOS	837296	445609 - 1336826	549781 - 1099561	Pass
d3-MeFOSAA	473364	259839 - 779517	326884 - 653768	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample (LCS)**

LCS Lab Sample ID	LCS-70820	Matrix	Water
LCS Filename	B190604A_009	Dilution	1
Total Amount Extracted	255mL	Extracted	05/30/2019
ICAL ID	190603A02	Analyzed	06/04/2019 12:39
Start CCal Filename	B190604A_007	Injected By	WM
End CCal Filename	B190604A_018		
Method Blank Filename	B190605B_064		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Limits
PFBA	20	15	78	70.0 - 130.0
PFPeA	20	16	83	70.0 - 130.0
PFBS	17	15	89	70.0 - 130.0
PFHxA	20	16	80	70.0 - 130.0
PFPrOPrA	39	50	127	70.0 - 130.0
PFHpA	20	16	82	70.0 - 130.0
NaDONA	39	52 R	132	70.0 - 130.0
PFHxS	18	16	88	70.0 - 130.0
PFOA	20	17	86	70.0 - 130.0
PFNA	20	17	87	70.0 - 130.0
PFOS	19	16	83	70.0 - 130.0
PFDA	20	16	81	70.0 - 130.0
PFUdA	20	16	80	70.0 - 130.0
N-MeFOSAA	39	17 R	43	70.0 - 130.0
N-EtFOSAA	39	14 R	37	70.0 - 130.0
PFDS	19	14	76	70.0 - 130.0
PFDoA	20	14	72	70.0 - 130.0
PFTTrDA	20	13 R	69	70.0 - 130.0
PFTeDA	20	14	73	70.0 - 130.0
PFHxDA	20	13 R	68	70.0 - 130.0
PFODA	20	14	71	70.0 - 130.0

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.5	76	70 - 130	Pass
13C2_PFDA	2.0	1.5	74	70 - 130	Pass
d5-EtFOSAA	8.0	2.7	33	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	255937	215569 - 646707	221929 - 443859	Pass
13C2_PFOA	517068	255932 - 767795	343323 - 686646	Pass
13C4_PFOS	837951	445609 - 1336826	549781 - 1099561	Pass
d3-MeFOSAA	481936	259839 - 779517	326884 - 653768	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample Duplicate (LCSD)**

LCSD Lab Sample ID	LCSD-70817	LCS Filename	B190530B_019
LCSD Filename	B190530B_020	Matrix	Water
Total Amount Extracted	241mL	Dilution	1
ICAL ID	190530A02	Extracted	05/29/2019
Start CCal Filename	B190530B_017	Analyzed	05/30/2019 17:40
End CCal Filename	B190530B_026	Injected By	WM
Method Blank Filename	B190530B_014		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Recovery Limits	RPD %
PFBA	42	38	92	70.0 - 130.0	7
PFPeA	42	40	96	70.0 - 130.0	10
PFBS	37	39	106	70.0 - 130.0	12
PFHxA	42	37	89	70.0 - 130.0	10
PFPrOPrA	83	94	114	70.0 - 130.0	16
PFHpA	42	36	86	70.0 - 130.0	9
NaDONA	83	100	123	70.0 - 130.0	15
PFHxS	39	43	109	70.0 - 130.0	14
PFOA	42	43	103	70.0 - 130.0	13
PFNA	42	45	108	70.0 - 130.0	11
PFOS	40	42	105	70.0 - 130.0	7
PFDA	42	42	101	70.0 - 130.0	9
PFUdA	42	40	97	70.0 - 130.0	11
N-MeFOSAA	83	59	71	70.0 - 130.0	9
N-EtFOSAA	83	53 R	64	70.0 - 130.0	13
PFDS	40	34	85	70.0 - 130.0	14
PFDoA	42	34	83	70.0 - 130.0	16
PFTrDA	42	32	77	70.0 - 130.0	11
PFTeDA	42	30	73	70.0 - 130.0	16
PFHxDA	42	34	81	70.0 - 130.0	33
PFODA	42	33	79	70.0 - 130.0	30

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.8	90	70 - 130	Pass
13C2_PFDA	2.0	2.2	108	70 - 130	Pass
d5-EtFOSAA	8.0	5.0	62	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	194419	134260 - 402781	156765 - 313529	Pass
13C2_PFOA	447404	225330 - 675989	313232 - 626465	Pass
13C4_PFOS	591597	301397 - 904191	418594 - 837187	Pass
d3-MeFOSAA	336382	182697 - 548090	249789 - 499579	Pass

50-150% of Ical area

70-140% of the preceding CCV area



**Method 537 (Modified) Laboratory Control Sample Duplicate (LCSD)**

LCSD Lab Sample ID	LCSD-70821	LCS Filename	B190604A_009
LCSD Filename	B190604A_010	Matrix	Water
Total Amount Extracted	251mL	Dilution	1
ICAL ID	190603A02	Extracted	05/30/2019
Start CCal Filename	B190604A_007	Analyzed	06/04/2019 12:51
End CCal Filename	B190604A_018	Injected By	WM
Method Blank Filename	B190605B_064		

Compound	Spiked (ng/L)	Recovered (ng/L)	Recovery %	Recovery Limits	RPD %
PFBA	20	19	95	70.0 - 130.0	21
PFPeA	20	19	98	70.0 - 130.0	18
PFBS	17	19	106	70.0 - 130.0	19
PFHxA	20	18	90	70.0 - 130.0	13
PFPrOPrA	40	51	129	70.0 - 130.0	3
PFHpA	20	20	101	70.0 - 130.0	22
NaDONA	40	56 R	140	70.0 - 130.0	7
PFHxS	19	19	99	70.0 - 130.0	13
PFOA	20	19	98	70.0 - 130.0	15
PFNA	20	20	99	70.0 - 130.0	14
PFOS	19	19	99	70.0 - 130.0	18
PFDA	20	17	88	70.0 - 130.0	9
PFUdA	20	17	83	70.0 - 130.0	6
N-MeFOSAA	40	20 R	50	70.0 - 130.0	15
N-EtFOSAA	40	16 R	40	70.0 - 130.0	9
PFDS	19	15	77	70.0 - 130.0	2
PFDoA	20	15	76	70.0 - 130.0	8
PFTTrDA	20	14	70	70.0 - 130.0	3
PFTeDA	20	15	76	70.0 - 130.0	6
PFHxDA	20	13 R	65	70.0 - 130.0	3
PFODA	20	14 R	68	70.0 - 130.0	3

**Surrogate Standards**

SS Compound	Spiked	Found	%Recovery	Limits	Pass/Fail
13C2_PFHxA	2.0	1.5	75	70 - 130	Pass
13C2_PFDA	2.0	1.4	70	70 - 130	Pass
d5-EtFOSAA	8.0	2.7	34	70 - 130	Fail

**Internal Standards**

IS Compound	Area	Ical Limits	CCV Limits	Pass/Fail
13C3_PFPPrOPrA	285686	215569 - 646707	221929 - 443859	Pass
13C2_PFOA	480354	255932 - 767795	343323 - 686646	Pass
13C4_PFOS	787814	445609 - 1336826	549781 - 1099561	Pass
d3-MeFOSAA	504693	259839 - 779517	326884 - 653768	Pass

50-150% of Ical area

70-140% of the preceding CCV area

**APPENDIX M**

**LABORATORY ANALYTICAL REPORT – SOIL GAS**

June 11, 2019

Mark Anderson  
IWM Consulting Group, LLC.  
3640 New Vision Drive  
Fort Wayne, IN 46845

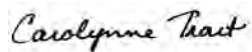
RE: Project: 19716-10 Butler  
Pace Project No.: 10477550

Dear Mark Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on June 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carolynne Trout  
carolynne.trout@pacelabs.com  
1(612)607-6351  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 19716-10 Butler

Pace Project No.: 10477550

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### Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 19716-10 Butler

Pace Project No.: 10477550

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10477550001	BC-SG2	Air	05/31/19 10:35	06/04/19 11:50
10477550002	BC-SG-FD1	Air	05/31/19 00:00	06/04/19 11:50

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 19716-10 Butler

Pace Project No.: 10477550

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Lab ID	Sample ID	Method	Analysts	Analytes Reported
10477550001	BC-SG2	TO-15	MJL	61
10477550002	BC-SG-FD1	TO-15	MJL	61

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: 19716-10 Butler

Pace Project No.: 10477550

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>10477550001</b>	<b>BC-SG2</b>					
TO-15	Acetone	24.7	ug/m3	4.6	06/09/19 21:21	
TO-15	Benzene	14.6	ug/m3	0.62	06/09/19 21:21	
TO-15	Carbon disulfide	14.8	ug/m3	1.2	06/09/19 21:21	
TO-15	Chloroform	12.6	ug/m3	0.94	06/09/19 21:21	
TO-15	1,3-Dichlorobenzene	4.2	ug/m3	2.3	06/09/19 21:21	
TO-15	Dichlorodifluoromethane	3.0	ug/m3	1.9	06/09/19 21:21	
TO-15	Ethanol	121	ug/m3	3.6	06/09/19 21:21	
TO-15	Ethylbenzene	10.3	ug/m3	1.7	06/09/19 21:21	
TO-15	n-Heptane	647	ug/m3	47.5	06/10/19 14:29	
TO-15	n-Hexane	1260	ug/m3	40.8	06/10/19 14:29	
TO-15	Methylene Chloride	17.8	ug/m3	6.7	06/09/19 21:21	
TO-15	4-Methyl-2-pentanone (MIBK)	16.4	ug/m3	7.9	06/09/19 21:21	
TO-15	2-Propanol	9.4	ug/m3	4.8	06/09/19 21:21	
TO-15	Propylene	504	ug/m3	20.0	06/10/19 14:29	
TO-15	Styrene	3.4	ug/m3	1.6	06/09/19 21:21	
TO-15	Tetrachloroethene	72.8	ug/m3	1.3	06/09/19 21:21	
TO-15	Toluene	33.5	ug/m3	1.5	06/09/19 21:21	
TO-15	Trichlorofluoromethane	2.5	ug/m3	2.2	06/09/19 21:21	
TO-15	1,2,4-Trimethylbenzene	5.6	ug/m3	1.9	06/09/19 21:21	
TO-15	m&p-Xylene	20.0	ug/m3	3.4	06/09/19 21:21	
TO-15	o-Xylene	7.3	ug/m3	1.7	06/09/19 21:21	
<b>10477550002</b>	<b>BC-SG-FD1</b>					
TO-15	Acetone	27.8	ug/m3	4.6	06/09/19 21:50	
TO-15	Benzene	14.4	ug/m3	0.62	06/09/19 21:50	
TO-15	Carbon disulfide	14.5	ug/m3	1.2	06/09/19 21:50	
TO-15	Chloroform	12.9	ug/m3	0.94	06/09/19 21:50	
TO-15	1,3-Dichlorobenzene	3.8	ug/m3	2.3	06/09/19 21:50	
TO-15	Dichlorodifluoromethane	2.7	ug/m3	1.9	06/09/19 21:50	
TO-15	Ethanol	118	ug/m3	3.6	06/09/19 21:50	
TO-15	Ethylbenzene	9.9	ug/m3	1.7	06/09/19 21:50	
TO-15	n-Heptane	629	ug/m3	47.5	06/10/19 14:54	
TO-15	n-Hexane	1230	ug/m3	40.8	06/10/19 14:54	
TO-15	Methylene Chloride	29.3	ug/m3	6.7	06/09/19 21:50	
TO-15	4-Methyl-2-pentanone (MIBK)	15.2	ug/m3	7.9	06/09/19 21:50	
TO-15	2-Propanol	9.3	ug/m3	4.8	06/09/19 21:50	
TO-15	Propylene	498	ug/m3	20.0	06/10/19 14:54	
TO-15	Styrene	3.3	ug/m3	1.6	06/09/19 21:50	
TO-15	Tetrachloroethene	70.1	ug/m3	1.3	06/09/19 21:50	
TO-15	Tetrahydrofuran	23.0	ug/m3	1.1	06/09/19 21:50	
TO-15	Toluene	41.3	ug/m3	1.5	06/09/19 21:50	
TO-15	1,1,2-Trichloroethane	2.1	ug/m3	1.1	06/09/19 21:50	
TO-15	Trichlorofluoromethane	2.3	ug/m3	2.2	06/09/19 21:50	
TO-15	1,2,4-Trimethylbenzene	5.5	ug/m3	1.9	06/09/19 21:50	
TO-15	m&p-Xylene	19.2	ug/m3	3.4	06/09/19 21:50	
TO-15	o-Xylene	7.3	ug/m3	1.7	06/09/19 21:50	

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 19716-10 Butler

Pace Project No.: 10477550

---

**Method:** TO-15

**Description:** TO15 MSV AIR

**Client:** IWM Consulting Group, LLC.

**Date:** June 11, 2019

### General Information:

2 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 611527

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3304401)
  - Dibromochloromethane
  - trans-1,3-Dichloropropene

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 611527

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3304401)
  - Dibromochloromethane

### Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

### Additional Comments:

Analyte Comments:

QC Batch: 611527

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- DUP (Lab ID: 3305174)
  - 2-Propanol

