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ANNUAL POLYCHLORINATED BIPHENYL ACTION SUMMARY REPORT

Project No. 1998002.340 Task 005
December 31, 2018

Prepared for:

Bodycote

Bodycote Thermal Processing
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Melrose Park, Illinois

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ACKNOWLEDGEMENT

This *Annual Polychlorinated Biphenyl Action Summary Report* for the Site located at 1975 North Ruby Street in Melrose Park, Illinois has been prepared for the sole and exclusive use of Bodycote Thermal Processing, Inc. This report is subject to and issued in connection with the Letter-Agreement dated August 10, 2018. Any use or reliance upon information provided in this report, without the specific written authorization of Bodycote Thermal Processing, Inc. and Mabbett & Associates, Inc. (Mabbett®), shall be at the User's sole risk. No attempt has been made to assess the compliance status of any past or present owner or operator of the property with any Federal, state, or local laws or regulations, except as described herein with respect to this particular project.

The findings, observations, and conclusions presented in this report, including the extent of subsurface explorations and other tests, are limited by the scope of services outlined in our Letter-Agreement which reflect schedule and budgetary constraints. The professional opinions and findings presented in this report are based on the facts and information conveyed to or observed by Mabbett during completion of this project. Furthermore, assessment and field operations have been performed in accordance with generally accepted engineering practices. No other warranty, expressed or implied, is made.

The assessment presented in this report is based solely upon the laws and regulations existing as of the date of this report, as well as the information gathered to date including a limited number of subsurface explorations made on the dates indicated and performed by others. Should further environmental or other relevant information be developed at a later date, Bodycote Thermal Processing, Inc. should bring such information to the attention of Mabbett as soon as possible. Based upon an evaluation, Mabbett may modify this report and its conclusions.

This report was prepared, reviewed, and approved by the following Mabbett personnel:

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BY:

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1.0 INTRODUCTION

Mabbett & Associates, Inc. (Mabbett®) has prepared this *Annual Polychlorinated Biphenyl (PCB) Action Summary Report* on behalf of our client, Bodycote Thermal Processing, Inc. (Bodycote), for the property located at 1975 North Ruby Street in Melrose Park, Illinois (the Site). This summary report has been prepared in accordance with 40 Code of Federal Regulations (CFR) 761, the PCB Action/Work Plan dated September 12, 2006, and the PCB Action/Work Plan Amendment letter approved by the United States Environmental Protection Agency (USEPA) on March 1, 2010.

The presence of PCB-related contamination in groundwater and accumulation of non-aqueous phase liquid (NAPL) beneath a portion of the Bodycote facility was identified in 2000, with source investigations and analytical sampling to define the nature and extent of PCB contamination ongoing since that time. The following sections discuss the data collected and actions taken during 2018 to address PCBs in accordance with the Site's approved PCB Action/Work Plan.

2.0 DISPOSAL SITE DESCRIPTION

The Bodycote (formerly Lindberg Heat Treating Company) facility is an approximately 8-acre site located at 1975 North Ruby Street in Melrose Park, Illinois, approximately 10 miles to the west-northwest of Chicago as illustrated on the Site Locus Map provided as Figure 2-1. The facility, situated in an industrial setting, consists of several interconnected buildings utilized for the purpose of heat treating steel parts and products with a variety of furnaces and oil quench systems. The Bodycote property is bordered to the north by an industrial facility, to the east and south by Indian Boundary Drive and to the west by North Ruby Street as shown on the Site Map provided as Figure 2-2. The closest residential area is located approximately 1,500 feet to the north. There are no surface water bodies located on the property; however, Silver Creek is located approximately 1,000 feet to the northeast. Topography in the vicinity of North Ruby Street is generally flat.

3.0 SITE HISTORY

The following sections present discussions of the identification of the release condition, historical groundwater sampling activities, implementation of NAPL recovery programs, and introduces the history of PCB impacted soil assessment.

3.1 Project History of Groundwater Sampling

The presence of PCBs beneath the Bodycote Heat Treatment Building (HTB) was identified in May 2000 during routine profiling of groundwater associated with remedial efforts to remove dense non-aqueous phase liquid (DNAPL) from groundwater monitoring well M&A-113 and light non-aqueous phase liquid (LNAPL) from groundwater monitoring well M&A-114. The location of monitoring wells M&A-113 and M&A-114 are identified on the Monitoring Well Location Plan provided as Figure 3-1. Of the nine drums of NAPL that were profiled for off-Site disposal, eight had detectable concentrations of PCBs (Aroclor 1248) ranging from 341 milligrams per kilogram (mg/kg) to 516 mg/kg. These detections were above the applicable Illinois State and Federal PCB standards for PCBs in any media (i.e. soil and groundwater), and based on the "as-found" PCB concentrations the waste was regulated under the Toxic Substance Control Act (TSCA).

In response to the May 2000 PCB detections, Mabbett initiated an in-depth review of available documentation for the property in order to identify potential sources of PCB contamination at the Site. As part of this effort, Mabbett reviewed records at the Bodycote facility, the State Fire Marshall, the Village of Melrose Park Fire Department, the Village of Melrose Park Building Department, and Village of Melrose Park Health Office; however, no records were located which documented PCB use, spills, or the presence of PCB containing equipment at the Site. Bodycote personnel were also interviewed to determine if they had knowledge of historical PCB spills or PCB containing equipment at the facility. No known PCB spills or PCB containing equipment were identified during these inquiries.

During September 2000, Mabbett collected samples of NAPL present in monitoring wells M&A-113 and M&A-111 and submitted them for laboratory analysis of PCBs. Analytical results for the samples of NAPL indicated the presence of Aroclor 1248 at concentrations of 1,600 mg/kg and 3,308 mg/kg, respectively, indicating that both the LNAPL and DNAPL lenses contained PCBs.

After further interpretation of laboratory results, Mabbett performed a groundwater sampling event in October 2002 in order to verify the September 2000 NAPL analytical results. Groundwater samples were collected from seven monitoring wells located in the HTB and submitted for laboratory analysis of PCBs by EPA Method 8082. PCBs were detected in groundwater samples collected from four of the seven monitoring wells at concentrations ranging between 1.6 micrograms per liter (µg/L) and 600 µg/L. The Illinois Environmental Protection Agency (IEPA) Tiered Approach to Corrective Action Objectives (TACO) Tier I Class II (restricted use) groundwater standard for PCBs is 2.5 µg/L.

Between 2002 and 2006, Mabbett conducted additional groundwater and NAPL sampling in an effort to obtain additional data designed to define the nature and extent of the PCB impacts in groundwater. This data was used to formulate the September 2006 PCB Action/Work Plan. During these sampling events, EPA Region I low-flow/stress sampling techniques were used in an effort to reduce the turbidity of groundwater samples, which allowed the field team to obtain more representative samples for the evaluation of dissolved PCB concentrations in groundwater. The analytical results for samples collected in accordance with low-flow sampling procedures were significantly lower than the previous analytical results. The results of historical PCB sampling events are summarized in Table 3-1. NAPL recovery efforts initiated at the Site under the IEPA Voluntary Cleanup Program (VCP) to address trichloroethene (TCE) are believed to be contributing to the lower PCB concentrations observed during recent sampling events.

In October 2005, Mabbett contacted Ms. Pricilla Fonseca (EPA Region V) to inquire about the actions necessary to address PCBs at the facility. Ms. Fonseca informed Mabbett that Bodycote needed to file a "Notice of PCB Activity" (Form #7710-53) and a PCB Action/Work Plan with the EPA. Form #7710-53 was filed on November 8, 2005. A PCB Action/Work Plan was submitted to the EPA on September 12, 2006. The PCB Action/Work Plan proposed the following measures:

- Install additional monitoring wells in the northwest region of the HTB and outside the northwestern wall of the HTB to confirm the extent of PCB contamination.
- Continue NAPL recovery efforts initiated under the IEPA approved VCP; continued removal of LNAPL and DNAPL was expected to result in further reductions in PCB concentrations at the Site.
- Maintain constructed engineered barriers, utilizing existing concrete slab flooring, over areas of residual soil impacts to eliminate potential exposure.
- Conduct ongoing periodic training of Bodycote personnel in appropriate PCB waste management procedures.

On November 15, 2006, Mabbett personnel oversaw the advancement of three soil borings in and around the northwestern portion of the HTB for the purpose of delineating the extent of PCB impacts in groundwater. Each soil boring was completed with a 2-inch diameter monitoring well. The monitoring wells were labeled M&A-130, M&A-131, and M&A-133, as shown of Figure 3-1.

Monitoring wells M&A-130 and M&A-131 are located outside of the HTB along Ruby Street. The soil boring for shallow monitoring well M&A-130 was advanced to a depth of 16 feet below ground surface (bgs); the well was constructed with a 10-foot screen set between 5 and 15 feet bgs. The soil boring for intermediate monitoring well M&A-131 was advanced to 30 feet bgs; the well was constructed with a 10-foot screen set between 19 and 29 feet bgs. Soils encountered during the advancement of these monitoring wells were generally comprised of clay with some silt and gravel. Visual or olfactory indicators of contamination were not observed in either of the boreholes located outside the HTB.

Monitoring well M&A-133 is located in the northwest corner of the HTB. The soil boring into which intermediate monitoring well M&A-133 was constructed was advanced to 30 feet bgs; this monitoring well is screened between 19 and 29 feet bgs. Soils encountered during advancement of this boring consisted of approximately 9 feet of fill material underlain by clay. Visual and olfactory screening of the soils did not indicate the presence of contaminants.

Mabbett collected groundwater samples from newly installed monitoring wells M&A-131 and M&A-133 on December 19, 2006. Monitoring well M&A-130 could not be sampled due to the lack of groundwater recharge into the well. Groundwater samples were submitted for analysis of PCBs by EPA Method 8082. PCBs were not detected at concentrations greater than laboratory reporting limits in groundwater samples collected from monitoring wells M&A-131 and M&A-133.

Based on the historical PCB and volatile organic compounds (VOC) groundwater sampling results, and following authorization from USEPA and/or IEPA depending on the contaminant (VOC or PCBs) assessed at each monitoring location, 27 monitoring wells were closed in place at the HTB from 2008 through 2011 as shown on Figure 3-1.

3.2 Project History of PCB Soil Assessment

In September 1989, facility personnel discovered a release of an unknown volume of quench oil to the soil underlying the HTB from a leaking underground storage tank (UST). The findings of initial Site investigation activities were presented to the IEPA in the *Focused Site Investigation Report* (Mabbett, 1998), which concluded that soil and groundwater located beneath the building footprint were impacted by the quench-oil release, and that two distinct contaminant plumes were present. Specifically, one plume consisted of a quench-oil lens of LNAPL in shallow/overburden groundwater, while another separate lens of TCE DNAPL was observed within a deeper water-bearing strata located beneath an extensive low permeability clay layer. During routine waste characterization for LNAPL and DNAPL remediation wastes in 2000, elevated concentrations of PCBs were identified at levels above the applicable IEPA USEPA standards in soil and groundwater.