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 19716-10 Butler

Pace Project No.: 10477550

---

**Method:** TO-15

**Description:** TO15 MSV AIR

**Client:** IWM Consulting Group, LLC.

**Date:** June 11, 2019

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 19716-10 Butler

Pace Project No.: 10477550

Sample: BC-SG2		Lab ID: 10477550001	Collected: 05/31/19 10:35	Received: 06/04/19 11:50	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>TO15 MSV AIR</b>		Analytical Method: TO-15						
Acetone	24.7	ug/m3	4.6	1.9		06/09/19 21:21	67-64-1	
Benzene	14.6	ug/m3	0.62	1.9		06/09/19 21:21	71-43-2	
Benzyl chloride	ND	ug/m3	5.0	1.9		06/09/19 21:21	100-44-7	
Bromodichloromethane	ND	ug/m3	2.6	1.9		06/09/19 21:21	75-27-4	
Bromoform	ND	ug/m3	10	1.9		06/09/19 21:21	75-25-2	
Bromomethane	ND	ug/m3	1.5	1.9		06/09/19 21:21	74-83-9	
1,3-Butadiene	ND	ug/m3	0.86	1.9		06/09/19 21:21	106-99-0	
2-Butanone (MEK)	ND	ug/m3	5.7	1.9		06/09/19 21:21	78-93-3	
Carbon disulfide	14.8	ug/m3	1.2	1.9		06/09/19 21:21	75-15-0	
Carbon tetrachloride	ND	ug/m3	2.4	1.9		06/09/19 21:21	56-23-5	
Chlorobenzene	ND	ug/m3	1.8	1.9		06/09/19 21:21	108-90-7	
Chloroethane	ND	ug/m3	1.0	1.9		06/09/19 21:21	75-00-3	
Chloroform	12.6	ug/m3	0.94	1.9		06/09/19 21:21	67-66-3	
Chloromethane	ND	ug/m3	0.80	1.9		06/09/19 21:21	74-87-3	
Cyclohexane	ND	ug/m3	3.3	1.9		06/09/19 21:21	110-82-7	
Dibromochloromethane	ND	ug/m3	3.3	1.9		06/09/19 21:21	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	1.5	1.9		06/09/19 21:21	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	2.3	1.9		06/09/19 21:21	95-50-1	
1,3-Dichlorobenzene	4.2	ug/m3	2.3	1.9		06/09/19 21:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/m3	5.8	1.9		06/09/19 21:21	106-46-7	
Dichlorodifluoromethane	3.0	ug/m3	1.9	1.9		06/09/19 21:21	75-71-8	
1,1-Dichloroethane	ND	ug/m3	1.6	1.9		06/09/19 21:21	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.78	1.9		06/09/19 21:21	107-06-2	
1,1-Dichloroethene	ND	ug/m3	1.5	1.9		06/09/19 21:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.5	1.9		06/09/19 21:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.5	1.9		06/09/19 21:21	156-60-5	
1,2-Dichloropropane	ND	ug/m3	1.8	1.9		06/09/19 21:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	1.8	1.9		06/09/19 21:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	1.8	1.9		06/09/19 21:21	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	2.7	1.9		06/09/19 21:21	76-14-2	
Ethanol	121	ug/m3	3.6	1.9		06/09/19 21:21	64-17-5	
Ethyl acetate	ND	ug/m3	1.4	1.9		06/09/19 21:21	141-78-6	
Ethylbenzene	10.3	ug/m3	1.7	1.9		06/09/19 21:21	100-41-4	
4-Ethyltoluene	ND	ug/m3	4.8	1.9		06/09/19 21:21	622-96-8	
n-Heptane	647	ug/m3	47.5	57		06/10/19 14:29	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	10.3	1.9		06/09/19 21:21	87-68-3	
n-Hexane	1260	ug/m3	40.8	57		06/10/19 14:29	110-54-3	
2-Hexanone	ND	ug/m3	7.9	1.9		06/09/19 21:21	591-78-6	
Methylene Chloride	17.8	ug/m3	6.7	1.9		06/09/19 21:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	16.4	ug/m3	7.9	1.9		06/09/19 21:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	7.0	1.9		06/09/19 21:21	1634-04-4	
Naphthalene	ND	ug/m3	5.1	1.9		06/09/19 21:21	91-20-3	
2-Propanol	9.4	ug/m3	4.8	1.9		06/09/19 21:21	67-63-0	
Propylene	504	ug/m3	20.0	57		06/10/19 14:29	115-07-1	
Styrene	3.4	ug/m3	1.6	1.9		06/09/19 21:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	1.3	1.9		06/09/19 21:21	79-34-5	
Tetrachloroethene	72.8	ug/m3	1.3	1.9		06/09/19 21:21	127-18-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 19716-10 Butler

Pace Project No.: 10477550

<b>Sample: BC-SG2</b>		<b>Lab ID: 10477550001</b>	Collected: 05/31/19 10:35	Received: 06/04/19 11:50	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>TO15 MSV AIR</b>		Analytical Method: TO-15						
Tetrahydrofuran	ND	ug/m3	1.1	1.9		06/09/19 21:21	109-99-9	
Toluene	<b>33.5</b>	ug/m3	1.5	1.9		06/09/19 21:21	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	14.3	1.9		06/09/19 21:21	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	2.1	1.9		06/09/19 21:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	1.1	1.9		06/09/19 21:21	79-00-5	
Trichloroethene	ND	ug/m3	1.0	1.9		06/09/19 21:21	79-01-6	
Trichlorofluoromethane	<b>2.5</b>	ug/m3	2.2	1.9		06/09/19 21:21	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	3.0	1.9		06/09/19 21:21	76-13-1	
1,2,4-Trimethylbenzene	<b>5.6</b>	ug/m3	1.9	1.9		06/09/19 21:21	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	1.9	1.9		06/09/19 21:21	108-67-8	
Vinyl acetate	ND	ug/m3	1.4	1.9		06/09/19 21:21	108-05-4	
Vinyl chloride	ND	ug/m3	0.49	1.9		06/09/19 21:21	75-01-4	
m&p-Xylene	<b>20.0</b>	ug/m3	3.4	1.9		06/09/19 21:21	179601-23-1	
o-Xylene	<b>7.3</b>	ug/m3	1.7	1.9		06/09/19 21:21	95-47-6	

<b>Sample: BC-SG-FD1</b>		<b>Lab ID: 10477550002</b>	Collected: 05/31/19 00:00	Received: 06/04/19 11:50	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>TO15 MSV AIR</b>		Analytical Method: TO-15						
Acetone	<b>27.8</b>	ug/m3	4.6	1.9		06/09/19 21:50	67-64-1	
Benzene	<b>14.4</b>	ug/m3	0.62	1.9		06/09/19 21:50	71-43-2	
Benzyl chloride	ND	ug/m3	5.0	1.9		06/09/19 21:50	100-44-7	
Bromodichloromethane	ND	ug/m3	2.6	1.9		06/09/19 21:50	75-27-4	
Bromoform	ND	ug/m3	10	1.9		06/09/19 21:50	75-25-2	
Bromomethane	ND	ug/m3	1.5	1.9		06/09/19 21:50	74-83-9	
1,3-Butadiene	ND	ug/m3	0.86	1.9		06/09/19 21:50	106-99-0	
2-Butanone (MEK)	ND	ug/m3	5.7	1.9		06/09/19 21:50	78-93-3	
Carbon disulfide	<b>14.5</b>	ug/m3	1.2	1.9		06/09/19 21:50	75-15-0	
Carbon tetrachloride	ND	ug/m3	2.4	1.9		06/09/19 21:50	56-23-5	
Chlorobenzene	ND	ug/m3	1.8	1.9		06/09/19 21:50	108-90-7	
Chloroethane	ND	ug/m3	1.0	1.9		06/09/19 21:50	75-00-3	
Chloroform	<b>12.9</b>	ug/m3	0.94	1.9		06/09/19 21:50	67-66-3	
Chloromethane	ND	ug/m3	0.80	1.9		06/09/19 21:50	74-87-3	
Cyclohexane	ND	ug/m3	3.3	1.9		06/09/19 21:50	110-82-7	
Dibromochloromethane	ND	ug/m3	3.3	1.9		06/09/19 21:50	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	1.5	1.9		06/09/19 21:50	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	2.3	1.9		06/09/19 21:50	95-50-1	
1,3-Dichlorobenzene	<b>3.8</b>	ug/m3	2.3	1.9		06/09/19 21:50	541-73-1	
1,4-Dichlorobenzene	ND	ug/m3	5.8	1.9		06/09/19 21:50	106-46-7	
Dichlorodifluoromethane	<b>2.7</b>	ug/m3	1.9	1.9		06/09/19 21:50	75-71-8	
1,1-Dichloroethane	ND	ug/m3	1.6	1.9		06/09/19 21:50	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.78	1.9		06/09/19 21:50	107-06-2	
1,1-Dichloroethene	ND	ug/m3	1.5	1.9		06/09/19 21:50	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.5	1.9		06/09/19 21:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.5	1.9		06/09/19 21:50	156-60-5	

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## ANALYTICAL RESULTS

Project: 19716-10 Butler

Pace Project No.: 10477550

Sample: BC-SG-FD1		Lab ID: 10477550002	Collected: 05/31/19 00:00	Received: 06/04/19 11:50	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>TO15 MSV AIR</b>		Analytical Method: TO-15						
1,2-Dichloropropane	ND	ug/m3	1.8	1.9		06/09/19 21:50	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	1.8	1.9		06/09/19 21:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	1.8	1.9		06/09/19 21:50	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	2.7	1.9		06/09/19 21:50	76-14-2	
Ethanol	<b>118</b>	ug/m3	3.6	1.9		06/09/19 21:50	64-17-5	
Ethyl acetate	ND	ug/m3	1.4	1.9		06/09/19 21:50	141-78-6	
Ethylbenzene	<b>9.9</b>	ug/m3	1.7	1.9		06/09/19 21:50	100-41-4	
4-Ethyltoluene	ND	ug/m3	4.8	1.9		06/09/19 21:50	622-96-8	
n-Heptane	<b>629</b>	ug/m3	47.5	57		06/10/19 14:54	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	10.3	1.9		06/09/19 21:50	87-68-3	
n-Hexane	<b>1230</b>	ug/m3	40.8	57		06/10/19 14:54	110-54-3	
2-Hexanone	ND	ug/m3	7.9	1.9		06/09/19 21:50	591-78-6	
Methylene Chloride	<b>29.3</b>	ug/m3	6.7	1.9		06/09/19 21:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>15.2</b>	ug/m3	7.9	1.9		06/09/19 21:50	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	7.0	1.9		06/09/19 21:50	1634-04-4	
Naphthalene	ND	ug/m3	5.1	1.9		06/09/19 21:50	91-20-3	
2-Propanol	<b>9.3</b>	ug/m3	4.8	1.9		06/09/19 21:50	67-63-0	
Propylene	<b>498</b>	ug/m3	20.0	57		06/10/19 14:54	115-07-1	
Styrene	<b>3.3</b>	ug/m3	1.6	1.9		06/09/19 21:50	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	1.3	1.9		06/09/19 21:50	79-34-5	
Tetrachloroethene	<b>70.1</b>	ug/m3	1.3	1.9		06/09/19 21:50	127-18-4	
Tetrahydrofuran	<b>23.0</b>	ug/m3	1.1	1.9		06/09/19 21:50	109-99-9	
Toluene	<b>41.3</b>	ug/m3	1.5	1.9		06/09/19 21:50	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	14.3	1.9		06/09/19 21:50	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	2.1	1.9		06/09/19 21:50	71-55-6	
1,1,2-Trichloroethane	<b>2.1</b>	ug/m3	1.1	1.9		06/09/19 21:50	79-00-5	
Trichloroethene	ND	ug/m3	1.0	1.9		06/09/19 21:50	79-01-6	
Trichlorofluoromethane	<b>2.3</b>	ug/m3	2.2	1.9		06/09/19 21:50	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	3.0	1.9		06/09/19 21:50	76-13-1	
1,2,4-Trimethylbenzene	<b>5.5</b>	ug/m3	1.9	1.9		06/09/19 21:50	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	1.9	1.9		06/09/19 21:50	108-67-8	
Vinyl acetate	ND	ug/m3	1.4	1.9		06/09/19 21:50	108-05-4	
Vinyl chloride	ND	ug/m3	0.49	1.9		06/09/19 21:50	75-01-4	
m&p-Xylene	<b>19.2</b>	ug/m3	3.4	1.9		06/09/19 21:50	179601-23-1	
o-Xylene	<b>7.3</b>	ug/m3	1.7	1.9		06/09/19 21:50	95-47-6	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 19716-10 Butler  
Pace Project No.: 10477550

QC Batch: 611527 Analysis Method: TO-15  
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level  
Associated Lab Samples: 10477550001, 10477550002

METHOD BLANK: 3304400 Matrix: Air  
Associated Lab Samples: 10477550001, 10477550002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	0.56	06/09/19 10:57	
1,1,2,2-Tetrachloroethane	ug/m3	ND	0.35	06/09/19 10:57	
1,1,2-Trichloroethane	ug/m3	ND	0.28	06/09/19 10:57	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	0.78	06/09/19 10:57	
1,1-Dichloroethane	ug/m3	ND	0.41	06/09/19 10:57	
1,1-Dichloroethene	ug/m3	ND	0.40	06/09/19 10:57	
1,2,4-Trichlorobenzene	ug/m3	ND	3.8	06/09/19 10:57	
1,2,4-Trimethylbenzene	ug/m3	ND	0.50	06/09/19 10:57	
1,2-Dibromoethane (EDB)	ug/m3	ND	0.39	06/09/19 10:57	
1,2-Dichlorobenzene	ug/m3	ND	0.61	06/09/19 10:57	
1,2-Dichloroethane	ug/m3	ND	0.21	06/09/19 10:57	
1,2-Dichloropropane	ug/m3	ND	0.47	06/09/19 10:57	
1,3,5-Trimethylbenzene	ug/m3	ND	0.50	06/09/19 10:57	
1,3-Butadiene	ug/m3	ND	0.22	06/09/19 10:57	
1,3-Dichlorobenzene	ug/m3	ND	0.61	06/09/19 10:57	
1,4-Dichlorobenzene	ug/m3	ND	1.5	06/09/19 10:57	
2-Butanone (MEK)	ug/m3	ND	1.5	06/09/19 10:57	
2-Hexanone	ug/m3	ND	2.1	06/09/19 10:57	
2-Propanol	ug/m3	ND	1.2	06/09/19 10:57	
4-Ethyltoluene	ug/m3	ND	1.2	06/09/19 10:57	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	2.1	06/09/19 10:57	
Acetone	ug/m3	ND	1.2	06/09/19 10:57	
Benzene	ug/m3	ND	0.16	06/09/19 10:57	
Benzyl chloride	ug/m3	ND	1.3	06/09/19 10:57	
Bromodichloromethane	ug/m3	ND	0.68	06/09/19 10:57	
Bromoform	ug/m3	ND	2.6	06/09/19 10:57	
Bromomethane	ug/m3	ND	0.39	06/09/19 10:57	
Carbon disulfide	ug/m3	ND	0.32	06/09/19 10:57	
Carbon tetrachloride	ug/m3	ND	0.64	06/09/19 10:57	
Chlorobenzene	ug/m3	ND	0.47	06/09/19 10:57	
Chloroethane	ug/m3	ND	0.27	06/09/19 10:57	
Chloroform	ug/m3	ND	0.25	06/09/19 10:57	
Chloromethane	ug/m3	ND	0.21	06/09/19 10:57	
cis-1,2-Dichloroethene	ug/m3	ND	0.40	06/09/19 10:57	
cis-1,3-Dichloropropene	ug/m3	ND	0.46	06/09/19 10:57	
Cyclohexane	ug/m3	ND	0.88	06/09/19 10:57	
Dibromochloromethane	ug/m3	ND	0.86	06/09/19 10:57	
Dichlorodifluoromethane	ug/m3	ND	0.50	06/09/19 10:57	
Dichlorotetrafluoroethane	ug/m3	ND	0.71	06/09/19 10:57	
Ethanol	ug/m3	ND	0.96	06/09/19 10:57	
Ethyl acetate	ug/m3	ND	0.37	06/09/19 10:57	

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### QUALITY CONTROL DATA

Project: 19716-10 Butler

Pace Project No.: 10477550

METHOD BLANK: 3304400

Matrix: Air

Associated Lab Samples: 10477550001, 10477550002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/m3	ND	0.44	06/09/19 10:57	
Hexachloro-1,3-butadiene	ug/m3	ND	2.7	06/09/19 10:57	
m&p-Xylene	ug/m3	ND	0.88	06/09/19 10:57	
Methyl-tert-butyl ether	ug/m3	ND	1.8	06/09/19 10:57	
Methylene Chloride	ug/m3	ND	1.8	06/09/19 10:57	
n-Heptane	ug/m3	ND	0.42	06/09/19 10:57	
n-Hexane	ug/m3	ND	0.36	06/09/19 10:57	
Naphthalene	ug/m3	ND	1.3	06/09/19 10:57	
o-Xylene	ug/m3	ND	0.44	06/09/19 10:57	
Propylene	ug/m3	ND	0.18	06/09/19 10:57	
Styrene	ug/m3	ND	0.43	06/09/19 10:57	
Tetrachloroethene	ug/m3	ND	0.34	06/09/19 10:57	
Tetrahydrofuran	ug/m3	ND	0.30	06/09/19 10:57	
Toluene	ug/m3	ND	0.38	06/09/19 10:57	
trans-1,2-Dichloroethene	ug/m3	ND	0.40	06/09/19 10:57	
trans-1,3-Dichloropropene	ug/m3	ND	0.46	06/09/19 10:57	
Trichloroethene	ug/m3	ND	0.27	06/09/19 10:57	
Trichlorofluoromethane	ug/m3	ND	0.57	06/09/19 10:57	
Vinyl acetate	ug/m3	ND	0.36	06/09/19 10:57	
Vinyl chloride	ug/m3	ND	0.13	06/09/19 10:57	

LABORATORY CONTROL SAMPLE: 3304401

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	64.5	116	70-130	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	85.8	123	70-132	
1,1,2-Trichloroethane	ug/m3	55.5	65.8	119	70-130	
1,1,2-Trichlorotrifluoroethane	ug/m3	77.9	91.4	117	70-130	
1,1-Dichloroethane	ug/m3	41.1	49.8	121	70-130	
1,1-Dichloroethene	ug/m3	40.3	48.9	121	70-130	
1,2,4-Trichlorobenzene	ug/m3	75.4	93.7	124	56-130	
1,2,4-Trimethylbenzene	ug/m3	50	63.0	126	70-134	
1,2-Dibromoethane (EDB)	ug/m3	78.1	96.7	124	70-130	
1,2-Dichlorobenzene	ug/m3	61.1	75.2	123	70-132	
1,2-Dichloroethane	ug/m3	41.1	45.2	110	70-130	
1,2-Dichloropropane	ug/m3	47	55.9	119	70-130	
1,3,5-Trimethylbenzene	ug/m3	50	62.5	125	70-132	
1,3-Butadiene	ug/m3	22.5	28.3	126	65-130	
1,3-Dichlorobenzene	ug/m3	61.1	78.0	128	70-137	
1,4-Dichlorobenzene	ug/m3	61.1	76.9	126	70-134	
2-Butanone (MEK)	ug/m3	30	38.4	128	70-130	
2-Hexanone	ug/m3	41.6	50.0	120	70-135	
2-Propanol	ug/m3	125	156	125	68-130	
4-Ethyltoluene	ug/m3	50	61.3	123	70-138	

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### QUALITY CONTROL DATA

Project: 19716-10 Butler

Pace Project No.: 10477550

LABORATORY CONTROL SAMPLE: 3304401

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4-Methyl-2-pentanone (MIBK)	ug/m3	41.6	50.4	121	70-131	
Acetone	ug/m3	121	134	111	67-130	
Benzene	ug/m3	32.5	38.3	118	70-130	
Benzyl chloride	ug/m3	52.6	64.8	123	70-130	
Bromodichloromethane	ug/m3	68.1	81.1	119	70-130	
Bromoform	ug/m3	105	129	123	70-132	
Bromomethane	ug/m3	39.5	46.9	119	69-130	
Carbon disulfide	ug/m3	31.6	35.3	111	56-137	
Carbon tetrachloride	ug/m3	64	79.9	125	66-131	
Chlorobenzene	ug/m3	46.8	56.8	121	70-130	
Chloroethane	ug/m3	26.8	31.8	118	70-130	
Chloroform	ug/m3	49.6	58.6	118	70-130	
Chloromethane	ug/m3	21	24.7	117	66-130	
cis-1,2-Dichloroethene	ug/m3	40.3	47.4	118	70-130	
cis-1,3-Dichloropropene	ug/m3	46.1	59.3	128	70-133	
Cyclohexane	ug/m3	35	43.3	124	68-132	
Dibromochloromethane	ug/m3	86.6	122	141	70-130	CH,L3
Dichlorodifluoromethane	ug/m3	50.3	58.1	116	70-130	
Dichlorotetrafluoroethane	ug/m3	71	79.8	112	70-130	
Ethanol	ug/m3	95.8	112	116	68-133	
Ethyl acetate	ug/m3	36.6	43.5	119	69-130	
Ethylbenzene	ug/m3	44.1	54.5	123	67-131	
Hexachloro-1,3-butadiene	ug/m3	108	134	123	66-137	
m&p-Xylene	ug/m3	88.3	109	123	70-132	
Methyl-tert-butyl ether	ug/m3	36.6	43.2	118	70-130	
Methylene Chloride	ug/m3	177	196	111	65-130	
n-Heptane	ug/m3	41.7	47.0	113	65-130	
n-Hexane	ug/m3	35.8	41.9	117	66-130	
Naphthalene	ug/m3	53.3	63.8	120	56-130	
o-Xylene	ug/m3	44.1	53.4	121	70-130	
Propylene	ug/m3	17.5	20.6	118	67-130	
Styrene	ug/m3	43.3	54.5	126	69-136	
Tetrachloroethene	ug/m3	68.9	78.5	114	70-130	
Tetrahydrofuran	ug/m3	30	38.1	127	68-131	
Toluene	ug/m3	38.3	45.0	118	70-130	
trans-1,2-Dichloroethene	ug/m3	40.3	48.4	120	70-130	
trans-1,3-Dichloropropene	ug/m3	46.1	60.3	131	70-134	CH
Trichloroethene	ug/m3	54.6	60.4	111	70-130	
Trichlorofluoromethane	ug/m3	57.1	65.5	115	65-130	
Vinyl acetate	ug/m3	35.8	45.0	126	61-133	
Vinyl chloride	ug/m3	26	31.9	123	70-130	

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### QUALITY CONTROL DATA

Project: 19716-10 Butler

Pace Project No.: 10477550

SAMPLE DUPLICATE: 3305174

Parameter	Units	10477556001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	ND		25	
1,1,2,2-Tetrachloroethane	ug/m3	ND	ND		25	
1,1,2-Trichloroethane	ug/m3	ND	ND		25	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	ND		25	
1,1-Dichloroethane	ug/m3	ND	ND		25	
1,1-Dichloroethene	ug/m3	ND	ND		25	
1,2,4-Trichlorobenzene	ug/m3	ND	ND		25	
1,2,4-Trimethylbenzene	ug/m3	2.4	2.5	3	25	
1,2-Dibromoethane (EDB)	ug/m3	ND	ND		25	
1,2-Dichlorobenzene	ug/m3	ND	ND		25	
1,2-Dichloroethane	ug/m3	ND	ND		25	
1,2-Dichloropropane	ug/m3	ND	ND		25	
1,3,5-Trimethylbenzene	ug/m3	ND	.71J		25	
1,3-Butadiene	ug/m3	ND	ND		25	
1,3-Dichlorobenzene	ug/m3	ND	ND		25	
1,4-Dichlorobenzene	ug/m3	ND	ND		25	
2-Butanone (MEK)	ug/m3	ND	1.4J		25	
2-Hexanone	ug/m3	ND	ND		25	
2-Propanol	ug/m3	1550	1800	15	25	E
4-Ethyltoluene	ug/m3	ND	ND		25	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	1.3J		25	
Acetone	ug/m3	165	160	3	25	
Benzene	ug/m3	2.6	2.5	1	25	
Benzyl chloride	ug/m3	ND	ND		25	
Bromodichloromethane	ug/m3	ND	ND		25	
Bromoform	ug/m3	ND	ND		25	
Bromomethane	ug/m3	ND	.74J		25	
Carbon disulfide	ug/m3	ND	ND		25	
Carbon tetrachloride	ug/m3	ND	ND		25	
Chlorobenzene	ug/m3	ND	ND		25	
Chloroethane	ug/m3	ND	ND		25	
Chloroform	ug/m3	ND	ND		25	
Chloromethane	ug/m3	1.4	1.5	10	25	
cis-1,2-Dichloroethene	ug/m3	ND	ND		25	
cis-1,3-Dichloropropene	ug/m3	ND	ND		25	
Cyclohexane	ug/m3	24.0	23.5	2	25	
Dibromochloromethane	ug/m3	ND	ND		25	
Dichlorodifluoromethane	ug/m3	3.0	3.0	1	25	
Dichlorotetrafluoroethane	ug/m3	ND	ND		25	
Ethanol	ug/m3	142	156	9	25	
Ethyl acetate	ug/m3	ND	ND		25	
Ethylbenzene	ug/m3	5.8	5.8	1	25	
Hexachloro-1,3-butadiene	ug/m3	ND	ND		25	
m&p-Xylene	ug/m3	25.3	25.5	1	25	
Methyl-tert-butyl ether	ug/m3	ND	ND		25	
Methylene Chloride	ug/m3	10.0	10	0	25	
n-Heptane	ug/m3	1.4	1.6	8	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 19716-10 Butler

Pace Project No.: 10477550

SAMPLE DUPLICATE: 3305174

Parameter	Units	10477556001 Result	Dup Result	RPD	Max RPD	Qualifiers
n-Hexane	ug/m3	2.6	2.7	1	25	
Naphthalene	ug/m3	ND	ND		25	
o-Xylene	ug/m3	8.3	7.9	6	25	
Propylene	ug/m3	ND	ND		25	
Styrene	ug/m3	3.5	3.5	0	25	
Tetrachloroethene	ug/m3	77.4	75.2	3	25	
Tetrahydrofuran	ug/m3	1.5	1.2	21	25	
Toluene	ug/m3	14.4	14.2	1	25	
trans-1,2-Dichloroethene	ug/m3	ND	ND		25	
trans-1,3-Dichloropropene	ug/m3	ND	ND		25	
Trichloroethene	ug/m3	ND	ND		25	
Trichlorofluoromethane	ug/m3	2.0	2.2	9	25	
Vinyl acetate	ug/m3	ND	ND		25	
Vinyl chloride	ug/m3	ND	ND		25	

SAMPLE DUPLICATE: 3305175

Parameter	Units	10477557001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	<0.54	ND		25	
1,1,2,2-Tetrachloroethane	ug/m3	<0.51	ND		25	
1,1,2-Trichloroethane	ug/m3	<0.44	ND		25	
1,1,2-Trichlorotrifluoroethane	ug/m3	<0.99	ND		25	
1,1-Dichloroethane	ug/m3	<0.39	ND		25	
1,1-Dichloroethene	ug/m3	<0.48	ND		25	
1,2,4-Trichlorobenzene	ug/m3	<6.5	ND		25	
1,2,4-Trimethylbenzene	ug/m3	38.4	35.7	7	25	
1,2-Dibromoethane (EDB)	ug/m3	<0.64	ND		25	
1,2-Dichlorobenzene	ug/m3	<0.87	ND		25	
1,2-Dichloroethane	ug/m3	<0.26	ND		25	
1,2-Dichloropropane	ug/m3	<0.40	ND		25	
1,3,5-Trimethylbenzene	ug/m3	10.2	9.4	9	25	
1,3-Butadiene	ug/m3	<0.22	ND		25	
1,3-Dichlorobenzene	ug/m3	<1.0	ND		25	
1,4-Dichlorobenzene	ug/m3	<1.8	ND		25	
2-Butanone (MEK)	ug/m3	16.2	14.4	12	25	
2-Hexanone	ug/m3	<1.3	ND		25	
2-Propanol	ug/m3	10.3	9.3	10	25	
4-Ethyltoluene	ug/m3	13.9	13.3	4	25	
4-Methyl-2-pentanone (MIBK)	ug/m3	2.0J	2.5J		25	
Acetone	ug/m3	639	621	3	25	
Benzene	ug/m3	12.7	12.2	4	25	
Benzyl chloride	ug/m3	<2.1	ND		25	
Bromodichloromethane	ug/m3	<0.64	ND		25	
Bromoform	ug/m3	<2.5	ND		25	
Bromomethane	ug/m3	<0.40	ND		25	

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### QUALITY CONTROL DATA

Project: 19716-10 Butler

Pace Project No.: 10477550

SAMPLE DUPLICATE: 3305175

Parameter	Units	10477557001 Result	Dup Result	RPD	Max RPD	Qualifiers
Carbon disulfide	ug/m3	5.7	5.2	8	25	
Carbon tetrachloride	ug/m3	<0.75	ND		25	
Chlorobenzene	ug/m3	2.3	2.2	9	25	
Chloroethane	ug/m3	<0.46	ND		25	
Chloroform	ug/m3	<0.34	ND		25	
Chloromethane	ug/m3	1.2	1.1	5	25	
cis-1,2-Dichloroethene	ug/m3	<0.38	ND		25	
cis-1,3-Dichloropropene	ug/m3	<0.53	ND		25	
Cyclohexane	ug/m3	<0.62	27.5		25	
Dibromochloromethane	ug/m3	<1.3	ND		25	
Dichlorodifluoromethane	ug/m3	2.1	2.3	8	25	
Dichlorotetrafluoroethane	ug/m3	<0.76	ND		25	
Ethanol	ug/m3	32.0	30.9	3	25	
Ethyl acetate	ug/m3	<0.33	ND		25	
Ethylbenzene	ug/m3	34.7	33.6	3	25	
Hexachloro-1,3-butadiene	ug/m3	<3.4	ND		25	
m&p-Xylene	ug/m3	151	143	6	25	
Methyl-tert-butyl ether	ug/m3	<1.2	ND		25	
Methylene Chloride	ug/m3	80.8	87.6	8	25	
n-Heptane	ug/m3	47.1	42.9	9	25	
n-Hexane	ug/m3	21.3	22.3	4	25	
Naphthalene	ug/m3	6.5	6.0	7	25	
o-Xylene	ug/m3	50.8	48.6	5	25	
Propylene	ug/m3	90.5	82.4	9	25	
Styrene	ug/m3	13.0	12.4	5	25	
Tetrachloroethene	ug/m3	1.6	1.5	4	25	
Tetrahydrofuran	ug/m3	<0.46	ND		25	
Toluene	ug/m3	186	176	5	25	
trans-1,2-Dichloroethene	ug/m3	<0.50	ND		25	
trans-1,3-Dichloropropene	ug/m3	<0.77	ND		25	
Trichloroethene	ug/m3	<0.45	ND		25	
Trichlorofluoromethane	ug/m3	0.74J	1.3J		25	
Vinyl acetate	ug/m3	<0.47	ND		25	
Vinyl chloride	ug/m3	<0.22	ND		25	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 19716-10 Butler

Pace Project No.: 10477550

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 19716-10 Butler

Pace Project No.: 10477550

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<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
10477550001	BC-SG2	TO-15	611527		
10477550002	BC-SG-FD1	TO-15	611527		

### REPORT OF LABORATORY ANALYSIS

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**WO# : 10477550**  
 PM: CT1 Due Date: 06/11/19  
 CLIENT: IMM CONSULT

Air Sample Condition Upon Receipt  
 Client Name: IWM  
 Project #:

Courier:  Fed Ex  UPS  USPS  Client  
 Pace  SpeeDee  Commercial See Exception

Tracking Number: 4545 9912 3703

Custody Seal on Cooler/Box Present?  Yes  No  
 Seals Intact?  Yes  No

Packing Material:  Bubble Wrap  Bubble Bags  Foam  None  Tin Can  Other: \_\_\_\_\_  
 Temp Blank rec:  Yes  No

Temp. (TO17 and TO13 samples only) (°C): \_\_\_\_\_ Corrected Temp (°C): \_\_\_\_\_  
 Thermometer Used:  G87A9170600254  G87A9155100842

Temp should be above freezing to 6°C Correction Factor: \_\_\_\_\_  
 Date & Initials of Person Examining Contents: 06/04/19 ES

Type of ice Received  Blue  Wet  None

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished?	<input type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Media: <u>Air Can</u> Airbag Filter TDT Passive		11. Individually Certified Cans Y <u>N</u> (list which samples)
Is sufficient information available to reconcile samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
Do cans need to be pressurized (3C and ASTM 1946 DO NOT PRESSURIZE)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13.