In accordance with the USEPA-approved PCB Action/Work Plan (approval letter dated March 1, 2010), and on behalf of Bodycote, Mabbett submits an annual PCB Action Summary Report to the USEPA to document groundwater sampling and NAPL recovery efforts in the HTB. In recent years, Mabbett has noted that NAPL recovery efforts initiated at the Site under the IEPA VCP appear to be removing PCB mass from the subsurface. In addition to the PCB-containing NAPL recovery efforts, periodic monitoring of specific VOCs, such as TCE and its degradational byproducts, and PCBs in groundwater is performed in this area to demonstrate that contaminants are not migrating off-Site.

In order to evaluate the feasibility of remediating the PCB-containing NAPL lenses and associated impacted soils underlying the HTB, Mabbett and Bodycote personnel met with USEPA representatives Peter Ramanauskas and Donald Heller at the Bodycote facility on April 17, 2018. As PCB concentrations in soil had not previously been comprehensively evaluated at the HTB, Bodycote agreed to undertake a soil assessment program to characterize the vertical and horizontal extent of PCBs in soil within the impacted area of the HTB. Based on the outcome of this meeting, Mabbett prepared a scope of work and sampling plan which was provided to the USEPA, and agreed upon with input from the USEPA.

4.0 PCB ACTIONS

Actions taken during the 2018 calendar year at the Bodycote Facility to address PCB contamination in the HTB are summarized in the following sections.

4.1 PCB Storage Area & Remedial Waste Disposal

Bodycote maintains a hazardous waste storage area at the facility that is designed for PCB wastes that exhibit 50 parts per million (ppm) or greater of PCBs in accordance with 40 CFR 761.65. Additionally, a waste accumulation area has been established in the HTB in the area of M&A-113. The accumulation area generally contains two 55-gallon drums; one for NAPL containing materials such as absorbent socks and bailers used for manual product removal and one for DNAPL extracted from monitoring well M&A-113. The drums are situated on secondary containment pallets with a storage capacity greater than 55 gallons. When these drums are full, they are moved to the hazardous waste storage area and labeled with the applicable waste codes and the words "CONTAINS PCBs" on a hazardous waste label. All PCB containing wastes at the Bodycote facility are disposed of within 90 days of their storage start date in accordance with 40 CFR 761.65.

One 55 gallon drum of remediation waste generated during the ongoing operation of the DNAPL recovery system was taken out of service on January 19, 2018. Immediately following taking the drum out of service, the waste drum was transferred from the accumulation area to the hazardous waste storage area. On March 7, 2018 the drum was picked up by Safety-Kleen Systems, Inc. under uniform hazardous waste manifest (manifest tracking number: 006275485SKS). The waste drum was subsequently transferred to custody of Clean Harbors Environmental Services (CHES), who transported the drum to their Deer Park facility in La Porte, Texas (USEPA ID: TXD055141378), which was received on March 28, 2018. A copy of the uniform hazardous waste manifest is included as Appendix A.

Immediately following taking the DNAPL recovery system accumulation drum out of service on January 19, 2018, Mabbett personnel labeled and placed a new 55 gallon drum into service at the DNAPL recovery system. During field activities associated with the November 2018 semi-annual groundwater monitoring program, Mabbett personnel inspected the waste accumulation area and determined that the accumulation drum was filled on November 6, 2018. The full remediation waste drum was taken out of service on November 6, 2018 and transferred to the hazardous waste storage area pending off-Site disposal. In order to update the waste profile for the waste accumulation drum was taken out of service on November 6, 2018, Mabbett personnel collected a NAPL sample from the waste recovery drum for laboratory analysis of PCBs. According to the laboratory analytical report included in Appendix B, the NAPL sample was found to contain 1,270 ppm of PCB Aroclor 1248. At the time of the preparation of this report, Mabbett is currently coordinating with CHES for transportation of the remediation waste drum taken out of service on November 6, 2018 to their Deer Park facility. Mabbett presently anticipates that this drum will be transported off-Site by CHES concurrent with or shortly following submittal of this report, with 90 days of the storage start date. A copy of the uniform hazardous waste manifest for the disposal of this drum will be included in the 2019 Annual PCB Action Summary Report.

No other PCB waste, drummed or otherwise, has been transported off-Site for disposal during 2018. The waste accumulation area was inspected periodically throughout 2018 (most recently during the November 2018 semi-annual sampling event). Currently one partially filled 55-gallon drums is present in the accumulation area which contains waste from the DNAPL recovery system.

4.2 Groundwater Sampling

Groundwater samples were collected from 13 monitoring wells and analyzed for PCBs during routine semi-annual sampling events conducted in April and November 2018. Groundwater sampling was conducted in accordance with the EPA PCB Action/Work Plan approval letter dated March 1, 2010. Whenever possible, groundwater monitoring wells were purged prior to sampling following EPA Region 1 *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* (EQASOP-GW4 dated

September 19, 2017). At certain wells (M&A-114, M&A-301, M&A-112, and MCA-5), there was not sufficient recharge of groundwater into the well to allow for purging, or drawdown rates during purging did not allow the well to stabilize prior to sampling. Mabbett personnel were able to collect samples from all wells that are listed in the EPA's March 1, 2010 letter as part of both 2018 sampling events.

Table 3-1 and Chart 4-1 present the current and historical PCB data for each of the monitoring wells identified in the EPA's March 1, 2010 approval letter. Previously submitted Annual PCB Action Summary reports contain historical PCB data for groundwater and NAPL samples collected from wells not listed in the March 1, 2010 EPA approval letter. In general, concentrations of PCBs detected in groundwater at the Site have remained relatively consistent or have decreased slightly since their identification in May 2000. Additional discussion regarding the nature and extent of PCBs in groundwater at the Bodycote facility is provided below in Section 5.0.

4.3 PCB Soil Assessment

The following subsections present the methodologies utilized and the results of two rounds of PCB soil assessment activities performed in 2018 to delineate the vertical and horizontal extent of PCB impacts to soil underlying a portion of the HTB.

4.3.1 June 2018 Initial PCB Soil Assessment Activities and Results

From June 18 through June 20, 2018, Mabbett personnel were on-Site to oversee Earth Solutions, Inc. (ESI) of St. Charles, Illinois install 10 soil borings, designated as SB-01 through SB-10, as shown on Figure 4-1. ESI advanced the soil borings with a track-mounted Geoprobe™ drilling rig utilizing continuous macro-core sampling methodologies. Nine of the 10 soil borings (SB-01 through SB-09) were completed to the target depth of 40 feet bgs, and SB-10 was completed to refusal at 34.5 feet bgs. Mabbett personnel documented soil lithology for each boring and screened soil with a photoionization detector (PID) calibrated to a isobutylene standard, which reported total VOCs on a parts per million by volume (ppmV) basis.

One soil sample was collected from each 2-foot depth interval of each boring for laboratory analysis of PCBs by USEPA Method 8082-3540C (Soxhlet extraction). One duplicate soil sample was collected and submitted for laboratory analysis of PCBs from each boring to evaluate the precision of the field sampling and analytical procedures.

Tables 4-1 through 4-10 provide analytical results for soil samples collected during the June 2018 PCB soil assessment program. As shown on Tables 4-1 through 4-4, PCBs were not detected at concentrations above the laboratory method detection limits in any of the soil samples collected from soil borings SB-01 through SB-04. Furthermore, the detection limits were below the IEPA Tier I Soil Remediation Objective (SRO) for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route) of 1,000 micrograms per kilogram (µg/Kg), which is equivalent to the USEPA cleanup level of 1 ppm for high occupancy areas.

As shown on Tables 4-8 and 4-10, trace levels of PCBs were detected in soil samples collected from SB-08 (at the 8-foot and 12-foot sample depths) and SB-10 (from the 6-10 foot, 16-foot, 20-foot, and 26-foot sample intervals); however, none of the detected concentrations exceeded the 1,000 µg/Kg IEPA Tier I SRO and the most conservative USEPA cleanup standard.

PCBs were detected in soil samples collected from soil borings SB-05 (Table 4-5), SB-06 (Table 4-6), SB-07 (Table 4-7), and SB-09 (Table 4-9) at concentrations exceeding the 1,000 µg/Kg IEPA and the USEPA cleanup level for high occupancy areas. Exceedances associated with the shallow (8-foot and/or 10-foot deep sample intervals) LNAPL layer were identified at soil borings SB-05 and SB-06 and ranged from 1,870 µg/Kg (8-foot sample from SB-05) to 13,900 µg/Kg (8-foot sample from SB-06). Exceedances within the deeper water-bearing interval (at 26 or 30 feet bgs) associated with the DNAPL lens were identified in samples collected from soil borings SB-05, SB-07, and SB-09. PCB concentration exceedances associated with the DNAPL lens ranged from 7,100 µg/Kg (30-foot sample

interval from SB-5) to 31,800 µg/Kg (26-foot sample interval from SB-7).

At the conclusion of the June 2018 PCB assessment program, Mabbett reviewed the soil analytical data and identified PCB exceedances associated with the limited thickness water-bearing intervals located approximately 8-10 feet bgs and 26-30 feet bgs in soil samples collected from SB-05, SB-06, SB-07 and SB-09. As shown on Figure 4-1, SB-05 and SB-06 were located at the eastern perimeter of the June 2018 exploration area and SB-09 was located at the southwestern perimeter of the exploration area. Therefore, the June 2018 assessment was unable to fully delineate the horizontal aerial extent of PCB contamination in soil. The vertical extent of PCB contamination in soil was delineated in each of the 10 soil borings by the 40-foot target depth of the assessment program, as PCBs were not detected in any boring at a depth below 32 feet bgs.

4.3.2 November 2018 Supplemental PCB Soil Assessment Activities and Results

Based on the results of the June 2018 PCB soil assessment program, Mabbett performed an additional round of PCB soil assessment activities on behalf of Bodycote on November 6 and 7, 2018. The November round of assessment included the advancement of eight additional soil borings to delineate the horizontal extent of PCB contamination in soil to the northeast, east, south, and southwest of the June 2018 assessment area (Figure 4-1). The same PCB soil sampling approach and methodologies used during the June 2018 investigation were utilized during the November 2018 investigation; soil borings were advanced to a target depth of 40 feet bgs and continuous samples were collected from each 2-foot interval for laboratory analysis of PCBs. Additionally, 12 soil samples were also submitted for laboratory analysis of VOCs by USEPA Method 8260 based on field screening results and observations made by Mabbett field personnel.

Tables 4-11 through 4-18 provide analytical results for soil samples collected during the November 2018 PCB soil assessment. As shown on Tables 4-15 through 4-18, PCBs were not detected at concentrations above the laboratory method detection limits in any of the soil samples collected from soil borings SB-15 through SB-18, which were advanced to the south and west of SB-09. These soil borings delineate the extent of PCBs in soil to the south and west of the impacted area identified by the June 2018 program. All detection limits were below the IEPA Tier I SRO for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route) and the EPA cleanup level of 1 ppm for high occupancy areas.