Samples Received: 17-1-11-19 Pressure Gauge #  10AIR34  10AIR35

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
<u>SG 2</u>	<u>2934</u>	<u>2207</u>	<u>-3.5</u>	<u>+10.0</u>					
<u>SG-FD1</u>	<u>2460</u>	<u>"</u>	<u>"</u>	<u>"</u>					

CLIENT NOTIFICATION/RESOLUTION  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/Resolution: \_\_\_\_\_  
 Field Data Required?  Yes  No

Project Manager Review: Carolynne Hunt Date: 6/4/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

SDG	Sample ID	Can No.	Pre (in Hg)	Post (in Hg)	Canister size
10477550	10477550001	2934	-30	-3.5	1L
10477550	10477550002	2460	-30	-3.5	1L

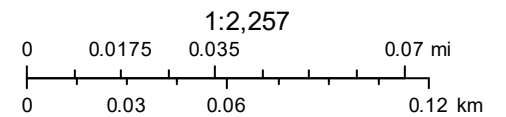
**APPENDIX N**

**WELLHEAD PROTECTION AREA  
AND IDNR WATER WELL DOCUMENTATION**

# IDEM Wellhead Proximity

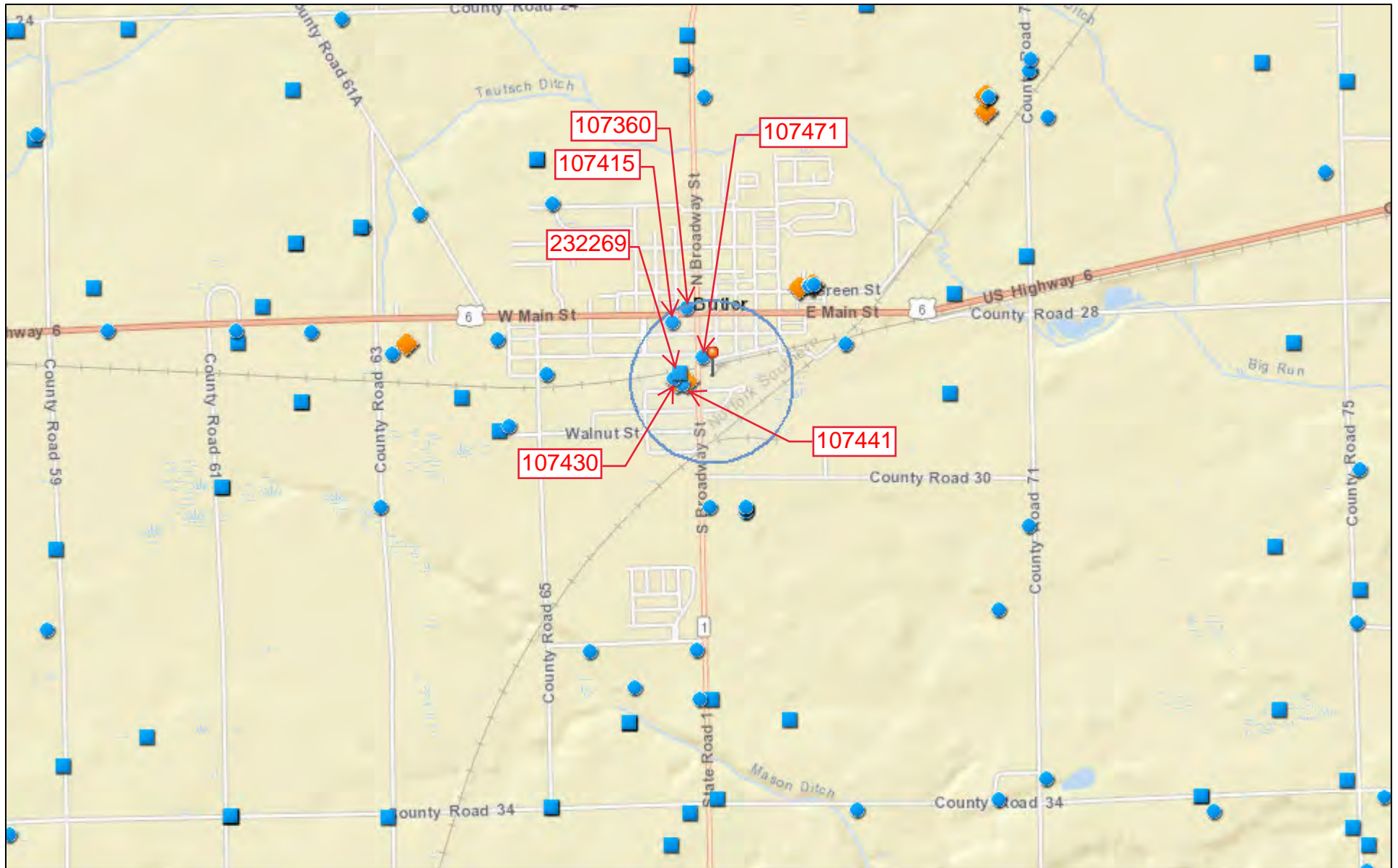


July 11, 2019



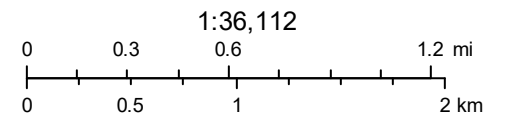
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

# Indiana DNR Water Well Viewer



7/11/2019, 10:09:00 AM

- |               |                  |                             |                            |
|---------------|------------------|-----------------------------|----------------------------|
| <b>Points</b> | <b>Areas</b>     | <b>Unconsolidated Wells</b> | Field Located              |
| Site Location | 0.25-mile radius | Other                       | Significant Withdraw Wells |



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

**Record of Water Well**

**Indiana Department of Natural Resources**

<b>Reference Number</b> <b>107360</b>	<b>Driving directions to well</b> W OF BUTLER ON SR 6 3RD HSE ON R SIDE NEW LOCATION MOVED OLD HSE ON LOT	<b>Date completed</b> Sep 03, 1962
--	---	---------------------------------------

<b>Owner-Contractor</b>	<b>Name</b>	<b>Address</b>	<b>Telephone</b>
Owner	MR LARROWE	RRT BUTLER	
Driller	WILFRED SCHIFFLI	RRT 1 BOX 34 WATERLOO	
Operator	WILFRED SCHIFFLI	License: null	

<b>Construction Details</b>			
Well	<b>Use:</b> Home	<b>Drilling method:</b> Jet	<b>Pump type:</b>
	<b>Depth:</b> 52.0	<b>Pump setting depth:</b>	<b>Water quality:</b>
Casing	<b>Length:</b> 48.0	<b>Material:</b>	<b>Diameter:</b> 2.0
Screen	<b>Length:</b> 2.5	<b>Material:</b>	<b>Diameter:</b> 1.0 <b>Slot size:</b> 40

<b>Well Capacity Test</b>	<b>Type of test:</b>	<b>Test rate:</b> 12.0 gpm for 2.0 hrs.	<b>BailTest rate:</b> gpm for hrs.
	<b>Drawdown:</b> 0.0 ft.	<b>Static water level:</b> 10.0 ft.	<b>Bailer Drawdown</b> ft.

<b>Grouting Information</b>	<b>Material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Well Abandonment</b>	<b>Sealing material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Administrative</b>	<b>County:</b> DEKALB	<b>Township:</b> 34N <b>Range:</b> 14E
	<b>Section:</b> SE of the SE of the SE of Section 2	<b>Topo map:</b> BUTLER EAST, IN-OH
	<b>Grant Number:</b>	
	<b>Field located by:</b> KEPPEL	<b>on:</b> Jul 01, 1965
	<b>Courthouse location by:</b>	<b>on:</b>
	<b>Location accepted w/o verification by:</b>	<b>on:</b>
	<b>Subdivision name:</b>	<b>Lot number:</b>
	<b>Ft W of EL:</b> 150.0	<b>Ft N of SL:</b> 50.0
	<b>Ground elevation:</b> 865.0	<b>Depth to bedrock:</b>
	<b>UTM Easting:</b> 677812.0	<b>Bedrock elevation:</b>
		<b>Aquifer elevation:</b> 813.0
		<b>UTM Northing:</b> 4588455.0

<b>Well Log</b>	<b>Top</b>	<b>Bottom</b>	<b>Formation</b>
	0.0	10.0	YEL CLAY
	10.0	48.0	GRAY CLAY
	48.0	52.0	SAND & GRAV & WATER

**Comments**



**Record of Water Well**

**Indiana Department of Natural Resources**

<b>Reference Number</b> <b>107415</b>	<b>Driving directions to well</b> AT UTILITY BLDG S SIDE JUST W OF SR 1	<b>Date completed</b>
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<b>Owner-Contractor</b> Owner	<b>Name</b> BUTLER WATER WORKS	<b>Address</b> BUTLER	<b>Telephone</b>
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<b>Construction Details</b> Well	<b>Use:</b> Public Supply	<b>Drilling method:</b>	<b>Pump type:</b>
Casing	<b>Depth:</b> 147.0	<b>Pump setting depth:</b>	<b>Water quality:</b>
Screen	<b>Length:</b>	<b>Material:</b>	<b>Diameter:</b> 10.0
	<b>Length:</b>	<b>Material:</b>	<b>Diameter:</b> 10.0 <b>Slot size:</b>

<b>Well Capacity Test</b>	<b>Type of test:</b>	<b>Test rate:</b> 275.0 gpm for hrs.	<b>BailTest rate:</b> gpm for hrs.
	<b>Drawdown:</b> ft.	<b>Static water level:</b> 24.0 ft.	<b>Bailer Drawdown:</b> ft.

<b>Grouting Information</b>	<b>Material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Well Abandonment</b>	<b>Sealing material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Administrative</b>	<b>County:</b> DEKALB	<b>Township:</b> 34N <b>Range:</b> 14E
	<b>Section:</b> NE of the NE of the NE of Section 11	<b>Topo map:</b> BUTLER EAST, IN-OH
	<b>Grant Number:</b>	
	<b>Field located by:</b> U KEP	<b>on:</b> Jul 09, 1965
	<b>Courthouse location by:</b>	<b>on:</b>
	<b>Location accepted w/o verification by:</b>	<b>on:</b>
	<b>Subdivision name:</b>	<b>Lot number:</b>
	<b>Ft W of EL:</b> 300.0	<b>Ft E of WL:</b> <b>Ft S of NL:</b> 100.0
	<b>Ground elevation:</b> 865.0	<b>Depth to bedrock:</b> <b>Bedrock elevation:</b> <b>Aquifer elevation:</b> 720.0
	<b>UTM Easting:</b> 677744.0	<b>UTM Northing:</b> 4588385.0

<b>Well Log</b>	Top	Bottom	Formation
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<b>Comments</b>	BUTLER 1
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**Record of Water Well**

**Indiana Department of Natural Resources**

<b>Reference Number</b> 107430	<b>Driving directions to well</b>	<b>Date completed</b> Dec 22, 1959
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<b>Owner-Contractor</b>	<b>Name</b>	<b>Address</b>	<b>Telephone</b>
Driller	WATSON WELL DRILLING INC	BRYAN, OH	
Operator	C KIMBLE	License: null	

<b>Construction Details</b>	<b>Use:</b> Public Supply	<b>Drilling method:</b> Other	<b>Pump type:</b>
Well	<b>Depth:</b> 144.0	<b>Pump setting depth:</b>	<b>Water quality:</b>
Casing	<b>Length:</b> 93.0	<b>Material:</b>	<b>Diameter:</b> 26.0
Screen	<b>Length:</b> 20.0	<b>Material:</b>	<b>Diameter:</b> 13.5 <b>Slot size:</b> 7

<b>Well Capacity Test</b>	<b>Type of test:</b>	<b>Test rate:</b> 1000.0 gpm for hrs.	<b>BailTest rate:</b> gpm for hrs.
	<b>Drawdown:</b> 17.0 ft.	<b>Static water level:</b> 21.6 ft.	<b>Bailer Drawdown</b> ft.

<b>Grouting Information</b>	<b>Material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Well Abandonment</b>	<b>Sealing material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Administrative</b>	<b>County:</b> DEKALB	<b>Township:</b> 34N <b>Range:</b> 14E
	<b>Section:</b> SE of the NE of the NE of Section 11	<b>Topo map:</b> BUTLER EAST, IN-OH
	<b>Grant Number:</b>	
	<b>Field located by:</b> KP	<b>on:</b> Jul 01, 1965
	<b>Courthouse location by:</b>	<b>on:</b>
	<b>Location accepted w/o verification by:</b>	<b>on:</b>
	<b>Subdivision name:</b>	<b>Lot number:</b>
	<b>Ft W of EL:</b> 350.0	<b>Ft N of SL:</b>
	<b>Ground elevation:</b> 870.0	<b>Ft E of WL:</b> <b>Ft S of NL:</b> 1000.0
	<b>UTM Easting:</b> 677758.0	<b>Bedrock elevation:</b> <b>Aquifer elevation:</b> 726.0
		<b>UTM Northing:</b> 4588106.0

<b>Well Log</b>	<b>Top</b>	<b>Bottom</b>	<b>Formation</b>
	0.0	18.0	HARD YELLOW CLAY
	18.0	38.0	SAND & GRAVEL
	38.0	58.0	CLAY
	58.0	64.0	GRAVEL
	64.0	88.0	BLUE CLAY
	88.0	105.0	GRAVEL
	105.0	129.0	CLAY
	129.0	144.0	GRAVEL & SAND

**Comments** MC WELL #3 & TEST 59A

**Record of Water Well**

**Indiana Department of Natural Resources**

<b>Reference Number</b> 107441	<b>Driving directions to well</b> 450' W OF BROADWAY 200' N OF W WILLOW	<b>Date completed</b> Sep 18, 1970
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<b>Owner-Contractor</b>	<b>Name</b>	<b>Address</b>	<b>Telephone</b>
Owner	CITY WATER DEPT	BUTLER, IN	
Driller	LAYNE NORTHERN CO	MISHAWAKA, IN	

<b>Construction Details</b>	<b>Use:</b> Public Supply	<b>Drilling method:</b> Other	<b>Pump type:</b>
Well	<b>Depth:</b> 147.0	<b>Pump setting depth:</b>	<b>Water quality:</b>
Casing	<b>Length:</b> 88.0	<b>Material:</b>	<b>Diameter:</b> 38.0
Screen	<b>Length:</b> 30.0	<b>Material:</b>	<b>Diameter:</b> 18.0 <b>Slot size:</b> 8

<b>Well Capacity Test</b>	<b>Type of test:</b>	<b>Test rate:</b> 1002.0 gpm for 28.0 hrs.	<b>BailTest rate:</b> gpm for hrs.
	<b>Drawdown:</b> 20.0 ft.	<b>Static water level:</b> 24.0 ft.	<b>Bailer Drawdown</b> ft.