As shown on Tables 4-11 through 4-14, trace levels of PCBs were detected in soil samples collected from SB-11, (at the 2-foot and 4-foot sample depths), SB-12 (at the 6-foot and 8-foot sample depths), SB-13 (at the 6-foot sample depth), and SB-14 (at the 8-foot sample depth); however, none of the detected concentrations exceeded the IEPA Tier I SRO or the most conservative USEPA cleanup standard. As such, these sample locations delineate the extent of PCBs in soil to the northeast, east and southeast of the impacted area.

4.3.3 Investigation Derived Waste Management

During the June and November 2018 PCB soil assessment program, four drums of investigation derived waste (IDW) were generated and staged within Bodycote's hazardous waste storage area. The four drums each contain additional soils generated during the boring program that not sent for laboratory analysis, used personal protective equipment (PPE), and plastic Geoprobe® soil sample liners. Based on the remedial waste management schedule presented in Section 4.1, Mabbett is currently coordinating with CHES for transportation of the IDW waste drums to coincide with the transportation of the remediation waste drum taken out of service on November 6, 2018 to CHES's Deer Park facility. Mabbett presently anticipates that this drum will be transported off-Site by CHES concurrent with or shortly following submittal of this report. Disposal documentation associated with the IDW disposal will be included in the 2019 Annual PCB Action Summary Report.

5.0 NATURE AND EXTENT OF PCB CONTAMINATION

The following sections present discussions on the nature and extent of PCB contamination in Site groundwater and soil, respectively.

5.1 Groundwater Sampling

Based on the 2018 analytical data for groundwater samples collected from the HTB (provided in Table 3-1 and illustrated in Chart 4-1), the extent of PCBs in groundwater is limited to the area around monitoring wells M&A-111, M&A-112, M&A-113, and M&A-114 (only the samples collected from M&A-113 contained PCBs above the IEPA TACO Tier I Class II Groundwater Remediation Objective [GRO] in 2018). Groundwater samples collected from the other nine monitoring wells (excluding M&A-111, M&A-112, M&A-113, and M&A-114) during the program did not contain PCBs above laboratory reporting limits during either of the 2018 sampling events. Laboratory data reports for the PCB groundwater sample analyses from the 2018 semi-annual groundwater sampling events are provided as Appendix B. Groundwater sampling field log sheets are provided as Appendix C.

The current extent of the PCB groundwater plume is delineated to the north by MCA-5, M&A-104, and M&A-110; to the east by M&A-126 and M&A-301; to the south by M&A-122 and M&A-124; and to the west by M&A-116. Historically, PCBs were also detected in groundwater samples collected from M&A-104 (most recently in 2011), M&A-110 (most recently in 2015), and M&A-124 (most recently in 2015). Based on this analysis, the extent of the PCB groundwater plume appears to have decreased in recent years.

Figure 5-1 shows the locations of groundwater monitoring wells where samples collected during 2018 indicated the presence of PCBs. As stated above, the groundwater samples collected from M&A-113 were the only samples to contain PCBs above the Tier I Class II GRO of 2.5 µg/L, with a maximum concentration of 960 µg/L detected in the November 2018 sample. Monitoring well M&A-113 is the location of the DNAPL extraction system, which likely accounts for the elevated PCB concentrations observed in samples collected from this monitoring point.

The absence of PCBs in groundwater at downgradient boundary wells M&A-122, M&A-126, and M&A-301, along with the observed reduction in the footprint of the groundwater plume since 2015, suggests that the likelihood for the potential migration of PCB-contaminated groundwater beyond the property line is minimal. HTB Shallow Groundwater Contour Plans for April and November 2018 are included as Figures 5-2 and 5-3, respectively.

5.2 PCB Soil Assessment

The 2018 PCB soil assessment achieved the primary objective of delineating the horizontal and vertical extent of PCB contamination in soil within the HTB. Consistent with the conceptual Site model, PCB impacts were identified at two distinct depths corresponding with the upper and lower water-bearing units at the Site. The horizontal extent of PCB-impacted soils in the shallow interval includes a localized area (SB-05 and SB-06) in the general vicinity of M&A-104 and M&A-110. The horizontal extent of PCB-impacted soils in the deeper interval includes a slightly larger area (SB-05, SB-07, and SB-09) in the general vicinity of M&A-104, M&A-110, M&A-111, and M&A-113. The vertical extent of contamination extends to a maximum depth of 32 feet bgs, with the shallow interval impacts observed between 8 and 10 feet bgs and the deeper interval impacts observed between 26 and 30 feet bgs. Soil boring and PCB detection locations are illustrated on Figure 4-1. Laboratory data reports for the PCB soil sample analyses from the June and November 2018 soil assessment program are provided as Appendix D. Soil boring logs documenting soil lithology, field screening data and summarizing PCB soil concentration results are provided as Appendix E.

6.0 SUMMARY

Groundwater samples have been collected from monitoring wells located within the HTB and analyzed for the presence of PCBs since 2002. The extent of PCB contamination in groundwater has been delineated in a limited area beneath a portion of the HTB where NAPL is, or has recently been, present. Dissolved concentrations of PCBs in groundwater have remained relatively consistent since the discovery of PCBs at the Site in 2000. During the 2018 monitoring program, PCBs in groundwater only exceeded the IEPA TACO Tier I Class II GRO in one monitoring well (M&A-113). PCBs were detected at concentrations below the IEPA TACO Tier I Class II GRO in wells M&A-111, M&A-112, and M&A-114 during 2018. PCBs were not detected at any of the other nine monitoring wells sampled during 2018.

NAPL recovery efforts in the HTB are ongoing at monitoring well M&A-113 and appear to have reduced the occurrence of NAPL and extent of the dissolved PCB plume in this portion of the Site. Continuing to remove free product to the extent practicable in these areas appears to be the most effective means of achieving additional PCB reductions in groundwater present beneath the HTB.

The results of the June and November 2018 PCB soil assessment program at the HTB were successful in delineating the vertical and horizontal extent of PCB soil impacts underlying the HTB. Consistent with the previously presented conceptual Site model, PCB soil impacts do not underlie or extend beyond the western exterior wall of the HTB in the investigation area, and are associated with the shallow LNAPL impacted and deeper DNAPL impacted water bearing strata.

7.0 FURTHER EXPLORATION/REMEDIAL ACTIONS

Based on the information collected to date, Mabbett recommends continued NAPL removal as the primary course of action for reducing PCB contamination at the Site. The *in situ* DNAPL extraction system located in M&A-113 will continue to operate on a full-time basis in accordance with the VCP established for the HTB.

In the meantime, periodic monitoring of groundwater and NAPL will be performed to evaluate the extent to which NAPL can be removed from the subsurface, evaluate the impacts of continued NAPL removal on groundwater concentrations, and develop potential strategies for achieving Site closure. The following assessment programs have been proposed or are ongoing at the HTB:

- The LNAPL recharge study initiated in 2014 at M&A-114 (described in the 2015 Annual PCB Summary Report) has been expanded to include M&A-112 and M&A-301, per the *Free Product Recharge Study Plan & Plan Modification* submitted by Mabbett on July 5, 2018. No measurable NAPL has been detected in any of these three wells for more than 2 years. The LNAPL recharge study entails the removal of oil absorbent media from these wells and quarterly gauging of the wells to determine if measurable oil is present. The goal of the free product recharge study is to demonstrate that NAPL has been removed to the extent practicable and obtain approval from the IEPA for No Further Action Status with regard to the LNAPL recovery efforts in the HTB.
- In June and November 2018, Mabbett performed a PCB soil assessment program within the impacted portion of the HTB to characterize the horizontal and vertical extent of PCB contamination in soils. This investigation consisted of the advancement of 18 soil borings to a depth of 40 feet bgs and collection of continuous soil samples at 2-foot intervals from each soil boring for PCB analysis. The findings of this investigation summarized herein were previously submitted to USEPA on December 12, 2018 in a PCB Soil Assessment Memorandum for use in ongoing discussions regarding the regulatory status of the PCB contamination at the HTB portion of the Bodycote facility.
- Mabbett will continue to perform long-term groundwater monitoring to coincide with the April and October/November semi-annual sampling events established under the VCP. Annual PCB Action Summary

Reports will continue to be submitted to the EPA on an annual basis until such time that a status of No Further Remediation has been issued for PCB contamination at the Site.

Based on the information presented herein, it is Mabbett's opinion that:

1. No active or uncontrolled PCB sources are present and, after diligent research, historical sources of PCBs were not identified.
2. The presence of PCBs appears to be associated with NAPL that is limited in extent.
3. Groundwater quality appears to meet the IEPA standard for PCBs of 2.5 µg/L with the exception of monitoring well M&A-113.
4. The extent of PCBs in groundwater has been delineated and appears to have reduced during the course of the monitoring program.
5. The extent of PCBs in soil has been horizontally and vertically delineated by the June and November 2018 PCB soil assessment program.
6. Based on the geological and hydrogeological characteristics of the Site, the potential for significant PCB migration is low and the likelihood for the potential migration of PCB-contaminated groundwater beyond the property line is minimal.
7. Ongoing efforts to remove NAPL under the approved IEPA VCP appear to be the most appropriate remediation strategy for PCBs.
8. Additional investigations are underway to evaluate the extent to which further NAPL removal is practical; Mabbett will continue to monitor groundwater on a semi-annual basis.
9. The next Annual PCB Action Summary Report will be submitted by December 31, 2019.

TABLES

TABLES

TABLE 3-1
HISTORICAL SUMMARY OF PCB GROUNDWATER ANALYTICAL RESULTS
2018 ANNUAL PCB ACTION SUMMARY REPORT
BODYCOTE THERMAL PROCESSING
MELROSE PARK, ILLINOIS

GW Samples			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
IEPA TACO Tier I Standard			2.5	2.5	2.5	2.5	2.5	2.5	2.5
WELL	AQUIFER	DATE	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MCA-5	Shallow	Historical data not presented; historical data indicates that PCBs have not been present at concentrations greater than laboratory reporting limits in groundwater samples collected from MCA-5.							
		4/6/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/27/2016	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)
		4/11/2017	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		11/2/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/17/2018	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)
		11/7/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)
M&A-104	Shallow	10/02/2002	BDL (0.5)	BDL (1.0)	BDL (0.5)	**1.60**	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/23/2003	BDL (0.5)	BDL (1.0)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		5/18/2004	BDL (0.5)	BDL (1.0)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/17/2006	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)
		10/19/2006	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/30/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/17/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/16/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/23/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**0.592**	BDL (0.5)	BDL (0.5)
		12/17/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/07/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/21/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	**0.716**	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/12/2010	BDL (0.658)	BDL (0.658)	BDL (0.658)	**1.66**	BDL (0.658)	BDL (0.658)	BDL (0.658)
		10/19/2010	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)
		4/20/2011	BDL (0.556)	BDL (0.556)	BDL (0.556)	BDL (0.556)	**0.911**	BDL (0.556)	BDL (0.556)
		10/25/2011	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)
		4/25/2012	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)
		10/01/2012	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)
		4/18/2013	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)
		10/21/2013	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)
		4/01/2014	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		10/28/2014	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		4/07/2015	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)
		10/28/2015	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)
		4/6/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/27/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/11/2017	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)
		11/03/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/17/2018	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		11/05/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)

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TABLE 3-1
HISTORICAL SUMMARY OF PCB GROUNDWATER ANALYTICAL RESULTS
2018 ANNUAL PCB ACTION SUMMARY REPORT
BODYCOTE THERMAL PROCESSING
MELROSE PARK, ILLINOIS

GW Samples			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
IEPA TACO Tier I Standard			2.5	2.5	2.5	2.5	2.5	2.5	2.5
WELL	AQUIFER	DATE	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
M&A-110	Intermed	5/18/2004	BDL (0.5)	BDL (1.0)	BDL (0.5)	BDL (0.5)	[illegible]	BDL (0.5)	BDL (0.5)
		4/17/2006 [1]	NS	NS	NS	NS	NS	NS	NS
		5/15/2006	BDL (0.4)	BDL (0.4)	BDL (0.4)	[illegible]	BDL (0.4)	BDL (0.4)	BDL (0.4)
		10/19/2006	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.31**	BDL (0.5)	BDL (0.5)
		4/30/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/17/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.11**	BDL (0.5)	BDL (0.5)
		10/23/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**0.848**	BDL (0.5)	BDL (0.5)
		4/07/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/21/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	**0.508**	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/12/2010	BDL (0.658)	BDL (0.658)	BDL (0.658)	BDL (0.658)	**2.31**	BDL (0.658)	BDL (0.658)
		10/19/2010	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	**0.842**	BDL (0.495)	BDL (0.495)
		4/20/2011	BDL (0.556)	BDL (0.556)	BDL (0.556)	BDL (0.556)	**1.98**	BDL (0.556)	BDL (0.556)
		10/25/2011	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	**2.10**	BDL (0.500)	BDL (0.500)
		4/25/2012	BDL (0.556)	BDL (0.556)	BDL (0.556)	BDL (0.556)	BDL (0.556)	BDL (0.556)	BDL (0.556)
		10/02/2012	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	**1.45**	BDL (0.500)	BDL (0.500)
		4/18/2013	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/21/2013	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)
		4/1/2014	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		10/28/2014	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		4/7/2015	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	**2.13**	BDL (0.1)	BDL (0.1)
		10/28/2015	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	[illegible]	BDL (0.521)	BDL (0.521)
		4/6/2016	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)
		10/27/2016	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)
		4/11/2017	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		11/3/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/17/2018	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)
		11/5/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)

TABLE 3-1
HISTORICAL SUMMARY OF PCB GROUNDWATER ANALYTICAL RESULTS
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BODYCOTE THERMAL PROCESSING
MELROSE PARK, ILLINOIS

GW Samples			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
IEPA TACO Tier I Standard			2.5	2.5	2.5	2.5	2.5	2.5	2.5
WELL	AQUIFER	DATE	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
M&A-111	Intermed	10/02/2002	BDL (25)	BDL (50)	BDL (25)	**680**	BDL (25)	**150**	BDL (25)
		10/23/2003	BDL (0.5)	BDL (1.0)	BDL (0.5)	BDL (0.5)	**3.73**	BDL (0.5)	BDL (0.5)
		5/18/2004	BDL (0.5)	BDL (1.0)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/18/2006	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)
		10/19/2006	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/30/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/18/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**0.652**	BDL (0.5)	BDL (0.5)
		4/16/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/22/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.16**	BDL (0.5)	NS
		12/17/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/07/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/21/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	**0.712**	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/12/2010	BDL (0.625)	BDL (0.625)	BDL (0.625)	**1.14**	BDL (0.625)	BDL (0.625)	BDL (0.625)
		10/19/2010	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)
		4/20/2011	BDL (0.556)	BDL (0.556)	BDL (0.556)	BDL (0.556)	**2.35**	BDL (0.556)	BDL (0.556)
		10/25/2011	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	**1.05**	BDL (0.495)	BDL (0.495)
		4/24/2012	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/02/2012	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	**2.52**	BDL (0.500)	BDL (0.500)
		4/18/2013	BDL (2.000)	BDL (2.000)	BDL (2.000)	BDL (2.000)	**19.3**	BDL (2.000)	BDL (2.000)
		10/21/2013	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		4/1/2014	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/28/2014	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		4/7/2015	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)	BDL (0.1)
		10/28/2015	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	**7.00**	BDL (0.521)	BDL (0.521)
		4/6/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/27/2016	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)
		4/11/2017	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	**0.629**	BDL (0.446)	BDL (0.446)
		11/2/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/17/2018	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	**1.07**	BDL (0.455)	BDL (0.455)
		11/5/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	**1.20**	**0.532**	BDL (0.250)

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MELROSE PARK, ILLINOIS

GW Samples			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
IEPA TACO Tier I Standard			2.5	2.5	2.5	2.5	2.5	2.5	2.5
WELL	AQUIFER	DATE	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
M&A-112	Shallow	10/02/2002	BDL (0.5)	BDL (1.0)	BDL (0.5)	[illegible]	BDL (0.5)	[illegible]	BDL (0.5)
		10/23/2003	BDL (1.0)	BDL (2.0)	BDL (1.0)	BDL (1.0)	[illegible]	[illegible]	BDL (1.0)
		5/18/2004	BDL (0.5)	BDL (1.0)	BDL (0.5)	BDL (0.5)	[illegible]	BDL (0.5)	BDL (0.5)
		4/18/2006	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)
		10/19/2006[2]	NS	NS	NS	NS	NS	NS	NS
		5/01/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/18/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.99**	BDL (0.5)	BDL (0.5)
		4/16/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/23/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.02**	BDL (0.5)	BDL (0.5)
		4/07/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.39**	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/21/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.04**	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/13/2010	BDL (0.658)	BDL (0.658)	BDL (0.658)	BDL (0.658)	[illegible]	BDL (0.658)	BDL (0.658)
		10/19/2010	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	[illegible]	BDL (0.490)	BDL (0.490)
		4/20/2011	BDL (0.526)	BDL (0.526)	BDL (0.526)	BDL (0.526)	[illegible]	BDL (0.526)	BDL (0.526)
		10/25/2011	BDL (0.485)	BDL (0.485)	BDL (0.485)	BDL (0.485)	[illegible]	BDL (0.485)	BDL (0.485)
		4/25/2012	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	**0.885**	BDL (0.500)	BDL (0.500)
		10/01/2012	BDL (<5.0)	BDL (<5.0)	BDL (<5.0)	BDL (<5.0)	[illegible]	BDL (<5.0)	BDL (<5.0)
		11/05/2012	BDL (5.0)	BDL (5.0)	BDL (5.0)	BDL (5.0)	BDL (<0.495)	BDL (5.0)	BDL (5.0)
		4/18/2013	BDL (0.467)	BDL (0.467)	BDL (0.467)	BDL (0.467)	**2.39**	BDL (0.467)	BDL (0.467)
		10/21/2013	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	[illegible]	BDL (0.481)	BDL (0.481)
		4/2/2014	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	[illegible]	BDL (0.500)	BDL (0.500)
		10/28/2014	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		4/7/2015	BDL (0.0962)	BDL (0.0962)	BDL (0.0962)	BDL (0.0962)	**1.25**	BDL (0.0962)	BDL (0.0962)
		10/28/2015	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)
		4/6/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	**2.09**	BDL (0.500)	BDL (0.500)
		10/27/2016	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)
		4/11/2017	BDL (0.481)	BDL (0.521)	BDL (0.521)	BDL (0.521)	**1.60**	BDL (0.521)	BDL (0.521)
		11/3/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	**1.05**	BDL (0.500)	BDL (0.500)
		4/18/2018	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)
		11/8/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	**0.698**	BDL (0.250)	BDL (0.250)

TABLE 3-1
HISTORICAL SUMMARY OF PCB GROUNDWATER ANALYTICAL RESULTS
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GW Samples			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
IEPA TACO Tier I Standard			2.5	2.5	2.5	2.5	2.5	2.5	2.5
WELL	AQUIFER	DATE	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
M&A-113	Intermed	5/18/2004	BDL (0.5)	BDL (1.0)	BDL (0.5)	BDL (0.5)	15.8	BDL (0.5)	BDL (0.5)
		4/19/2006	BDL (1.0)	BDL (1.0)	BDL (1.0)	16.3	BDL (1.0)	BDL (1.0)	BDL (1.0)
		10/19/2006	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.22**	BDL (0.5)	BDL (0.5)
		5/01/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/17/2007[2]	NS	NS	NS	NS	NS	NS	NS
		10/23/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	5.38	BDL (0.5)	BDL (0.5)
		12/17/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	**1.29**	BDL (0.5)	BDL (0.5)
		4/07/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	2.96	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/21/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	11.2	BDL (0.5)	BDL (0.5)
		4/13/2010	BDL (0.658)	BDL (0.658)	BDL (0.658)	BDL (0.658)	5.39	BDL (0.658)	BDL (0.658)
		10/20/2010	BDL (2.48)	BDL (2.48)	BDL (2.48)	BDL (2.48)	37.6	BDL (2.48)	BDL (2.48)
		4/20/2011	BDL (0.526)	BDL (0.526)	BDL (0.526)	BDL (0.526)	19.2	BDL (0.526)	BDL (0.526)
		10/25/2011	BDL (6.25)	BDL (6.25)	BDL (6.25)	BDL (6.25)	10.4	BDL (6.25)	BDL (6.25)
		4/25/2012	BDL (0.526)	BDL (0.526)	BDL (0.526)	BDL (0.526)	2.37	BDL (0.526)	BDL (0.526)
		10/02/2012	BDL (0.526)	BDL (0.526)	BDL (0.526)	BDL (0.526)	15.1	BDL (0.526)	BDL (0.526)
		10/21/2013	BDL (4.81)	BDL (4.81)	BDL (4.81)	BDL (4.81)	79.2	BDL (4.81)	BDL (4.81)
		4/02/2014	BDL (25.0)	BDL (25.0)	BDL (25.0)	BDL (25.0)	166	BDL (25.0)	BDL (25.0)
		10/28/2014	BDL (1120)	BDL (1120)	BDL (1120)	BDL (1120)	4000	BDL (1120)	BDL (1120)
		4/07/2015	BDL (4.81)	BDL (4.81)	BDL (4.81)	BDL (4.81)	236	BDL (4.81)	BDL (4.81)
		10/28/2015	BDL (5.95)	BDL (5.95)	BDL (5.95)	BDL (5.95)	17.7	BDL (5.95)	BDL (5.95)
		4/6/2016	BDL (50.0)	BDL (50.0)	BDL (50.0)	BDL (50.0)	64.1	BDL (50.0)	BDL (50.0)
		10/27/2016	BDL (0.568)	BDL (0.568)	BDL (0.568)	BDL (0.568)	17.8	BDL (0.568)	BDL (0.568)
		4/11/2017	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)	15.8	BDL (0.403)	BDL (0.403)
		11/03/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	4.56	BDL (0.500)	BDL (0.500)
		4/18/2018	BDL (3.91)	BDL (3.91)	BDL (3.91)	BDL (3.91)	44.9	BDL (3.91)	BDL (3.91)
		11/08/2018	BDL (62.5)	BDL (62.5)	BDL (62.5)	BDL (62.5)	960	BDL (62.5)	BDL (62.5)