<b>Grouting Information</b>	<b>Material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Well Abandonment</b>	<b>Sealing material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Administrative</b>	<b>County:</b> DEKALB	<b>Township:</b> 34N <b>Range:</b> 14E
	<b>Section:</b> SE of the NE of the NE of Section 11	<b>Topo map:</b> BUTLER EAST, IN-OH
	<b>Grant Number:</b>	
	<b>Field located by:</b> TMB	<b>on:</b> Aug 01, 1973
	<b>Courthouse location by:</b>	<b>on:</b>
	<b>Location accepted w/o verification by:</b>	<b>on:</b>
	<b>Subdivision name:</b>	<b>Lot number:</b>
	<b>Ft W of EL:</b> 450.0	<b>Ft N of SL:</b>
	<b>Ground elevation:</b> 870.0	<b>Ft E of WL:</b> <b>Ft S of NL:</b> 1100.0
	<b>UTM Easting:</b> 677801.0	<b>Bedrock elevation:</b> <b>Aquifer elevation:</b> 723.0
		<b>UTM Northing:</b> 4588080.0

<b>Well Log</b>	<b>Top</b>	<b>Bottom</b>	<b>Formation</b>
	0.0	2.0	FILL
	2.0	28.0	CLAY
	28.0	31.0	COARSE SAND & GRAVEL
	31.0	57.0	CLAY
	57.0	62.0	COARSE SAND & GRAVEL
	62.0	89.0	CLAY
	89.0	106.0	COARSE SAND & GRAVEL
	106.0	129.0	CLAY
	129.0	147.0	COARSE SAND & GRAVEL
	147.0	148.0	CLAY

**Comments** WELL IN PUMPHOUSE W OF WATER TOWER PUMPING TEST DATA ENCLOSED

**Record of Water Well**

**Indiana Department of Natural Resources**

<b>Reference Number</b> <b>107471</b>	<b>Driving directions to well</b> 300' N OF PENN CENTRAL RR ON BROADWAY 1ST BLDG ON E SIDE OF BROADWAY N OF CONRAIL TRACKS	<b>Date completed</b> May 28, 1970
--	--	---------------------------------------

<b>Owner-Contractor Name</b>	<b>Address</b>	<b>Telephone</b>
Owner LAVON COLLINS	248 S BROADWAY BUTLER	
Driller G & L WELL DRILLING		
Operator MARVIN GILBERT/S LALOUE	License: null	

<b>Construction Details</b>			
Well	<b>Use:</b> Industry	<b>Drilling method:</b> Cable Tool	<b>Pump type:</b>
	<b>Depth:</b> 142.0	<b>Pump setting depth:</b>	<b>Water quality:</b>
Casing	<b>Length:</b> 116.0	<b>Material:</b>	<b>Diameter:</b> 8.0
Screen	<b>Length:</b> 15.0	<b>Material:</b>	<b>Diameter:</b> 8.0 <b>Slot size:</b> 30+25

<b>Well Capacity Test</b>	<b>Type of test:</b>	<b>Test rate:</b> 350.0 gpm for 8.0 hrs.	<b>BailTest rate:</b> 45.0 gpm for 5.0 hrs.
	<b>Drawdown:</b> 24.0 ft.	<b>Static water level:</b> 21.0 ft.	<b>Bailer Drawdown:</b> 0.0 ft.

<b>Grouting Information</b>	<b>Material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Well Abandonment</b>	<b>Sealing material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Administrative</b>	<b>County:</b> DEKALB	<b>Township:</b> 34N <b>Range:</b> 14E
	<b>Section:</b> SW of the NW of the NW of Section 12	<b>Topo map:</b> BUTLER EAST, IN-OH
	<b>Grant Number:</b>	
	<b>Field located by:</b> BEB	<b>on:</b> Oct 28, 1987
	<b>Courthouse location by:</b>	<b>on:</b>
	<b>Location accepted w/o verification by:</b> HCK	<b>on:</b> Jun 01, 1970
	<b>Subdivision name:</b>	<b>Lot number:</b>
	<b>Ft W of EL:</b>	<b>Ft E of WL:</b> 100.0
		<b>Ft S of NL:</b> 700.0
	<b>Ground elevation:</b> 870.0	<b>Bedrock elevation:</b>
	<b>Depth to bedrock:</b>	<b>Aquifer elevation:</b> 728.0
	<b>UTM Easting:</b> 677895.0	<b>UTM Northing:</b> 4588220.0

<b>Well Log</b>	Top	Bottom	Formation
	0.0	0.5	BLACK TOP
	0.5	5.0	FILL SAND
	5.0	57.0	GRAY CLAY
	57.0	95.0	SANDY HARD PAN
	95.0	104.0	DIRTY SAND & GRAV
	104.0	120.0	GRAY CLAY & FINE GRAV
	120.0	126.0	FINE SAND
	126.0	142.0	CRS SAND & GRAV

**Comments** MC CONTACT MADE W/ OWNER WELL USED FOR LAUNDROMAT AND CAR WASH WELL LOCATED ON N SIDE OF LAUNDRY

**Record of Water Well**

**Indiana Department of Natural Resources**

<b>Reference Number</b> 232269	<b>Driving directions to well</b>	<b>Date completed</b> Nov 24, 1959
-----------------------------------	-----------------------------------	---------------------------------------

<b>Owner-Contractor</b>	<b>Name</b>	<b>Address</b>	<b>Telephone</b>
Owner	CITY OF BUTLER	BUTLER, IN	
Driller	GRO P REID & SON	HOWE, IN	
Operator	WM REID	License: null	

<b>Construction Details</b>	<b>Use:</b>	<b>Drilling method:</b> Jet	<b>Pump type:</b>
Well	<b>Depth:</b> 148.0	<b>Pump setting depth:</b>	<b>Water quality:</b>
Casing	<b>Length:</b>	<b>Material:</b>	<b>Diameter:</b> 2.0
Screen	<b>Length:</b> 3.0	<b>Material:</b>	<b>Diameter:</b> 1.0 <b>Slot size:</b> 60

<b>Well Capacity Test</b>	<b>Type of test:</b>	<b>Test rate:</b> gpm for hrs.	<b>BailTest rate:</b> gpm for hrs.
	<b>Drawdown:</b> ft.	<b>Static water level:</b> 21.0 ft.	<b>Bailer Drawdown:</b> ft.

<b>Grouting Information</b>	<b>Material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Well Abandonment</b>	<b>Sealing material:</b>	<b>Depth:</b> from to
	<b>Installation Method:</b>	<b>Number of bags used:</b>

<b>Administrative</b>	<b>County:</b> DEKALB	<b>Township:</b> 34N <b>Range:</b> 14E
	<b>Section:</b> SE of the NE of the NE of Section 11	<b>Topo map:</b> BUTLER EAST, IN-OH
	<b>Grant Number:</b>	
	<b>Field located by:</b> BEB	<b>on:</b> Oct 29, 1987
	<b>Courthouse location by:</b>	<b>on:</b>
	<b>Location accepted w/o verification by:</b>	<b>on:</b>
	<b>Subdivision name:</b>	<b>Lot number:</b>
	<b>Ft W of EL:</b>	<b>Ft E of WL:</b>
		<b>Ft S of NL:</b>
	<b>Ground elevation:</b> 875.0	<b>Depth to bedrock:</b>
		<b>Bedrock elevation:</b>
	<b>UTM Easting:</b>	<b>UTM Northing:</b>

<b>Well Log</b>	Top	Bottom	Formation
	0.0	18.0	CLAY BLUE
	18.0	32.0	SAND & GRAVEL LT GRAY
	32.0	60.0	CLAY BLUE
	60.0	65.0	GRAV & LT GRAY
	65.0	88.0	CLAY BLUE
	88.0	105.0	GRAV LT GRAY
	105.0	130.0	CLAY BLUE
	130.0	144.0	GRAV LT GRAY
	144.0	148.0	CLAY BLUE

**Comments**      MC USE OF WELL TEST

**APPENDIX O**  
**FIELD AUDIT REPORT**  
**AND DATA ASSESSMENT REPORT**



1510 Production Road | Fort Wayne, IN 46814 | 260.497.9620 office | 260.471.7071 fax

May 29, 2019

Project FW 19-716-10

Mr. Mark Anderson  
IWM Consulting Group, LLC  
1015 Production Road  
Fort Wayne, IN 46808

**QAPP Field Audit  
128(a) Response Program Grant  
The Butler Company Property  
325 South Broadway Street  
Butler, DeKalb County, Indiana**

Dear Mr. Anderson:

On May 20<sup>th</sup>, 2019, a quality assurance field audit was performed at the above referenced site. This report summarizes the findings of the field audit.

IWM Consulting Group, LLC (IWM Consulting) developed a Quality Assurance Project Plan (QAPP) for the 128(a) Response Program Grant (RPG) dated April 11, 2019. IWM Consulting also developed a Sampling and Analysis Plan (SAP) dated April 16, 2019 for The Butler Company Property located at 325 South Broadway Street, Butler, DeKalb County, Indiana, and a Health and Safety Plan (HASP) dated April 15, 2019. The aforementioned documents were reviewed and provide the basis for the field audit.

**Purpose of the Audits**

To observe and oversee assessment activities to ensure that sampling methodology, sample preservation methods, and chain-of-custody (COC) procedures are being followed. The field audits are part of the quality control requirements to ensure that the environmental data collected is of the highest standard feasible as appropriate for the intended application. The audits are a means to ensure that the QAPP and the property-specific SAPs are adhered to and that all samples are properly handled and analyzed to satisfy the comparability of field data. The QAPP states that the IWM Consulting QA manager will conduct audits of field activities.

**Date and Time Audit Was Performed**

Date: May 20, 2019 (Soil Sampling Audit)  
Time: 10:30 to 12:15

**Location/Project of Audit**

The Butler Company Property  
325 South Broadway Street  
Butler, DeKalb County, Indiana

**IWM Consulting/Contractor Personnel Present On-site During Groundwater Sampling Audit**

IWM Consulting:	Mark Anderson, Carolyn Pendrick, Ashley Pepple, Neal Johnson
SCS (Drilling):	Phillip Weaver, Kameron Cox
City of Butler:	Steve Bingham (City Planner)
IFA:	Tracey Michael

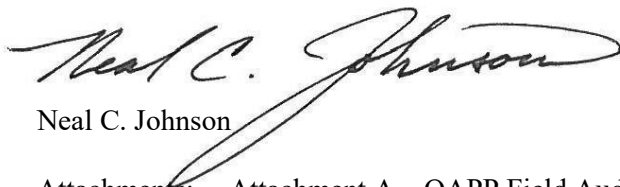
At the time of the audit, Ms. Pendrick was collecting soil samples utilizing direct-push sampling methods. Field documentation from the aforementioned sampler was also reviewed in the field. The final COC documents were provided for review following the completion of field activities.

**Audit Findings**

No deficiencies or deviations from the planned sampling program were observed during the audit. No data collection activities were observed during the sampling event that would adversely affect the integrity of the samples collected. Based upon the findings of the field audit and the data derived from the sampling event, the collected data are scientifically defensible, were properly documented, of sufficient quality to meet the project objectives, and are determined to be usable without limitations (subject to QA/QC review of the laboratory results). The field audit checklist form is provided in **Attachment A**.

If you have any questions regarding this summary please feel free to contact me at your convenience.

Sincerely,  
**IWM Consulting Group, LLC**



Neal C. Johnson

Attachments: Attachment A – QAPP Field Audit Form



# Attachment A

## QAPP Field Audit Form

**Location/Project Audit Was Performed For:** The Butler Company Property, Butler, IN

**Soil Sampling Audit**

**Date & Time Audit Was Performed:** May 20, 2019 from 10:30 to 12:15

**IWM/Contractor Personnel Present On-Site:**

IWM: Mark Anderson, Carolyn Pendrick, Ashley Pebble, and Neal Johnson  
 SCS (Drilling): Phillip Weaver, Kameron Cox  
 City of Butler: Steve Bingham (City Planner)  
 IFA: Tracey Michael

<b><u>Audit of General Field Methodology</u></b>	Yes	No	Notes
Were IWM Consulting personnel on-site during sampling activities?	<input checked="" type="checkbox"/>		
Do the sampling methods utilized follow those identified in the QAPP/SAP?	<input checked="" type="checkbox"/>		
If sampling procedures were modified, were the changes properly documented?			1
Did equipment decontamination procedures follow those identified in the SAP?	<input checked="" type="checkbox"/>		
Did sample handling procedures follow those identified in the QAPP/SAP?	<input checked="" type="checkbox"/>		
Were appropriate containers, preservatives, and sample labeling utilized?	<input checked="" type="checkbox"/>		
Were quality control samples utilized?	<input checked="" type="checkbox"/>		
Were field QA/QC samples consistent with the SAP?	<input checked="" type="checkbox"/>		2
Was proper field documentation utilized? (Field books, field forms, COC, etc.)	<input checked="" type="checkbox"/>		2
As applicable, field instruments will be calibrated daily prior to use and the calibration will be verified by a calibration standard.			
Field equipment utilized: (1) Mini-Rae 3000			
Was the field equipment calibrated prior to use?	<input checked="" type="checkbox"/>		
Was the equipment calibration documented?	<input checked="" type="checkbox"/>		
Was a field check of the equipment performed during the audit? (e.g., sensitivity of a PID to organic vapors and/or ambient air, or YSI field check)	<input checked="" type="checkbox"/>		
Was project field documentation adequate? (i.e., use of field books, field forms, documentation of sample locations, sampling times, types of samples collected, etc.)	<input checked="" type="checkbox"/>		
Was custody protocol observed? (i.e., were samples and/or field data maintained in a person's possession, secured vehicle or similar location, COC forms utilized <sup>2</sup> , custody seals <sup>2</sup> , etc.?)	<input checked="" type="checkbox"/>		
Were sample handling protocols observed? (i.e., use of nitrile gloves, proper sampling containers, proper sample labeling, prompt sealing of sampling containers, ice in cooler(s), safe sample packaging for transportation, etc.)	<input checked="" type="checkbox"/>		
Were unique sample identifications utilized?	<input checked="" type="checkbox"/>		
Was waterproof ink used on sample labels?	<input checked="" type="checkbox"/>		
Were custody seals utilized on sample coolers?			1,2

**Notes:**

- <sup>1</sup> NA denotes not applicable and/or not observed during this audit.
- <sup>2</sup> Reviewed in part via project documentation following field audit.



<b>Audit of Soil Sampling Methodology and Quality Assurance</b>	Yes	No	Notes
Was direct-push sampling equipment utilized?	<input checked="" type="checkbox"/>		
Was soil sampling equipment properly decontaminated between sampling locations?	<input checked="" type="checkbox"/>		
Was a new acetate sampling sleeve utilized for each sample?	<input checked="" type="checkbox"/>		
Were the samples field screened with a PID?	<input checked="" type="checkbox"/>		
<b>Audit of Soil Sampling Methodology and Quality Assurance</b>	Yes	No	Notes
Was the PID calibrated prior to use?	<input checked="" type="checkbox"/>		
Was the calibration documented?	<input checked="" type="checkbox"/>		
Were the soil samples logged in accordance with the USCS system?	<input checked="" type="checkbox"/>		
Were the soil borings properly logged/documentated?	<input checked="" type="checkbox"/>		
Were soil samples for VOC analysis obtained in general accordance with sampling method 5035?			1
Were new disposable nitrile gloves utilized for each sample?	<input checked="" type="checkbox"/>		
Were sample containers appropriate/laboratory supplied?	<input checked="" type="checkbox"/>		
Were the containers properly preserved?	<input checked="" type="checkbox"/>		
Were the containers properly labeled?	<input checked="" type="checkbox"/>		
Was proper COC documentation utilized?			2
Were proper sampling and sample handling protocols observed?	<input checked="" type="checkbox"/>		
Was adequate ice present in the cooler?	<input checked="" type="checkbox"/>		
Were the borings properly sealed with bentonite?			1
Was the site adequately restored after sampling activities?			1

<b>Audit of Groundwater Sampling Methodology and Quality Assurance</b>	Yes	No	Notes
Was low-flow GW sampling performed?			1
Was a bladder pump utilized?			1
Was a YSI 556 MPS Multi-Probe (or equivalent) utilized? (Equivalent In-Situ SmartROLL MP meter)			1
Was the field equipment properly calibrated prior to use?			1
Was the calibration procedure documented?			1
Was dedicated tubing utilized for each sampling location?			1
Was disposable bladder utilized for each sampling location?			1
Was bladder pump properly decontaminated between sampling locations?			1
Were drawdown, temperature, pH, SpC, and/or ORP measurements recorded?			1
Was purge water properly managed on-site?			1
Were sample containers appropriate/laboratory supplied?			1
Were the containers properly preserved?			1
Were the containers properly labeled?			1
Was proper COC documentation utilized?			1
Were proper sampling and sample handling protocols observed?			1
Was adequate ice present in the cooler?			1
Were the borings properly sealed with bentonite?			1
Was the site adequately restored after sampling activities?			1

Notes:

- <sup>1</sup> NA denotes not applicable and/or not observed during this audit.
- <sup>2</sup> Reviewed in part via project documentation following field audit.