TABLE 3-1
HISTORICAL SUMMARY OF PCB GROUNDWATER ANALYTICAL RESULTS
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GW Samples			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
IEPA TACO Tier I Standard			2.5	2.5	2.5	2.5	2.5	2.5	2.5
WELL	**AQUIFER**	**DATE**	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
M&A-114	Shallow	10/02/2002	BDL (0.5)	BDL (1.0)	BDL (0.5)	[redacted]	BDL (0.5)	[redacted]	BDL (0.5)
		4/17/2006 [3]	NS	NS	NS	NS	NS	NS	NS
		10/19/2006 [3]	NS	NS	NS	NS	NS	NS	NS
		5/2/2007 [3]	NS	NS	NS	NS	NS	NS	NS
		10/17/2007 [3]	NS	NS	NS	NS	NS	NS	NS
		10/22/2008 [3]	NS	NS	NS	NS	NS	NS	NS
		10/20/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/07/2010	BDL (0.658)	BDL (0.658)	BDL (0.658)	BDL (0.658)	BDL (0.658)	BDL (0.658)	BDL (0.658)
		10/19/2010	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)	BDL (0.495)
		4/20/2011	BDL (0.485)	BRL(<0.485)	BDL (0.485)	BDL (0.485)	**2.13**	BDL (0.485)	BDL (0.485)
		10/24/2011	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)
		10/01/2012	BDL (4.76)	BDL (4.76)	BDL (4.76)	BDL (4.76)	[redacted]	BDL (4.76)	BDL (4.76)
		10/21/2013	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	[redacted]	BDL (0.446)	BDL (0.446)
		4/1/2014 [3]	NS	NS	NS	NS	NS	NS	NS
		10/28/2014	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		4/07/2015	BDL (5)	BDL (5)	BDL (5)	BDL (5)	[redacted]	BDL (5)	BDL (5)
		10/28/2015	BDL (5.95)	BDL (5.95)	BDL (5.95)	BDL (5.95)	BDL (5.95)	BDL (5.95)	BDL (5.95)
		4/6/2016	BDL (0.658)	BDL (0.658)	BDL (0.658)	BDL (0.658)	**1.52**	BDL (0.658)	BDL (0.658)
		10/27/2016	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)
		4/11/2017	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)	**2.15**	BDL (0.417)	BDL (0.417)
		11/3/2017	BDL (62.5)	BDL (62.5)	BDL (62.5)	BDL (62.5)	[redacted]	BDL (62.5)	BDL (62.5)
		4/18/2018	BDL (0.463)	BDL (0.463)	BDL (0.463)	BDL (0.463)	BDL (0.463)	BDL (0.463)	BDL (0.463)
		11/07/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	**0.282**	BDL (0.250)	BDL (0.250)
M&A-116	Shallow	Historical data not presented; historical data indicates that PCBs have not been present at concentrations greater than laboratory reporting limits in groundwater samples collected from M&A-116.							
		4/6/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/27/2016	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)
		4/11/2017	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		11/2/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/16/2018	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		11/06/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)
M&A-121	Intermed	Historical data not presented; historical data indicates that PCBs have not been present at concentrations greater than laboratory reporting limits in groundwater samples collected from M&A-121.							
		4/7/2016	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)
		10/27/2016	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)
		4/11/2017	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		11/2/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/16/2018	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		11/7/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)

TABLE 3-1
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GW Samples			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
IEPA TACO Tier I Standard			2.5	2.5	2.5	2.5	2.5	2.5	2.5
WELL	AQUIFER	DATE	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
M&A-122	Intermed	Historical data not presented; historical data indicates that PCBs have not been present at concentrations greater than laboratory reporting limits in groundwater samples collected from M&A-122.							
		4/7/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/27/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/11/2017	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)	BDL (0.446)
		11/2/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/17/2018	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)
		11/5/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)
M&A-124	Shallow	Historical data not presented; historical data indicates that PCBs have not been present at concentrations greater than laboratory reporting limits in groundwater samples collected from M&A-124 until the April 2015 sampling event.							
		4/7/2015	BDL (0.500)	BDL (0.0893)	BDL (0.0893)	BDL (0.0893)	**0.319**	BDL (0.0893)	BDL (0.0893)
		10/28/2015	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)	BDL (0.521)
		4/6/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/27/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/11/2017	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		11/2/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/16/2018	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)	BDL (0.455)
		11/6/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)
M&A-126	Intermed	Historical data not presented; historical data indicates that PCBs have not been present at concentrations greater than laboratory reporting limits in groundwater samples collected from M&A-126.							
		4/6/2016	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/27/2016	BDL (0.581)	BDL (0.581)	BDL (0.581)	BDL (0.581)	BDL (0.581)	BDL (0.581)	BDL (0.581)
		10/27/2016	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		11/2/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/16/2018	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)	BDL (0.403)
		11/6/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)

TABLE 3-1
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GW Samples			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
IEPA TACO Tier I Standard			2.5	2.5	2.5	2.5	2.5	2.5	2.5
WELL	AQUIFER	DATE	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
M&A-301	Shallow	4/19/2006	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)	BDL (1.0)
		10/18/2006	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		5/02/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/17/2007	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/16/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/22/2008	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/09/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/20/2009	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/12/2010	**1.08**	BDL (0.625)	BDL (0.625)	BDL (0.625)	BDL (0.625)	BDL (0.625)	BDL (0.625)
		10/20/2010	BDL (0.49)	BDL (0.49)	BDL (0.49)	BDL (0.49)	BDL (0.49)	BDL (0.49)	BDL (0.49)
		4/20/2011	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/25/2011	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		4/25/2012	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/01/2012	BDL (5.0)	BDL (5.0)	BDL (5.0)	BDL (5.0)	BDL (5.0)	BDL (5.0)	BDL (5.0)
		4/18/2013	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)	BDL (0.5)
		10/22/2013	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)	BDL (0.417)
		4/02/2014	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		10/29/2014	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		4/07/2015	BDL (0.0893)	BDL (0.0893)	BDL (0.0893)	BDL (0.0893)	BDL (0.0893)	BDL (0.0893)	BDL (0.0893)
		10/29/2015	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)	BDL (0.543)
		4/7/2016	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)	BDL (0.431)
		10/27/2016	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)
		4/11/2017	BDL (2.08)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)	BDL (0.490)
		11/2/2017	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)	BDL (0.500)
		4/17/2018	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)	BDL (0.481)
		11/5/2018	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)	BDL (0.250)

Notes: µg/L - micrograms per liter
PCB analysis performed via EPA Method 8082
TACO - Tiered Approach toward Corrective Action
TACO Tier I Standards based on the Illinois Environmental Protection Agency Title 35. Admin Code 742.505
Tier 1 Remediation Objectives for Class II Groundwater
Shading indicates compound exceeds established Illinois EPA TACO Tier I standard of 2.5 µg/L.
BOLD values indicate compound was detected above the laboratory method detection limit indicated.
NS - Not Sampled
(1) Not sampled, well was dry.
(2) Not sampled, insufficient water recharge to complete sampling.
(3) Not sampled, well contained no water, only Free Product

Table 4-1
Summary of Soil Analytical Results - PCB in SB-01
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-01									
	SAMPLE ID	SB-01-2'	SB-01-4'	SB-01-6'	SB-01-8'	SB-01-10'	SB-01-12'	SB-01-14'	SB-01-16'	SB-01-18'	SB-01-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
Aroclor 1221	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
Aroclor 1232	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
Aroclor 1242	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
Aroclor 1248	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
Aroclor 1254	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
Aroclor 1260	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
Aroclor 1262	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
Aroclor 1268	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)
PCBs, Total	1000	BRL (39.0)	BRL (40.2)	BRL (39.9)	BRL (39.3)	BRL (36.1)	BRL (36.6)	BRL (37.9)	BRL (37.0)	BRL (39.2)	BRL (36.9)

	SAMPLE LOCATION	SOIL BORING SB-01										
	SAMPLE ID	SB-01-22'	SB-01-24'	SB-01-26'	SB-01-28'	SB-01-30'	SB-01-32'	SB-01-34'	SB-01-36'	SB-01-38'	SB-01-40'	DUP-1
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	40'
	QC IDENTIFIER										DUPLICATE	DUPLICATE
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
Aroclor 1221	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
Aroclor 1232	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
Aroclor 1242	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
Aroclor 1248	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
Aroclor 1254	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
Aroclor 1260	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
Aroclor 1262	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
Aroclor 1268	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)
PCBs, Total	1000	BRL (36.9)	BRL (38.0)	BRL (36.0)	BRL (36.4)	BRL (36.5)	BRL (37.1)	BRL (36.6)	BRL (37.7)	BRL (38.0)	BRL (36.8)	BRL (37.5)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-2
Summary of Soil Analytical Results - PCB in SB-02
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-02										
	SAMPLE ID	SB-02-2'	SB-02-4'	SB-02-6'	SB-02-8'	SB-02-10'	SB-02-12'	SB-02-14'	SB-02-16'	SB-02-18'	DUP-2	SB-02-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	18'	20'
	QC IDENTIFIER									DUPLICATE	DUPLICATE	
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
Aroclor 1221	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
Aroclor 1232	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
Aroclor 1242	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
Aroclor 1248	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
Aroclor 1254	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
Aroclor 1260	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
Aroclor 1262	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
Aroclor 1268	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)
PCBs, Total	1000	BRL (37.8)	BRL (39.6)	BRL (38.7)	BRL (40.0)	BRL (39.8)	BRL (40.0)	BRL (37.9)	BRL (36.4)	BRL (39.0)	BRL (38.2)	BRL (39.2)

	SAMPLE LOCATION	SOIL BORING SB-02									
	SAMPLE ID	SB-02-22'	SB-02-24'	SB-02-26'	SB-02-28'	SB-02-30'	SB-02-32'	SB-02-34'	SB-02-36'	SB-02-38'	SB-02-40'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
Aroclor 1221	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
Aroclor 1232	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
Aroclor 1242	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
Aroclor 1248	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
Aroclor 1254	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
Aroclor 1260	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
Aroclor 1262	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
Aroclor 1268	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)
PCBs, Total	1000	BRL (37.2)	BRL (34.4)	BRL (37.8)	BRL (36.0)	BRL (38.9)	BRL (36.5)	BRL (38.8)	BRL (35.9)	BRL (36.9)	BRL (37.5)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black

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Table 4-3
Summary of Soil Analytical Results - PCB in SB-03
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-03										
	SAMPLE ID	SB-03-2'	SB-03-4'	SB-03-6'	SB-03-8'	SB-03-10'	SB-03-12'	SB-03-14'	SB-03-16'	DUP-3	SB-03-18'	SB-03-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	16'	18'	20'
	QC IDENTIFIER								DUPLICATE	DUPLICATE		
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
Aroclor 1221	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
Aroclor 1232	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
Aroclor 1242	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
Aroclor 1248	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
Aroclor 1254	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
Aroclor 1260	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
Aroclor 1262	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
Aroclor 1268	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)
PCBs, Total	1000	BRL (39.6)	BRL (39.3)	BRL (37.8)	BRL (38.1)	BRL (37.8)	BRL (38.6)	BRL (40.1)	BRL (38.9)	BRL (40.5)	BRL (37.9)	BRL (38.5)

	SAMPLE LOCATION	SOIL BORING SB-03									
	SAMPLE ID	SB-03-22'	SB-03-24'	SB-03-26'	SB-03-28'	SB-03-30'	SB-03-32'	SB-03-34'	SB-03-36'	SB-03-38'	SB-03-40'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
Aroclor 1221	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
Aroclor 1232	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
Aroclor 1242	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
Aroclor 1248	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
Aroclor 1254	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
Aroclor 1260	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
Aroclor 1262	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
Aroclor 1268	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)
PCBs, Total	1000	BRL (38.4)	BRL (39.3)	BRL (35.1)	BRL (35.7)	BRL (38.4)	BRL (40.9)	BRL (37.2)	BRL (36.2)	BRL (40.4)	BRL (38.1)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-4
Summary of Soil Analytical Results - PCB in SB-04
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-04										
	SAMPLE ID	SB-04-2'	SB-04-4'	DUP-4	SB-04-6'	SB-04-8'	SB-04-10'	SB-04-12'	SB-04-14'	SB-04-16'	SB-04-18'	SB-04-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER		DUPLICATE	DUPLICATE								
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (57.3)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
Aroclor 1221	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (57.3)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
Aroclor 1232	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (57.3)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
Aroclor 1242	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (57.3)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
Aroclor 1248	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (38.2)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
Aroclor 1254	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (57.3)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
Aroclor 1260	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (38.2)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
Aroclor 1262	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (19.1)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
Aroclor 1268	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (19.1)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)
PCBs, Total	1000	BRL (39.9)	BRL (38.3)	BRL (39.2)	BRL (19.1)	BRL (38.7)	BRL (37.6)	BRL (38.8)	BRL (38.6)	BRL (39.1)	BRL (39.7)	BRL (37.2)

	SAMPLE LOCATION	SOIL BORING SB-04									
	SAMPLE ID	SB-04-22'	SB-04-24'	SB-04-26'	SB-04-28'	SB-04-30'	SB-04-32'	SB-04-34'	SB-04-36'	SB-04-38'	SB-04-40'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
Aroclor 1221	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
Aroclor 1232	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
Aroclor 1242	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
Aroclor 1248	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
Aroclor 1254	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
Aroclor 1260	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
Aroclor 1262	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
Aroclor 1268	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)
PCBs, Total	1000	BRL (37.5)	BRL (39.2)	BRL (36.6)	BRL (35.2)	BRL (40.0)	BRL (37.6)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (36.5)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-5
Summary of Soil Analytical Results - PCB in SB-05
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-05									
	SAMPLE ID	SB-05-2'	SB-05-4'	SB-05-6'	SB-05-8'	SB-05-10'	SB-05-12'	SB-05-14'	SB-05-16'	SB-05-18'	SB-05-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	BRL (187)	BRL (982)	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
Aroclor 1221	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	BRL (187	BRL (982)	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
Aroclor 1232	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	BRL (187	BRL (982)	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
Aroclor 1242	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	BRL (187	BRL (982)	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
Aroclor 1248	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	**1870**	**8610**	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
Aroclor 1254	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	BRL (187)	BRL (982)	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
Aroclor 1260	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	BRL (187	BRL (982)	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
Aroclor 1262	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	BRL (187	BRL (982)	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
Aroclor 1268	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	BRL (187)	BRL (982)	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)
PCBs, Total	1000	BRL (37.8)	BRL (39.3)	BRL (39.4)	**1870**	**8610**	BRL (38.5)	BRL (39.0)	BRL (37.8)	BRL (38.4)	BRL (37.4)

	SAMPLE LOCATION	SOIL BORING SB-05										
	SAMPLE ID	SB-05-22'	SB-05-24'	SB-05-26'	SB-05-28'	DUP-5	SB-05-30'	SB-05-32'	SB-05-34'	SB-05-36'	SB-05-38'	SB-05-40'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	26'	28'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER				DUPLICATE	DUPLICATE						
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	BRL (902)	BRL (40.0)	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
Aroclor 1221	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	BRL (902)	BRL (40.0)	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
Aroclor 1232	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	BRL (902)	BRL (40.0)	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
Aroclor 1242	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	BRL (902)	BRL (40.0)	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
Aroclor 1248	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	**7100**	**205**	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
Aroclor 1254	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	BRL (902)	BRL (40.0)	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
Aroclor 1260	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	BRL (902)	BRL (40.0)	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
Aroclor 1262	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	BRL (902)	BRL (40.0)	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
Aroclor 1268	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	BRL (902)	BRL (40.0)	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)
PCBs, Total	1000	BRL (39.6)	BRL (40.1)	BRL (36.9)	BRL (36.3)	BRL (37.5)	**7100**	**205**	BRL (38.4)	BRL (36.9)	BRL (40.3)	BRL (37.0)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-6
Summary of Soil Analytical Results - PCB in SB-06
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-06										
	SAMPLE ID	SB-06-2'	SB-06-4'	SB-06-6'	SB-06-8'	SB-06-10'	SB-06-12'	SB-06-14'	SB-06-16'	SB-06-18'	SB-06-20'	DUP-6
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'	20'
	QC IDENTIFIER										DUPLICATE	DUPLICATE
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	BRL (3780)	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
Aroclor 1221	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	BRL (3780)	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
Aroclor 1232	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	BRL (3780)	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
Aroclor 1242	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	BRL (3780)	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
Aroclor 1248	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	**13900**	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
Aroclor 1254	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	BRL (3780)	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
Aroclor 1260	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	BRL (3780)	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
Aroclor 1262	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	BRL (3780)	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
Aroclor 1268	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	BRL (3780)	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)
PCBs, Total	1000	BRL (38.3)	BRL (39.9)	BRL (38.6)	**13900**	BRL (37.7)	BRL (36.9)	BRL (38.2)	BRL (40.2)	BRL (38.3)	BRL (37.0)	BRL (36.8)

	SAMPLE LOCATION	SOIL BORING SB-06									
	SAMPLE ID	SB-06-22'	SB-06-24'	SB-06-26'	SB-06-28'	SB-06-30'	SB-06-32'	SB-06-34'	SB-06-36'	SB-06-38'	SB-06-40'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (36.5)	BRL (39.3)	BRL (37.0)	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
Aroclor 1221	1000	BRL (36.5)	BRL (39.3)	BRL (37.0)	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
Aroclor 1232	1000	BRL (36.5)	BRL (39.3)	BRL (37.0)	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
Aroclor 1242	1000	BRL (36.5)	BRL (39.3)	BRL (37.0)	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
Aroclor 1248	1000	BRL (36.5)	BRL (39.3)	**170**	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
Aroclor 1254	1000	BRL (36.5)	BRL (39.3)	**70.9**	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
Aroclor 1260	1000	BRL (36.5)	BRL (39.3)	BRL (37.0)	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
Aroclor 1262	1000	BRL (36.5)	BRL (39.3)	BRL (37.0)	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
Aroclor 1268	1000	BRL (36.5)	BRL (39.3)	BRL (37.0)	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)
PCBs, Total	1000	BRL (36.5)	BRL (39.3)	**241**	BRL (36.2)	BRL (40.2)	BRL (38.1)	BRL (36.7)	BRL (35.2)	BRL (37.5)	BRL (36.1)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-7
Summary of Soil Analytical Results - PCB in SB-07
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-07										
	SAMPLE ID	SB-07-2'	DUP-7	SB-07-4'	SB-07-6'*	SB-07-8'	SB-07-10'	SB-07-12'	SB-07-14'	SB-07-16'	SB-07-18'	SB-07-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER	DUPLICATE	DUPLICATE									
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (59.9)	BRL (38.0)	BRL (37.2)	BRL (37.9)	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
Aroclor 1221	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (59.9)	BRL (38.0)	BRL (37.2)	BRL (37.9)	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
Aroclor 1232	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (59.9)	BRL (38.0)	BRL (37.2)	BRL (37.9)	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
Aroclor 1242	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (59.9)	BRL (38.0)	BRL (37.2)	BRL (37.9)	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
Aroclor 1248	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (59.9)	BRL (38.0)	BRL (37.2)	**94.5**	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
Aroclor 1254	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (59.9)	BRL (38.0)	BRL (37.2)	BRL (37.9)	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
Aroclor 1260	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (39.9)	BRL (38.0)	BRL (37.2)	BRL (37.9)	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
Aroclor 1262	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (20.0)	BRL (38.0)	BRL (37.2)	BRL (37.9)	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
Aroclor 1268	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (20.0)	BRL (38.0)	BRL (37.2)	BRL (37.9)	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)
PCBs, Total	1000	BRL (41.2)	BRL (37.0)	BRL (43.0)	BRL (20.0)	BRL (38.0)	BRL (37.2)	**94.5**	BRL (38.0)	BRL (38.1)	BRL (39.2)	BRL (35.8)

	SAMPLE LOCATION	SOIL BORING SB-07									
	SAMPLE ID	SB-07-22'	SB-07-24'	SB-07-26'	SB-07-28'	SB-07-30'	SB-07-32'	SB-07-34'	SB-07-36'	SB-07-38'	SB-07-40'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (36.6)	BRL (39.3)	BRL (1860)	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
Aroclor 1221	1000	BRL (36.6)	BRL (39.3)	BRL (1860)	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
Aroclor 1232	1000	BRL (36.6)	BRL (39.3)	BRL (1860)	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
Aroclor 1242	1000	BRL (36.6)	BRL (39.3)	BRL (1860)	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
Aroclor 1248	1000	BRL (36.6)	BRL (39.3)	**31800**	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
Aroclor 1254	1000	BRL (36.6)	BRL (39.3)	BRL (1860)	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
Aroclor 1260	1000	BRL (36.6)	BRL (39.3)	BRL (1860)	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
Aroclor 1262	1000	BRL (36.6)	BRL (39.3)	BRL (1860)	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
Aroclor 1268	1000	BRL (36.6)	BRL (39.3)	BRL (1860)	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)
PCBs, Total	1000	BRL (36.6)	BRL (39.3)	**31800**	BRL (37.0)	BRL (38.0)	BRL (36.5)	BRL (35.9)	BRL (36.5)	BRL (36.9)	BRL (37.0)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-8
Summary of Soil Analytical Results - PCB in SB-08
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-08									
	SAMPLE ID	SB-08-2'	SB-08-4'	SB-08-6'	SB-08-8'	SB-08-10'	SB-08-12'	SB-08-14'	SB-08-16'	SB-08-18'	SB-08-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	BRL (42.2)	BRL (38.0)	BRL (36.9)	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
Aroclor 1221	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	BRL (42.2)	BRL (38.0)	BRL (36.9)	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
Aroclor 1232	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	BRL (42.2)	BRL (38.0)	BRL (36.9)	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
Aroclor 1242	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	BRL (42.2)	BRL (38.0)	BRL (36.9)	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
Aroclor 1248	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	**49.6**	BRL (38.0)	**222**	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
Aroclor 1254	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	BRL (42.2)	BRL (38.0)	BRL (36.9)	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
Aroclor 1260	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	BRL (42.2)	BRL (38.0)	BRL (36.9)	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
Aroclor 1262	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	BRL (42.2)	BRL (38.0)	BRL (36.9)	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
Aroclor 1268	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	BRL (42.2)	BRL (38.0)	BRL (36.9)	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)
PCBs, Total	1000	BRL (43.6)	BRL (39.8)	BRL (38.6)	**49.6**	BRL (38.0)	**222**	BRL (38.0)	BRL (38.1)	BRL (38.9)	BRL (38.7)