<b>Audit of Asbestos Inspection Methodology and Quality Assurance</b>	Yes	No	Notes
Was the inspector a licensed inspector?			1
Was the inspection procedure documented?			1
Were sample containers appropriate?			1
Were the containers properly preserved?			1
Were the containers properly labeled?			1
Was proper COC documentation utilized?			1
Were proper sampling and sample handling protocols observed?			1

<b>Audit of QA/QC Sampling Methodology and Quality Assurance</b>	Yes	No	Notes
Were field duplicate soil samples obtained?			1, 2
Were field duplicate groundwater samples obtained?			1, 2
Were field duplicate asbestos samples obtained?			1
Were the number and matrices for the field duplicates sufficient?			2
Were MS/MSD soil samples obtained?			1, 2
Were MS/MSD groundwater samples obtained?			1, 2
Was a trip blank(s) utilized?	<input checked="" type="checkbox"/>		2
Did the trip blank consist of reagent-grade water or was the blank lab prepared?	<input checked="" type="checkbox"/>		
Were sufficient trip blanks utilized? (one per cooler containing VOC samples)			2
Was an equipment blank or field blank collected? (If only disposable or single use sampling equipment is used, then a field blank, consisting of analyte-free water poured into a laboratory provided container in the field in order to assess the potential for sample contamination due to field conditions, will be collected in lieu of an equipment blank at a rate of one per sampling event or per lot of bottles, whichever is more frequent.)	<input checked="" type="checkbox"/>		1, 2
Describe equipment blank preparation: The soil and groundwater sampling equipment blanks were prepared in the field after the sampling equipment was field decontaminated. The soil sampling equipment blank was obtained off a decontaminated cutting shoe.			
Were equipment blanks utilized at a ratio of 1:20 per matrix or one per sampling event?			2

<b>Audit of Health &amp; Safety Procedures</b>	Yes	No	Notes
Was a site-specific HASP prepared?	<input checked="" type="checkbox"/>		
Was a site-specific HASP available?	<input checked="" type="checkbox"/>		
Was the HASP adequate for the proposed work scope?	<input checked="" type="checkbox"/>		
Was the HASP signed by site personnel?	<input checked="" type="checkbox"/>		
Were site utilities properly cleared?	<input checked="" type="checkbox"/>		
Were standard H&S protocols observed?	<input checked="" type="checkbox"/>		

Notes:

<sup>1</sup> NA denotes not applicable and/or not observed during this audit.

<sup>2</sup> Reviewed in part via project documentation following field audit.

## **Audit Summary**

Were any deficiencies/deviations from the planned sampling program observed during the field audit?

No.

If deficiencies/deviations were observed during the audit, were corrective action procedures required or implemented, and was the project manager notified?

NA.

Data collection activities that occurred during sampling event that may affect the integrity of the samples are as follows:

NA.

**Data Limitations and Actions.** Sources of sampling and analytical error will be identified and corrected as early as possible to the onset of sample collection activities. An ongoing data assessment process will be incorporated during the project, rather than just as a final step, to facilitate the early detection and correction of problems, ensuring that project quality objectives are met.

Data that do not meet the measurement performance criteria specified in this QAPP will be identified and the impact on the project quality objectives will be assessed and discussed within the Phase II. Specific actions for data that do not meet the measurement performance criteria depend on the use of the data and may require that additional samples are collected or the use of the data to be restricted.

Based upon the findings of the audit, the data derived from the sampling event should be determined to be; (1) usable without limitations, (2) usable with limitations, or (3) of limited usability for the purpose intended.

**Statement of data validation/usability.** Based upon the field audit QA/QC activities performed to ensure that the collected data are scientifically defensible, properly documented, and of known quality, and meet project objectives, it is my professional opinion that the data is:

Useable without limitations.

Sincerely,

**IWM Consulting Group, LLC**



Neal C. Johnson



**Data Assessment Report  
The Butler Company  
325 South Broadway Street  
Butler, DeKalb County, Indiana  
128(a) Response Program Grant  
Indiana Brownfields Site ID: 4170705**

Assessment of  
Volatile Organic Compounds, Polyaromatic Hydrocarbons,  
Resource Conservation and Recovery Act Metals including Copper and Zinc,  
Toxicity Characteristic Leaching Procedure Lead,  
Poly-chlorinated Biphenyls, and/or Hexavalent Chromium  
in Soil and Water  
Samples Collected May 20 to May 22, 2019 and June 18, 2019

**Laboratory Analysis performed by:**

Pace Analytical Services, LLC  
Indianapolis, Indiana  
Pace Project No.: 50225929, 50226102, and 50228450

**Data Assessment performed by:**

Neal Johnson  
IWM Consulting Group, LLC  
1015 Production Road  
Fort Wayne, Indiana 46808  
(260) 497-9620

Project 19-716-10

July 22, 2019

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## EXECUTIVE SUMMARY

IWM Consulting Group, LLC (IWM Consulting) prepared a Quality Assurance Project Plan (QAPP) for the Indiana Finance Authority (IFA), Indiana Brownfields Program (IBP) under the 128(a) Response Program Grant. In the QAPP, Neal Johnson of IWM Consulting was designated as the IWM Consulting Quality Assurance Manager. Neal Johnson completed this Data Assessment Report (DAR) for soil and water samples submitted for volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), Resource Conservation and Recovery Act (RCRA) 8 metals including copper and zinc, toxicity characteristic leaching procedure (TCLP) lead, poly-chlorinated biphenyls (PCBs), and/or hexavalent chromium for The Butler Company property at 325 South Broadway Street in Butler, DeKalb County, Indiana. The samples were collected between May 20 and 22, 2019 and June 18, 2019. The samples were analyzed by Pace Analytical Services, LLC (Pace) of Indianapolis, Indiana. The following three (3) laboratory reports were generated: Pace Project Numbers 50225929, 50226102, and 50228450.

Pace Report No. 50225929 includes 24 soil samples, three (3) duplicate soil samples, one (1) soil equipment blank sample, two (2) soil matrix spike/matrix spike duplicate (MS/MSD) samples, and one (1) trip blank sample. Pace Report No. 50226102 includes six (6) groundwater samples, one (1) duplicate groundwater sample, one (1) groundwater equipment blank sample, one (1) groundwater MS/MSD sample, and one (1) trip blank sample. Pace Report No. 50228450 includes eight (8) soil samples, one (1) duplicate soil sample, and one (1) soil MS/MSD sample.

In general, the Chain-of-Custody documentation was accurately completed and included appropriate sample receiving information. The Chain-of-Custody contained a few minor deviations from protocol, which did not affect the usability of the data (see Section 2.0).

In general, the method detection limits (MDLs) and reporting limits (RLs) were acceptable and quantitation limits were found to be acceptable for the data's intended use (comparison to the Indiana Department of Environmental Management (IDEM) *Remediation Closure Guide* (RCG) Screening Levels). The hexavalent chromium soil RLs exceeded the Residential Soil Migration to Groundwater Screening Level (Res MTGSL), but were below the Residential Soil Exposure Direct Contact Screening Level (RDCSL). Chromium was not detected in the groundwater samples.

n-Hexane was qualified for the potential of being biased low in here (3) soil samples submitted for VOC analysis (BC-GP7-SB1 3-4', BC-GP8-SB1 3-4', and BC-FD3) in Pace Report No. 50225929 due to the continuing calibration of the compound being outside of its respective control limits. n-Hexane was detected in all three (3) samples at concentrations several orders of magnitude below the most stringent RCG screening level. Additionally, n-hexane was not detected in the groundwater samples.

No analytes were detected in laboratory method blanks.

Trip blanks were utilized in coolers containing samples for VOC analyses. The trip blanks associated with both the soil and groundwater samples were clean.

Soil sampling equipment blanks and a groundwater sampling equipment blank were prepared in the field after the sampling equipment was field decontaminated. Both the soil and groundwater sampling equipment blanks were clean.

Surrogates, MS/MSD samples, and Laboratory Control Samples (LCS) were prepared and analyzed as required by the referenced method(s). Multiple analytes were found to be outside of control limits in several MS/MSD samples, and multiple LCS spike recoveries were found to be outside their control limits. The data was properly qualified/annotated and referenced in the laboratory Quality Control Data summary and no additional data qualification is required. Additionally, sufficient quality assurance/quality control (QA/QC) information exists to support the conclusion that the control limit exceedances do not impact the usability of the data for its intended use.

The relative percent differences (RPDs) for the field duplicate soil and groundwater analytes were generally found to be in compliance with the QAPP objectives. Several analytes were found to be outside of the QAPP objective for soil duplicate samples. The elevated RPDs are likely due to the heterogenous nature of the materials sampled.

Based on this DAR, the results for the analyses of the samples reported in The Butler Company property data set (Pace Report Nos. 50225929, 50226102, and 50228450) were determined to be acceptable for their intended use within the limitations described above.



## 1.0 INTRODUCTION

Soil samples obtained for VOC analyses were collected utilizing Method 5035A. Soil and water samples were analyzed for VOCs using Analytical Method EPA 8260; PAHs using Analytical Method EPA 8270 SIM; RCRA 8 Metals including copper, and zinc using Analytical Method EPA 6010 with mercury as the exception using Analytical Method EPA 7470 (water) or 7471 (soil); TCLP lead using Analytical Method 6010; PCBs using Analytical Method EPA 8082; and/or hexavalent chromium using Analytical Method EPA 7196A (soil only). Soil samples were also analyzed for percent moisture utilizing Analytical Method SM 2540G.

To the extent applicable, this data assessment was performed in accordance with the QAPP dated April 12, 2019. The data assessment process is intended to evaluate data on a technical basis in addition to a method compliance basis, rather than on a contract compliance basis. The data package as received from the laboratory must contain sufficient raw data documentation to facilitate the assessment process and allow verification of all reported sample results. The review is based on the data provided by the laboratory and assumes that it is accurate, true, and complete. In addition, professional judgment was applied as necessary and appropriate.

Unless a specific laboratory report is indicated, comments in this DAR apply to each of the three (3) Pace Reports (i.e., No. 50225929, 50226102, and 50228450).

## 2.0 PRESERVATION, SAMPLE INTEGRITY AND QA/QC SAMPLES

The samples were received in good condition. The following observations were noted:

- Chain-of-Custody documentation was utilized.
- In general, the Chain-of-Custody documentation was accurately completed and followed proper protocol with the exceptions listed below, which did not affect the usability of the data.
  - Percent moisture was not indicated on the Chain-of-Custody in Pace Report Nos. 50225929 and 50228450. This oversight was noted by Pace and the soil samples were analyzed for percent moisture.
  - The laboratory comments in Pace Report Nos. 50225929 and 50228450 indicate the Chain-of-Custody is unrelinquished; however, the samples were delivered to the laboratory by the NOW Courier and custody seals were intact when the samples arrived at the lab. Therefore, this deviation does not impact the usability of the data.
- The cooler temperatures were measured and were within acceptance limits.
- Ice was present in all coolers upon receipt.
- Custody Seals were utilized on the coolers and were intact upon arrival at the laboratory.
- The samples in all coolers arrived intact and no loss or breakage was noted.
  - The QAPP field completeness goal of 90% for samples collected/analyzed was achieved.
- The samples contained in all the coolers were delivered within the respective sample holding time(s).
- The samples contained in all coolers contained sufficient sample volume.
- The samples contained in all coolers utilized the correct containers.
- No headspace was noted in the VOA vials for water samples.
- The sample labels in the coolers matched the Chain-of-Custody.
- The cooler(s) containing samples utilized in Pace Report No. 50225929 contained:
  - 24 soil samples, three (3) duplicate soil samples, one (1) soil equipment blank sample, two (2) soil MS/MSD samples, and one (1) trip blank sample.
- The cooler(s) containing samples utilized in Pace Report No. 50226102 contained:
  - Six (6) groundwater samples, one (1) duplicate groundwater sample, one (1) groundwater MS/MSD sample, one (1) groundwater equipment blank sample, and one (1) trip blank sample.
- The cooler(s) containing samples utilized in Pace Report No. 50228450 contained:
  - Eight (8) soil samples, one (1) duplicate soil sample, and one (1) soil MS/MSD sample.
- The QAPP field duplication rate (1:20) was observed.
- The QAPP equipment blank rate (1:20) was observed for the groundwater samples; however, one (1) additional equipment blank should have been obtained for the soil sample set. This deviation does not impact the usability of the data for its intended purpose.
- The QAPP MS/MSD rate (1:20) was observed.

- Trip blanks were utilized in coolers containing samples for VOC analyses.
- The sample designations were found to be appropriate and in compliance with the QAPP.

### **3.0 HOLDING TIMES, ANALYTICAL METHODS, METHOD DETECTION LIMITS (MDLS), REPORTING LIMITS (RLS), UNITS AND DATA QUALIFICATIONS UTILIZED**

The laboratory analytical reports were acceptable for the intended use of the data. The following observations were noted:

- In general, the samples were analyzed within the established holding times.
  - Two (2) internal laboratory duplicate samples for moisture analysis indicated that the samples were analyzed beyond the recognized method holding time; however, the laboratory duplicate samples were not derived from the samples collected for this project. This appears to be an internal laboratory QC failure and does not impact the usability of the data for its intended purpose. All soil and groundwater samples submitted by IWM Consulting were received by the laboratory and analyzed within the appropriate holding times.
- The analytical methods utilized were appropriate.
- The analytical methods utilized were properly noted/cited.
- In general, the MDLs and RLs were acceptable and quantitation limits were found to be acceptable for the data's intended use (comparison to the IDEM's RCG Screening Levels).
  - The hexavalent chromium soil RLs exceeded the RCG MTGSL, but were below the RDCSL. Chromium was not detected in the groundwater samples.
- The dilution factors (DL) were properly noted.
- The units of measure were appropriate.
- Data qualifiers for individual samples and/or parameters were utilized as appropriate.
  - n-Hexane was qualified for the potential of being biased low in three (3) soil samples submitted for VOC analysis (BC-GP7-SB1 3-4', BC-GP8-SB1 3-4', and BC-FD3) due to the continuing calibration of the compound being outside of its respective control limits. n-Hexane was detected in all three (3) samples at concentrations several orders of magnitude below the most stringent RCG screening level. Additionally, n-hexane was not detected in the groundwater samples.