	SAMPLE LOCATION	SOIL BORING SB-08										
	SAMPLE ID	SB-08-22'	SB-08-24'	SB-08-26'	SB-08-28'	SB-08-30'	SB-08-32'	SB-08-34'	SB-08-36'	DUP-8	SB-08-38'	SB-08-40'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	36'	38'	40'
	QC IDENTIFIER								DUPLICATE	DUPLICATE		
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
Aroclor 1221	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
Aroclor 1232	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
Aroclor 1242	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
Aroclor 1248	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
Aroclor 1254	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
Aroclor 1260	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
Aroclor 1262	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
Aroclor 1268	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)
PCBs, Total	1000	BRL (37.0)	BRL (39.2)	BRL (38.5)	BRL (35.8)	BRL (39.6)	BRL (38.7)	BRL (37.7)	BRL (35.5)	BRL (37.2)	BRL (35.7)	BRL (37.9)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-9
Summary of Soil Analytical Results - PCB in SB-09
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-09									
	SAMPLE ID	SB-09-2'	SB-09-4'	SB-09-6'	SB-09-8'	SB-09-10'	SB-09-12'	SB-09-14'	SB-09-16'	SB-09-18'	SB-09-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (38.5)	BRL (41.9)	BRL (39.8)	BRL (38.7)	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
Aroclor 1221	1000	BRL (38.5)	BRL (41.9)	BRL (39.8)	BRL (38.7)	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
Aroclor 1232	1000	BRL (38.5)	BRL (41.9)	BRL (39.8)	BRL (38.7)	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
Aroclor 1242	1000	BRL (38.5)	BRL (41.9)	BRL (39.8)	BRL (38.7)	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
Aroclor 1248	1000	BRL (38.5)	BRL (41.9)	**69.6**	**113**	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
Aroclor 1254	1000	BRL (38.5)	BRL (41.9)	BRL (39.8)	BRL (38.7)	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
Aroclor 1260	1000	BRL (38.5)	BRL (41.9)	BRL (39.8)	BRL (38.7)	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
Aroclor 1262	1000	BRL (38.5)	BRL (41.9)	BRL (39.8)	BRL (38.7)	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
Aroclor 1268	1000	BRL (38.5)	BRL (41.9)	BRL (39.8)	BRL (38.7)	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)
PCBs, Total	1000	BRL (38.5)	BRL (41.9)	**69.6**	**113**	BRL (37.9)	BRL (38.5)	BRL (39.6)	BRL (40.6)	BRL (41.1)	BRL (37.4)

	SAMPLE LOCATION	SOIL BORING SB-09										
	SAMPLE ID	SB-09-22'	SB-09-24'	DUP-9	SB-09-26'	SB-09-28'	SB-09-30'	SB-09-32'	SB-09-34'	SB-09-36'	SB-09-38'	SB-09-40'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	24'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER		DUPLICATE	DUPLICATE								
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	BRL (836)	BRL (41.6)	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
Aroclor 1221	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	BRL (836)	BRL (41.6)	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
Aroclor 1232	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	BRL (836)	BRL (41.6)	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
Aroclor 1242	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	BRL (836)	BRL (41.6)	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
Aroclor 1248	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	13900	**83.5**	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
Aroclor 1254	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	BRL (836)	BRL (41.6	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
Aroclor 1260	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	BRL (836)	BRL (41.6	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
Aroclor 1262	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	BRL (836)	BRL (41.6	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
Aroclor 1268	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	BRL (836)	BRL (41.6	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)
PCBs, Total	1000	BRL (40.4)	BRL (38.5)	BRL (38.0)	BRL (37.3)	BRL (36.6)	13900	**83.5**	BRL (41.7)	BRL (40.8)	BRL (38.1)	BRL (37.5)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-10
Summary of Soil Analytical Results - PCB in SB-10
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-10									
	SAMPLE ID	SB-10-2'	SB-10-4'	SB-10-6'	SB-10-8'	SB-10-10'	SB-10-12'	SB-10-14'	SB-10-16'	SB-10-18'	SB-10-20'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (36.4)	BRL (36.6)	BRL (42.2)	BRL (39.4)	BRL (39.2)	BRL (40.9)	BRL (39.5)	BRL (40.0)	BRL (39.5)	BRL (37.8)
Aroclor 1221	1000	BRL (36.4)	BRL (36.6)	BRL (42.2)	BRL (39.4)	BRL (39.2)	BRL (40.9)	BRL (39.5)	BRL (40.0)	BRL (39.5)	BRL (37.8)
Aroclor 1232	1000	BRL (36.4)	BRL (36.6)	BRL (42.2)	BRL (39.4)	BRL (39.2)	BRL (40.9)	BRL (39.5)	BRL (40.0)	BRL (39.5)	BRL (37.8)
Aroclor 1242	1000	BRL (36.4)	BRL (36.6)	BRL (42.2)	BRL (39.4)	BRL (39.2)	BRL (40.9)	BRL (39.5)	BRL (40.0)	BRL (39.5)	BRL (37.8)
Aroclor 1248	1000	BRL (36.4)	BRL (36.6)	**63.6**	BRL (39.4)	**53.6**	**82.6**	BRL (39.5)	**554**	BRL (39.5)	**61.5**
Aroclor 1254	1000	BRL (36.4)	BRL (36.6)	BRL (42.2)	**220**	**46.6**	**100**	BRL (39.5)	BRL (40.0)	BRL (39.5)	BRL (37.8)
Aroclor 1260	1000	BRL (36.4)	BRL (36.6)	BRL (42.2)	BRL (39.4)	BRL (39.2)	BRL (40.9)	BRL (39.5)	BRL (40.0)	BRL (39.5)	BRL (37.8)
Aroclor 1262	1000	BRL (36.4)	BRL (36.6)	BRL (42.2)	BRL (39.4)	BRL (39.2)	BRL (40.9)	BRL (39.5)	BRL (40.0)	BRL (39.5)	BRL (37.8)
Aroclor 1268	1000	BRL (36.4)	BRL (36.6)	BRL (42.2)	BRL (39.4)	BRL (39.2)	BRL (40.9)	BRL (39.5)	BRL (40.0)	BRL (39.5)	BRL (37.8)
PCBs, Total	1000	BRL (36.4)	BRL (36.6)	**63.6**	**220**	**100**	**183**	BRL (39.5)	**554**	BRL (39.5)	**61.5**

	SAMPLE LOCATION	SOIL BORING SB-10							
	SAMPLE ID	SB-10-22'	DUP-10	SB-10-24'	SB-10-26'	SB-10-28'	SB-10-30'	SB-10-32'	SB-10-34'
	SAMPLING DATE	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18	18-Jun-18
	SAMPLE DEPTH	22'	22'	24'	26'	28'	30'	32'	34'
	QC IDENTIFIER	DUPLICATE	DUPLICATE						
PARAMETER	Tier I SRO								
Aroclor 1016	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	BRL (36.6)	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
Aroclor 1221	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	BRL (36.6)	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
Aroclor 1232	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	BRL (36.6)	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
Aroclor 1242	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	BRL (36.6)	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
Aroclor 1248	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	**141**	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
Aroclor 1254	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	BRL (36.6)	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
Aroclor 1260	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	BRL (36.6)	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
Aroclor 1262	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	BRL (36.6)	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
Aroclor 1268	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	BRL (36.6)	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)
PCBs, Total	1000	BRL (37.6)	BRL (35.9)	BRL (38.0)	**141**	BRL (40.1)	BRL (39.4)	BRL (36.3)	BRL (37.4)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-11
Summary of Soil Analytical Results - PCB in SB-11
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-11									
	SAMPLE ID	SB-11-2'	SB-11-4'	SB-11-6'	SB-11-8'	SB-11-10'	SB-11-12'	SB-11-14'	SB-11-16'	SB-11-18'	SB-11-20'
	SAMPLING DATE	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (39.1)	BRL (37.2)	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
Aroclor 1221	1000	BRL (39.1)	BRL (37.2)	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
Aroclor 1232	1000	BRL (39.1)	BRL (37.2)	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
Aroclor 1242	1000	**79.2**	**41.6**	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
Aroclor 1248	1000	BRL (39.1)	BRL (37.2)	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
Aroclor 1254	1000	BRL (39.1)	BRL (37.2)	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
Aroclor 1260	1000	BRL (39.1)	BRL (37.2)	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
Aroclor 1262	1000	BRL (39.1)	BRL (37.2)	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
Aroclor 1268	1000	BRL (39.1)	BRL (37.2)	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)
PCBs, Total	1000	**79.2**	**41.6**	BRL (38.1)	BRL (38.7)	BRL (37.0)	BRL (37.6)	BRL (36.6)	BRL (37.9)	BRL (37.5)	BRL (37.1)

	SAMPLE LOCATION	SOIL BORING SB-11										
	SAMPLE ID	SB-11-22'	SB-11-24'	SB-11-26'	SB-11-28'	SB-11-30'	SB-11-32'	SB-11-34'	SB-11-36'	SB-11-38'	SB-11-40'	DUP-1
	SAMPLING DATE	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	40'
	QC IDENTIFIER										Duplicate	Duplicate
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
Aroclor 1221	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
Aroclor 1232	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
Aroclor 1242	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
Aroclor 1248	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
Aroclor 1254	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
Aroclor 1260	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
Aroclor 1262	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
Aroclor 1268	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)
PCBs, Total	1000	BRL (35.5)	BRL (38.5)	BRL (36.9)	BRL (36.1)	BRL (37.6)	BRL (36.9)	BRL (36.6)	BRL (35.9)	BRL (35.2)	BRL (37.0)	BRL (36.5)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-12
Summary of Soil Analytical Results - PCB in SB-12
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-12									
	SAMPLE ID	SB-12-2'	SB-12-4'	SB-12-6'	SB-12-8'	SB-12-10'	SB-12-12'	SB-12-14'	SB-12-16'	SB-12-18'	SB-12-20'
	SAMPLING DATE	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (40.0)	BRL (40.5)	BRL (42.5)	BRL (44.1)	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
Aroclor 1221	1000	BRL (40.0)	BRL (40.5)	BRL (42.5)	BRL (44.1)	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
Aroclor 1232	1000	BRL (40.0)	BRL (40.5)	BRL (42.5)	BRL (44.1)	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
Aroclor 1242	1000	BRL (40.0)	BRL (40.5)	BRL (42.5)	BRL (44.1)	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
Aroclor 1248	1000	BRL (40.0)	BRL (40.5)	**86.3**	**178**	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
Aroclor 1254	1000	BRL (40.0)	BRL (40.5)	BRL (42.5)	BRL (44.1)	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
Aroclor 1260	1000	BRL (40.0)	BRL (40.5)	BRL (42.5)	BRL (44.1)	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
Aroclor 1262	1000	BRL (40.0)	BRL (40.5)	BRL (42.5)	BRL (44.1)	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
Aroclor 1268	1000	BRL (40.0)	BRL (40.5)	BRL (42.5)	BRL (44.1)	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)
PCBs, Total	1000	BRL (40.0)	BRL (40.5)	**86.3**	**178**	BRL (38.8)	BRL (38.5)	BRL (37.8)	BRL (37.8)	BRL (39.7)	BRL (36.1)