#### 4.0 BLANKS

Method blanks were prepared and analyzed as required by the referenced method. No target compounds were detected above their respective RLs in any of the method blanks.

Trip blanks were utilized in coolers containing samples for VOC analyses. Trip blanks associated with the soil and groundwater samples were clean.

Soil sampling equipment blank (BC-EB-SB1) and a groundwater sampling equipment blank (BC-EB-GW1) were prepared in the field after the sampling equipment was field decontaminated. Both the soil and groundwater sampling equipment blanks were clean.

## 5.0 SURROGATE RECOVERY

Surrogate standards were added to the VOC, PAH, and PCB samples as required by the referenced methods. All surrogate recoveries in the soil and groundwater samples and laboratory quality control samples were within acceptance limits.

## 6.0 SPIKED ANALYSES

### **6.1 Matrix Spike/Matrix Spike Duplicate (MS/MSD)**

Matrix spike samples were prepared and analyzed as required by the referenced method.

Pace Report No. 50225929:

- For MS/MSD laboratory sample numbers 2314310/2317311, the MS and/or MSD percent recoveries for barium were found to be outside their respective control limits; however, the RPD for barium MS/MSD percent recoveries was within its respective control limit.
- For MS/MSD laboratory sample numbers 2317314/2317315, the MS and/or MSD percent recoveries for lead and zinc were found to be outside their respective control limits; however, the RPDs for the metals MS/MSD percent recoveries were within their respective control limits.
- For MS/MSD laboratory sample numbers 2317316/2317317, the MS and/or MSD percent recoveries for barium, chromium, lead, and zinc were found to be outside their respective control limits; however, the RPDs for the four (4) metals MS/MSD percent recoveries were found to be within their respective control limits.

Pace Report No. 50226102:

- For MS/MSD laboratory sample numbers 2323139/2323140, the RPD for the MS/MSD percent recoveries was found to exceed its respective control limit for iodomethane; however, the MS and MSD percent recoveries were within their respective control limits.
- For MS/MSD laboratory sample numbers 2320962/2320963, the RPD for the MS/MSD percent recoveries was found to exceed its respective control limit for benzo(b)fluoranthene; however, the MS and MSD percent recoveries were within their respective control limits.

Pace Report No. 50228450:

- For MS/MSD laboratory sample numbers 2342426/2342427, the MS and MSD percent recoveries were found to be outside of their respective control limits for lead; however, the RPD for MS/MSD percent recoveries was within its respective control limits. The control limit exceedances were attributed to matrix interference.

The data was properly qualified/annotated and referenced unless noted above.

Based on the information presented in the laboratory Quality Control Data summary, the soil and water MS/MSD results were properly annotated and no additional data qualification is required. Additionally, sufficient QA/QC information exists to support the conclusion that the soil and groundwater MS/MSD results that were outside of control limits do not impact the usability of the data for its intended use.

### **6.1.1 Laboratory Control Sample (LCS)**

An LCS was prepared and analyzed with each analytical batch as required by the referenced method.

#### Pace Report No. 50225929:

- For LCS laboratory sample number 2323504, the hexachloro-1,3-butadiene and tetrachloroethene spike percent recoveries were found to exceed their respective upper control limits. The analytes in the LCS and associated samples were qualified for the potential to be biased high; however, these analytes were not detected in the associated samples. Therefore, the usability of the data for its intended purpose is not impacted.
- For LCS laboratory sample number 2323510, the vinyl acetate spike percent recovery was found to exceed its respective lower control limit. The analytes in the LCS and associated samples were qualified for the potential to be biased low; however, these analytes were not detected in the associated samples. Therefore, the usability of the data for its intended purpose is not impacted.

#### Pace Report No. 50226102:

- For LCS laboratory sample number 2322818, the 2,2-dichloropropane and n-hexane spike percent recoveries were found to exceed their respective upper control limits. The analyte in the LCS and associated sample was qualified for the potential to be biased high; however, these analytes were not detected in the associated samples. Therefore, the usability of the data for its intended purpose is not impacted.
- For LCS laboratory sample number 2323138, the bromobenzene spike percent recovery was found to exceed its respective upper control limit. The analyte in the LCS and associated samples was qualified for the potential to be biased high; however, this analyte was not detected in the associated samples. Therefore, the usability of the data for its intended purpose is not impacted.

All laboratory samples in Pace Report No. 50228450 were within their respective percent recovery limits.

## **6.2 Duplicates**

### **6.2.1 Laboratory Duplicates**

Pace Report No. 50225929 Quality Control Data summary report indicated that four (4) laboratory duplicates were performed on soil samples for moisture analysis, two (2) laboratory duplicates were performed on soil samples for percent solids analysis, and one (1) laboratory duplicate was performed on soil samples for hexavalent chromium analysis. Pace Report No. 50228450 Quality Control Data summary report indicated that four (4) laboratory duplicates were performed on soil samples for moisture analysis. The duplicate sample reports are summarized below:



Laboratory QA/QC Duplicate Summary					
Sample ID	Duplicate ID	Analyte	Sample Conc.	Duplicate Conc.	RPD
			%	%	%
<b>50225929</b>					
2320500	NA	Moisture	18.7	19.0	1.6
2320501	BC-GP2-SB1 3-4	Moisture	19.4	18.3	5.8
2320677	BC-GP9-SB1 3-4	Moisture	16.9	15.8	6.7
2320678	NA	Moisture	18.0	17.2	4.5
L1108663-01	R3421553-3	Solids	89.5	89.3	0.2
L1108688-01	R3421550-3	Solids	79.4	82.2	3.5
BC-GP6-SB1 3-4	R3422032-3	Hex Cr (mg/kg)	ND	ND	NA
<b>50228450</b>					
2341954	NA	Moisture	8.8	8.8	0.0
2341955	BC-GP3-W5 1-2	Moisture	8.4	6.5	26
2343215	NA	Moisture	15.3	15.0	2.0
2343216	NA	Moisture	32.3	32.3	0.0

The RPDs for three (3) samples were outside of the laboratory's internal control standards for moisture (5%); however, the RPDs were found to be in compliance with the QAPP objectives.

Pace Report No. 50226102 Quality Control Data summary report indicated that no laboratory duplicates were performed on groundwater samples.

No other laboratory duplicates (other than MS/MSD discussed in section 6.1 above) were noted in the data packages.

### 6.2.2 Field Duplicates

Water matrix samples can be readily duplicated due to their homogeneous nature; conversely, the duplication of soil or sediment samples is much more difficult due to their non-homogeneous nature. The QAPP indicates that an RPD of  $\pm 35$  percent and  $\pm 50$  percent for water and soil sample field duplicates, respectively, will be used as advisory limits for analytes detected in both investigative and field duplicate samples at concentrations greater than or equal to five (5) times its quantitation limit. The field duplicates were evaluated by calculating the percent difference. The field duplicate IDs were provided to the validator as shown in the table below. Note that values near or below the RL would be expected to be wider than others.

As indicated in the following table, no water field duplicate analyses were found to be outside of the QAPP objective.

Field Duplicate Water RPD Summary							
Sample ID	Duplicate ID	Analyte	Sample Conc.	RL	Duplicate Conc.	RL	RPD
			µg/L	µg/L	µg/L	µg/L	%
<b>50226102</b>							
BC-GP11-GW1	BC-GPGW-FD1	Barium	134	10.0	133	10.0	0.7
		Barium (Dissolved)	115	10.0	116	10.0	0.9
		Copper	ND	10.0	10.2	10.0	NA <sup>1,2</sup>
		Zinc	56.1	20.0	54.4	20.0	3.1 <sup>1</sup>
		Zinc (Dissolved)	24.4	20.0	22.8	20.0	6.8 <sup>1</sup>

<sup>1</sup> Analyte concentration is less than five (5) times its quantitation limit.

<sup>2</sup> RPD not calculable.

As indicated in the following table, several analytes were found to be outside of the QAPP objective for soil field duplicate samples. However, the calculated mean RPD for soil field duplicate analyte data at concentrations equal to, or greater than five (5) times, its quantitation limit was found to be in compliance with QAPP objective. The elevated RPDs are likely due to the heterogenous nature of the materials sampled.

Field Duplicate Soil RPD Summary							
Sample ID	Duplicate ID	Analyte	Sample Conc.	RL	Duplicate Conc.	RL	RPD
			mg/kg	mg/kg	mg/kg	mg/kg	%
<b>50225929</b>							
BC-GP13-SS1 1-2'	BC-SB-FD1	Arsenic	13.5	1.1	17.1	1.1	24
		Barium	93.7	1.1	197	1.1	71
		Cadmium	1.2	0.56	1.1	0.55	8.7 <sup>1</sup>
		Chromium	13.1	1.1	19.1	1.1	37
		Copper	124	1.1	68.3	1.1	58
		Lead	137	1.1	150	1.1	9.1
		Zinc	355	1.1	339	1.1	4.6
		Mercury	0.32	0.21	ND	0.24	NA <sup>1,2</sup>
		Moisture (%)	13.9	0.10	16.1	0.10	15
BC-GP4-SS1 1-2'	BC-SB-FD2	Arsenic	12.0	1.3	11.5	1.2	4.3
		Barium	269	1.3	416	1.2	43
		Cadmium	1.9	0.63	1.5	0.59	24 <sup>1</sup>
		Chromium	16.6	1.3	15.2	1.2	8.8
		Copper	88.1	1.3	59.2	1.2	39
		Lead	395	1.3	691	1.2	55
		Selenium	1.4	1.3	1.4	1.2	0.0 <sup>1</sup>
		Zinc	837	1.3	684	1.2	20
Moisture (%)	21.9	0.10	24.4	0.10	11		

Field Duplicate Soil RPD Summary (Continued)							
Sample ID	Duplicate ID	Analyte	Sample Conc.	RL	Duplicate Conc.	RL	RPD
			mg/kg	mg/kg	mg/kg	mg/kg	%
BC-GP8-SB1 3-4'	BC-SB-FD3	Arsenic	2.8	1.1	27.7	1.0	163 <sup>1</sup>
		Barium	116	1.1	35.9	1.0	105
		Chromium	25.6	1.1	32.5	1.0	24
		Copper	15.8	1.1	35.6	1.0	77
		Lead	10.7	1.1	27.0	1.0	86
		Zinc	66.3	1.1	63.0	1.0	5.1
		2-Methylnaphthalene	ND	0.0063	0.0071	0.0056	NA <sup>1,2</sup>
		Naphthalene	ND	0.0063	0.019	0.0056	NA <sup>1,2</sup>
		Phenanthrene	ND	0.0063	0.0085	0.0056	NA <sup>1,2</sup>
		n-Hexane	0.071	0.0068	0.30	0.0059	123 <sup>1</sup>
		Moisture (%)	21.6	0.10	11.1	0.10	64
<b>50228450</b>							
BC-GP3-N5 1-2'	BC-SB-FD4	Lead	51.7	1.1	228	1.1	126
		Moisture (%)	15.8	0.10	15.5	0.10	1.9

<sup>1</sup> Analyte concentration is less than five (5) times its quantitation limit.

<sup>2</sup> RPD not calculable.

## **7.0 COMPOUND IDENTIFICATION, QUANTITATION AND REPORTED DETECTION LIMITS**

The analytes reported were appropriate for the intended use of the data. Target compounds for the VOC, PAH, RCRA 8 metals including copper and zinc, TCLP lead, PCBs, and hexavalent chromium analyses were appropriately identified in the quality control samples and in the field samples. Sample-specific RLs were calculated and reported for the analyses. The RLs were adjusted for the dilution of the sample.

In general, the MDLs and RLs were acceptable and quantitation limits were found to be acceptable for the data's intended use (comparison to the IDEM's RCG Screening Levels).

- The hexavalent chromium soil RLs exceeded the Res MTGSL, but were below the RDCSL. Chromium was not detected in the groundwater samples.

## 8.0 DOCUMENTATION

A copy of the Chain-of-Custody record documenting all samples submitted to the laboratory in this group was included in the data package. In general, the Chain-of-Custody documentation was accurately completed and included appropriate sample receiving information. The Chain-of-Custody contained a few minor deviations from protocol, which did not affect the usability of the data (see Section 2.0).

## 9.0 OTHER

On May 20, 2019, a quality assurance field audit was performed at the subject site. The purpose of the audit was to observe and oversee assessment activities to ensure that sampling methodology, sample preservation methods, and Chain-of-Custody procedures are being followed. The field audit was part of the QAPP quality control requirements to ensure that the environmental data collected is of the highest standard feasible as appropriate for the intended application. The field audits are a means to ensure that the QAPP and the property-specific SAPs are adhered to and that all samples are properly handled and analyzed to satisfy the comparability of field data.

No data collection activities were observed during the sampling event that would adversely affect the integrity of the samples collected. Based upon the findings of the field audit, the data derived from the sampling event are scientifically defensible, were properly documented, of sufficient quality to meet the project objectives, and are determined to be usable without limitations (subject to QA/QC review of the laboratory results).

## 10. OVERALL ASSESSMENT

In general, the Chain-of-Custody documentation was accurately completed and included appropriate sample receiving information. The Chain-of-Custody contained a few minor deviations from protocol, which did not affect the usability of the data (see Section 2.0).

In general, the MDLs and RLs were acceptable and quantitation limits were found to be acceptable for the data's intended use (comparison to the IDEM's RCG Screening Levels). The hexavalent chromium soil RLs exceeded the Res MTGSL, but were below the RDCSL. Chromium was not detected in the groundwater samples.

n-Hexane was qualified for the potential of being biased low in three (3) soil samples submitted for VOC analysis (BC-GP7-SB1 3-4', BC-GP8-SB1 3-4', and BC-FD3) in Pace Report No. 50225929 due to the continuing calibration of the compound being outside of its respective control limits. n-Hexane was detected in all three (3) samples at concentrations several orders of magnitude below the most stringent RCG screening level. Additionally, n-hexane was not detected in the groundwater samples.

No analytes were detected in laboratory method blanks.

Trip blanks were utilized in coolers containing samples for VOC analyses. The trip blanks associated with both the soil and groundwater samples were clean.

Soil sampling equipment blanks and a groundwater sampling equipment blank were prepared in the field after the sampling equipment was field decontaminated. Both the soil and groundwater sampling equipment blanks were clean.

Surrogates, MS/MSD samples, and LCSs were prepared and analyzed as required by the referenced method(s). Multiple analytes were found to be outside of control limits in several MS/MSD samples, and multiple LCS spike recoveries were found to be outside their control limits. The data was properly qualified/annotated and referenced in the laboratory Quality Control Data summary and no additional data qualification is required. Additionally, sufficient QA/QC information exists to support the conclusion that the control limit exceedances do not impact the usability of the data for its intended use.

The RPDs for the field duplicate soil and groundwater analytes were generally found to be in compliance with the QAPP objectives. Several analytes were found to be outside of the QAPP objective for soil duplicate samples. The elevated RPDs are likely due to the heterogenous nature of the materials sampled.

Based on this DAR, the results for the analyses of the samples reported in The Butler Company property data set (Pace Report Nos. 50225929, 50226102, and 50228450) were determined to be acceptable for their intended use within the limitations described above.



**Data Assessment Report  
The Butler Company  
325 South Broadway Street  
Butler, DeKalb County, Indiana  
128(a) Response Program Grant  
Indiana Brownfields Site ID: 4170705**

Assessment of  
Volatile Organic Compounds  
in Air  
Samples Collected May 31, 2019

**Laboratory Analysis performed by:**

Pace Analytical Services, LLC  
Minneapolis, Minnesota  
Pace Project No.: 10477550

**Data Assessment performed by:**

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Project 19-716-10

July 22, 2019



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## EXECUTIVE SUMMARY

IWM Consulting Group, LLC (IWM Consulting) prepared a Quality Assurance Project Plan (QAPP) for the for the Indiana Finance Authority (IFA), Indiana Brownfields Program (IBP) under the 128(a) Response Program Grant. In the QAPP, Neal Johnson of IWM Consulting was designated as the IWM Consulting Quality Assurance Manager. Neal Johnson completed this Data Assessment Report (DAR) for air samples submitted for volatile organic compounds (VOCs) for The Butler Company property at 325 South Broadway Street in Butler, DeKalb County, Indiana. The samples were collected on May 31, 2019. The samples were analyzed by Pace Analytical Services, LLC (Pace) of Minneapolis, Minnesota. The following laboratory report was generated: Pace Project Number 10477550.

Pace Report No. 10477550 includes one (1) air sample and one (1) duplicate air sample.

The Chain-of-Custody documentation was accurately completed and included appropriate sample receiving information.

The method detection limits (MDLs) and reporting limits (RLs) were acceptable and quantitation limits were found to be acceptable for the data's intended use (comparison to the Indiana Department of Environmental Management (IDEM) *Remediation Closure Guide* (RCG) Screening Levels). The 1,1,2-trichloroethane air RLs exceeded the Commercial/Industrial Indoor Air Vapor Exposure Screening Level (Indus IA VESL), but were below the calculated Commercial/Industrial Sub-slab Vapor Exposure Screening Level (Indus SS VESL).

No detections occurred in the laboratory method blank. A Laboratory Control Sample (LCS) was prepared and analyzed as required by the referenced method. All LCS laboratory samples were within their respective percent recovery limits, with the exception of dibromochloromethane; however, dibromochloromethane was not detected in any sample at concentrations exceeding the most stringent IDEM RCG screening level and the usability of the data for its intended purpose is not impacted. Dibromochloromethane and trans-1,3-dichloropropene were qualified due to the continuing calibration for these compounds being outside their respective acceptance limits; however, these analytes were not detected in any of the samples. Therefore, the usability of the data for its intended purpose is not impacted.

Based on this DAR, the results for the analyses of the samples reported in The Butler Company property data set (Pace Report No. 10477550) were determined to be acceptable for their intended use within the limitations described above.

## 1.0 INTRODUCTION

Air samples were analyzed for VOCs using Analytical Method EPA TO-15.

To the extent applicable, this data assessment was performed in accordance with the QAPP dated April 12, 2019 and Sampling and Analysis Plan (SAP) dated April 16, 2019. The data assessment process is intended to evaluate data on a technical basis in addition to a method compliance basis, rather than on a contract compliance basis. The data package as received from the laboratory must contain sufficient raw data documentation to facilitate the assessment process and allow verification of all reported sample results. The review is based on the data provided by the laboratory and assumes that it is accurate, true, and complete. In addition, professional judgment was applied as necessary and appropriate.

## 2.0 PRESERVATION, SAMPLE INTEGRITY AND QA/QC SAMPLES

The samples were received in good condition. The following observations were noted:

- Chain-of-Custody documentation was utilized.
- The Chain-of-Custody documentation was accurately completed and followed proper protocol.
- The final field, post-sampling Summa vacuums were recorded and were within acceptable limits.
- Custody Seals were not utilized on the air sample shipping container(s). The aforementioned container(s) were shipped to the laboratory via FedEx. The final field vacuum pressures recorded in the field for the Summa air canisters were in conformance with the laboratory receiving vacuum pressures.
- The samples arrived intact and no loss or breakage was noted.
  - The QAPP field completeness goal of 90% for samples collected/analyzed was achieved.
- The samples were delivered within the respective sample holding time(s).
- The samples contained sufficient sample volume.
- The air sampling event utilized the correct containers.
- The sample labels in the air sampling shipping container(s) matched the Chain-of-Custody.
- The shipping container(s) containing samples utilized in Pace Report No. 10477550 contained:
  - One (1) air sample and one (1) duplicate air sample.
- The air sampling utilized batch certified Summa canisters.
- The QAPP field duplication rate (1:20) was observed.
- The sample designations were found to be appropriate and in compliance with the QAPP.

### **3.0 HOLDING TIMES, ANALYTICAL METHODS, METHOD DETECTION LIMITS (MDLS), REPORTING LIMITS (RLS), UNITS AND DATA QUALIFICATIONS UTILIZED**

The laboratory analytical reports were acceptable for the intended use of the data. The following observations were noted:

- The samples were analyzed within the established holding times.
- The analytical methods utilized were appropriate.
- The analytical methods utilized were properly noted/cited.
- In general, the MDLs and RLs were acceptable and quantitation limits were found to be acceptable for the data's intended use (comparison to the IDEM's RCG Screening Levels).
  - The 1,1,2-trichloroethane air RLs exceeded the RCG Indus IA VESL, but were below the calculated Indus SS VESL.
- The dilution factors (DL) were properly noted.
- The units of measure were appropriate.
- Data qualifiers for individual samples and/or parameters were utilized as appropriate.
- Dibromochloromethane in the LCS was qualified due to the analyte exceeding the control limits; however, dibromochloromethane was not detected at concentrations exceeding the most stringent IDEM RCG screening level. Therefore, the usability of the data for its intended purpose is not impacted.
- Dibromochloromethane and trans-1,3-dichloropropene were qualified in the LCS due to the continuing calibration for these compounds being outside their respective acceptance limits; however, these analytes were not detected in any of the samples. Therefore, the usability of the data for its intended purpose is not impacted.

#### **4.0 BLANKS**

A method blank was prepared and analyzed as required by the referenced method. No target compounds were detected in the method blank.

## 5.0 SURROGATE RECOVERY

Not applicable.

## 6.0 SPIKED ANALYSES

### 6.1 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Not applicable.

#### 6.1.1 Laboratory Control Sample (LCS)

An LCS was prepared and analyzed with each analytical batch as required by the referenced method. All LCS laboratory samples were within their respective percent recovery limits, with the exception of dibromochloromethane; however, dibromochloromethane was not detected in any sample at concentrations exceeding the most stringent IDEM RCG screening level and the usability of the data for its intended purpose is not impacted. Dibromochloromethane and trans-1,3-dichloropropene were qualified due to the continuing calibration for these compounds being outside their respective acceptance limits; however, these analytes were not detected in any of the samples. Therefore, the usability of the data for its intended purpose is not impacted.

### 6.2 Duplicates

Pace Report No. 10477550 Quality Control Data summary report indicated that two (2) laboratory duplicates were performed on air samples. The duplicate samples report is summarized below:

Laboratory QA/QC Duplicate Summary					
Sample ID	Duplicate ID	Analyte	Sample Conc.	Duplicate Conc.	RPD
			µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
10477550					
3305174	NA	1,2,4-Trimethylbenzene	2.4	2.5	4.1 <sup>1</sup>
		1,3,5-Trimethylbenzene	ND	0.71 J	NA <sup>1,2</sup>
		2-Butanone (MEK)	ND	1.4 J	NA <sup>1,2</sup>
		2-Propanol	1,550	1,800	15
		4-Methyl-2-pentanone (MIBK)	ND	1.3 J	NA <sup>1,2</sup>
		Acetone	165	160	3.1
		Benzene	2.6	2.5	3.9 <sup>1</sup>
		Bromomethane	ND	0.74 J	NA <sup>1,2</sup>
		Chloromethane	1.4	1.5	6.9 <sup>1</sup>
		Cyclohexane	24.0	23.5	2.1
		Dichlorodifluoromethane	3.0	3.0	0.0 <sup>1</sup>
		Ethanol	142	156	9.4
		Ethylbenzene	5.8	5.8	0.0
		m&p-Xylene	25.3	25.5	0.8



Laboratory QA/QC Duplicate Summary (Continued)					
Sample ID	Duplicate ID	Analyte	Sample Conc.	Duplicate Conc.	RPD
			µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
3305174	NA	Methylene chloride	10.0	10	0.0
		n-Heptane	1.4	1.6	13 <sup>1</sup>
		n-Hexane	2.6	2.7	3.8 <sup>1</sup>
		o-Xylene	8.3	7.9	4.9
		Styrene	3.5	3.5	0.0 <sup>1</sup>
		Tetrachloroethene	77.4	75.2	2.9
		Tetrahydrofuran	1.5	1.2	22 <sup>1</sup>
		Toluene	14.4	14.2	1.4
3305175	NA	Trichlorofluoromethane	2.0	2.2	9.5 <sup>1</sup>
		1,2,4-Trimethylbenzene	38.4	35.7	7.3
		1,3,5-Trimethylbenzene	10.2	9.4	8.2
		2-Butanone (MEK)	16.2	14.4	12
		2-Propanol	10.3	9.3	10
		4-Ethyltoluene	13.9	13.3	4.4
		4-Methyl-2-pentanone (MIBK)	2.0 J	2.5 J	22 <sup>1</sup>
		Acetone	639	621	2.9
		Benzene	12.7	12.2	4.0
		Carbon disulfide	5.7	5.2	9.2
		Chlorobenzene	2.3	2.2	4.4 <sup>1</sup>
		Chloromethane	1.2	1.1	8.7 <sup>1</sup>
		Cyclohexane	ND	27.5	NA <sup>1,2</sup>
		Dichlorodifluoromethane	2.1	2.3	9.1 <sup>1</sup>
		Ethanol	32.0	30.9	3.5
		Ethylbenzene	34.7	33.6	3.2
		m&p-Xylene	151	143	5.4
		Methylene chloride	80.8	87.6	8.1
		n-Heptane	47.1	42.9	9.3
		n-Hexane	21.3	22.3	4.6
		Naphthalene	6.5	6.0	8.0
		o-Xylene	50.8	48.6	4.4
		Propylene	90.5	82.4	9.4
		Styrene	13.0	12.4	4.7
Tetrachloroethene	1.6	1.5	6.5 <sup>1</sup>		
Toluene	186	176	5.5		
Trichlorofluoromethane	0.74 J	1.3 J	55 <sup>1</sup>		

<sup>1</sup> Analyte concentration is less than five (5) times its quantitation limit.

<sup>2</sup> RPD not calculable.

The RPDs for the laboratory duplicates were generally found to be in compliance with laboratory control limits.

### 6.2.1 Field Duplicates

Air samples can be readily duplicated due to their homogeneous nature. The field duplicates were evaluated by calculating the percent difference (RPD). The field duplicate IDs were provided to the validator as shown in the table below. Note that values near or below the RL would be expected to be wider than others.

As indicated in the following table, the air duplicate sample generally displayed good conformance to the associated sample.

Field Duplicate Air RPD Summary							
Sample ID	Duplicate ID	Analyte	Sample Conc.	RL	Duplicate Conc.	RL	RPD
			µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
10477550							
BC-SG2	BC-SG-FD1	Acetone	24.7	4.6	27.8	4.6	12
		Benzene	14.6	0.62	14.4	0.62	1.4
		Carbon disulfide	14.8	1.2	14.5	1.2	2.0
		Chloroform	12.6	0.94	12.9	0.94	2.4
		1,3-Dichlorobenzene	4.2	2.3	3.8	2.3	10 <sup>1</sup>
		Dichlorodifluoromethane	3.0	1.9	2.7	1.9	11 <sup>1</sup>
		Ethanol	121	3.6	118	3.6	2.5
		Ethylbenzene	10.3	1.7	9.9	1.7	4.0
		n-Heptane	647	47.5	629	47.5	2.8
		n-Hexane	1,260	40.8	1,230	40.8	2.4
		Methylene chloride	17.8	6.7	29.3	6.7	49 <sup>1</sup>
		4-Methyl-2-pentanone (MIBK)	16.4	7.9	15.2	7.9	7.6 <sup>1</sup>
		2-Propanol	9.4	4.8	9.3	4.8	1.1 <sup>1</sup>
		Propylene	504	20.0	498	20.0	1.2
		Styrene	3.4	1.6	3.3	1.6	3.0 <sup>1</sup>
		Tetrachloroethene	72.8	1.3	70.1	1.3	3.8
		Tetrahydrofuran	ND	1.1	23.0	1.1	NA <sup>1,2</sup>
		Toluene	33.5	1.5	41.3	1.5	21
		1,1,2-Trichloroethane	ND	1.1	2.1	1.1	NA <sup>1,2</sup>
		Trichlorofluoromethane	2.5	2.2	2.3	2.2	8.3 <sup>1</sup>
1,2,4-Trimethylbenzene	5.6	1.9	5.5	1.9	1.8 <sup>1</sup>		
m&p-Xylene	20.0	3.4	19.2	3.4	4.1		
o-Xylene	7.3	1.7	7.3	1.7	0.0 <sup>1</sup>		

<sup>1</sup> Analyte concentration is less than five (5) times its quantitation limit.

<sup>2</sup> RPD not calculable.

## **7.0 COMPOUND IDENTIFICATION, QUANTITATION AND REPORTED DETECTION LIMITS**

The analytes reported were appropriate for the intended use of the data. Target compounds for the VOC analysis were appropriately identified in the quality control samples and in the field samples. Sample-specific RLs were calculated and reported for the analyses. The RLs were adjusted for the dilution of the sample.

The MDLs and RLs were acceptable and quantitation limits were found to be acceptable for the data's intended use (comparison to the IDEM's RCG Screening Levels).

## 8.0 DOCUMENTATION

A copy of the Chain-of-Custody record documenting all samples submitted to the laboratory in this group was included in the data package. The Chain-of-Custody documentation was accurately completed and included appropriate sample receiving information.

## 9.0 OTHER

Based on a review of field documentation, no data collection activities were noted during the sampling event that would adversely affect the integrity of the samples collected. The data derived from the sampling event are scientifically defensible, were properly documented, of sufficient quality to meet the project objectives, and are determined to be usable without limitations (subject to QA/QC review of the laboratory results).

## 10. OVERALL ASSESSMENT

The Chain-of-Custody documentation was accurately completed and included appropriate sample receiving information.

The MDLs and RLs were acceptable and quantitation limits were found to be acceptable for the data's intended use (comparison to the IDEM RCG Screening Levels. The 1,1,2-trichloroethane air RLs exceeded the RCG Indus IA VESL, but were below the calculated Indus SS VESL.

No detections occurred in the laboratory method blank. An LCS was prepared and analyzed as required by the referenced method. All LCS laboratory samples were within their respective percent recovery limits, with the exception of dibromochloromethane; however, dibromochloromethane was not detected in any sample at concentrations exceeding the most stringent IDEM RCG screening level and the usability of the data for its intended purpose is not impacted. Dibromochloromethane and trans-1,3-dichloropropene were qualified due to the continuing calibration for these compounds being outside their respective acceptance limits; however, these analytes were not detected in any of the samples. Therefore, the usability of the data for its intended purpose is not impacted.

Based on this DAR, the results for the analyses of the samples reported in The Butler Company property data set (Pace Report No. 10477550) were determined to be acceptable for their intended use within the limitations described above.