	SAMPLE LOCATION	SOIL BORING SB-12										
	SAMPLE ID	SB-12-22'	SB-12-24'	DUP-2	SB-12-26'	SB-12-28'	SB-12-30'	SB-12-32'	SB-12-34'	SB-12-36'	SB-12-38'	SB-12-40'
	SAMPLING DATE	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18
	SAMPLE DEPTH	22'	24'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER		Duplicate	Duplicate								
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
Aroclor 1221	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
Aroclor 1232	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
Aroclor 1242	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
Aroclor 1248	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
Aroclor 1254	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
Aroclor 1260	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
Aroclor 1262	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
Aroclor 1268	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)
PCBs, Total	1000	BRL (35.7)	BRL (38.3)	BRL (38.5)	BRL (35.5)	BRL (36.1)	BRL (36.6)	BRL (36.2)	BRL (37.0)	BRL (35.2)	BRL (35.8)	BRL (35.2)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-13
Summary of Soil Analytical Results - PCB in SB-13
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-13									
	SAMPLE ID	SB-13-2'	SB-13-4'	SB-13-6'	SB-13-8'	SB-13-10'	SB-13-12'	SB-13-14'	SB-13-16'	SB-13-18'	SB-13-20'
	SAMPLING DATE	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (37.3)	BRL (39.6)	BRL (40.0)	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
Aroclor 1221	1000	BRL (37.3)	BRL (39.6)	BRL (40.0)	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
Aroclor 1232	1000	BRL (37.3)	BRL (39.6)	BRL (40.0)	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
Aroclor 1242	1000	BRL (37.3)	BRL (39.6)	BRL (40.0)	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
Aroclor 1248	1000	BRL (37.3)	BRL (39.6)	**47.9**	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
Aroclor 1254	1000	BRL (37.3)	BRL (39.6)	BRL (40.0)	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
Aroclor 1260	1000	BRL (37.3)	BRL (39.6)	BRL (40.0)	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
Aroclor 1262	1000	BRL (37.3)	BRL (39.6)	BRL (40.0)	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
Aroclor 1268	1000	BRL (37.3)	BRL (39.6)	BRL (40.0)	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)
PCBs, Total	1000	BRL (37.3)	BRL (39.6)	**47.9**	BRL (39.2)	BRL (38.0)	BRL (37.6)	BRL (37.0)	BRL (38.5)	BRL (38.9)	BRL (37.9)

	SAMPLE LOCATION	SOIL BORING SB-13										
	SAMPLE ID	SB-13-22'	SB-13-24'	SB-13-26'	SB-13-28'	SB-13-30'	DUP-3	SB-13-32'	SB-13-34'	SB-13-36'	SB-13-38'	SB-13-40'
	SAMPLING DATE	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18	6-Nov-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER					Duplicate	Duplicate					
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
Aroclor 1221	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
Aroclor 1232	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
Aroclor 1242	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
Aroclor 1248	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
Aroclor 1254	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
Aroclor 1260	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
Aroclor 1262	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
Aroclor 1268	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)
PCBs, Total	1000	BRL (37.1)	BRL (36.9)	BRL (36.5)	BRL (35.2)	BRL (38.3)	BRL (36.7)	BRL (35.6)	BRL (34.9)	BRL (36.6)	BRL (36.2)	BRL (37.3)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-14
Summary of Soil Analytical Results - PCB in SB-14
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-14										
	SAMPLE ID	SB-14-2'	SB-14-4'	DUP-6	SB-14-6'	SB-14-8'	SB-14-10'	SB-14-12'	SB-14-14'	SB-14-16'	SB-14-18'	SB-14-20'
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	2'	4'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER		Duplicate	Duplicate								
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (34.1)	BRL (39.4)	BRL (40.4)	BRL (42.2)	BRL (40.2)	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
Aroclor 1221	1000	BRL (34.1)	BRL (39.4)	BRL (40.4)	BRL (42.2)	BRL (40.2)	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
Aroclor 1232	1000	BRL (34.1)	BRL (39.4)	BRL (40.4)	BRL (42.2)	BRL (40.2)	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
Aroclor 1242	1000	BRL (34.1)	BRL (39.4)	BRL (40.4)	BRL (42.2)	BRL (40.2)	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
Aroclor 1248	1000	BRL (34.1)	BRL (39.4)	BRL (40.4)	BRL (42.2)	BRL (40.2)	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
Aroclor 1254	1000	BRL (34.1)	BRL (39.4)	**53.2**	BRL (42.2)	**91.9**	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
Aroclor 1260	1000	BRL (34.1)	BRL (39.4)	BRL (40.4)	BRL (42.2)	BRL (40.2)	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
Aroclor 1262	1000	BRL (34.1)	BRL (39.4)	BRL (40.4)	BRL (42.2)	BRL (40.2)	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
Aroclor 1268	1000	BRL (34.1)	BRL (39.4)	BRL (40.4)	BRL (42.2)	BRL (40.2)	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)
PCBs, Total	1000	BRL (34.1)	BRL (39.4)	**53.2**	BRL (42.2)	**91.9**	BRL (38.1)	BRL (37.8)	BRL (38.9)	BRL (39.0)	BRL (39.8)	BRL (36.6)

	SAMPLE LOCATION	SOIL BORING SB-14									
	SAMPLE ID	SB-14-22'	SB-14-24'	SB-14-26'	SB-14-28'	SB-14-30'	SB-14-32'	SB-14-34'	SB-14-36'	SB-14-38'	SB-14-40'
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
Aroclor 1221	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
Aroclor 1232	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
Aroclor 1242	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
Aroclor 1248	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
Aroclor 1254	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
Aroclor 1260	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
Aroclor 1262	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
Aroclor 1268	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)
PCBs, Total	1000	BRL (35.5)	BRL (38.2)	BRL (38.0)	BRL (35.4)	BRL (36.0)	BRL (40.2)	BRL (35.4)	BRL (36.1)	BRL (37.7)	BRL (37.0)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black.
6. All samples were analyzed via EPA Method 8082.

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Table 4-15
Summary of Soil Analytical Results - PCB in SB-15
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-15									
	SAMPLE ID	SB-15-2'	SB-15-4'	SB-15-6'	SB-15-8'	SB-15-10'	SB-15-12'	SB-15-14'	SB-15-16'	SB-15-18'	SB-15-20'
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
Aroclor 1221	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
Aroclor 1232	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
Aroclor 1242	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
Aroclor 1248	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
Aroclor 1254	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
Aroclor 1260	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
Aroclor 1262	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
Aroclor 1268	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)
PCBs, Total	1000	BRL (38.3)	BRL (35.4)	BRL (39.1)	BRL (37.0)	BRL (37.3)	BRL (37.7)	BRL (37.3)	BRL (38.6)	BRL (38.4)	BRL (34.7)

	SAMPLE LOCATION	SOIL BORING SB-15										
	SAMPLE ID	SB-15-22'	SB-15-24'	SB-15-26'	SB-15-28'	DUP-5	SB-15-30'	SB-15-32'	SB-15-34'	SB-15-36'	SB-15-38'	SB-15-40'
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	22'	24'	26'	28'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER				Duplicate	Duplicate						
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
Aroclor 1221	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
Aroclor 1232	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
Aroclor 1242	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
Aroclor 1248	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
Aroclor 1254	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
Aroclor 1260	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
Aroclor 1262	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
Aroclor 1268	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)
PCBs, Total	1000	BRL (35.5)	BRL (40.3)	BRL (36.7)	BRL (34.1)	BRL (36.3)	BRL (39.4)	BRL (37.2)	BRL (35.2)	BRL (37.6)	BRL (35.0)	BRL (37.1)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black.
6. All samples were analyzed via EPA Method 8082.

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Table 4-16
Summary of Soil Analytical Results - PCB in SB-16
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-16										
	SAMPLE ID	SB-16-2'	SB-16-4'	SB-16-6'	SB-16-8'	SB-16-10'	SB-16-12'	SB-16-14'	SB-16-16'	SB-16-18'	SB-16-20'	DUP-4
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'	20'
	QC IDENTIFIER										Duplicate	Duplicate
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
Aroclor 1221	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
Aroclor 1232	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
Aroclor 1242	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
Aroclor 1248	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
Aroclor 1254	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
Aroclor 1260	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
Aroclor 1262	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
Aroclor 1268	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)
PCBs, Total	1000	BRL (39.7)	BRL (38.2)	BRL (38.9)	BRL (37.5)	BRL (38.2)	BRL (38.7)	BRL (38.9)	BRL (38.5)	BRL (36.7)	BRL (33.8)	BRL (33.9)

	SAMPLE LOCATION	SOIL BORING SB-16									
	SAMPLE ID	SB-16-22'	SB-16-24'	SB-16-26'	SB-16-28'	SB-16-30'	SB-16-32'	SB-16-34'	SB-16-36'	SB-16-38'	SB-16-40'
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
Aroclor 1221	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
Aroclor 1232	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
Aroclor 1242	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
Aroclor 1248	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
Aroclor 1254	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
Aroclor 1260	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
Aroclor 1262	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
Aroclor 1268	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)
PCBs, Total	1000	BRL (36.8)	BRL (35.7)	BRL (35.3)	BRL (35.0)	BRL (37.6)	BRL (38.0)	BRL (36.8)	BRL (36.3)	BRL (36.6)	BRL (35.6)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - Industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-17
Summary of Soil Analytical Results - PCB in SB-17
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-17									
	SAMPLE ID	SB-17-2'	SB-17-4'	SB-17-6'	SB-17-8'	SB-17-10'	SB-17-12'	SB-17-14'	SB-17-16'	SB-17-18'	SB-17-20'
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
Aroclor 1221	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
Aroclor 1232	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
Aroclor 1242	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
Aroclor 1248	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
Aroclor 1254	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
Aroclor 1260	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
Aroclor 1262	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
Aroclor 1268	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)
PCBs, Total	1000	BRL (37.8)	BRL (37.7)	BRL (37.0)	BRL (37.0)	BRL (38.1)	BRL (38.0)	BRL (37.4)	BRL (37.3)	BRL (38.6)	BRL (35.0)

	SAMPLE LOCATION	SOIL BORING SB-17										
	SAMPLE ID	SB-17-22'	SB-17-24'	SB-17-26'	DUP-8	SB-17-28'	SB-17-30'	SB-17-32'	SB-17-34'	SB-17-36'	SB-17-38'	SB-17-40'
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	22'	24'	26'	26'	28'	30'	32'	34'	36'	38'	40'
	QC IDENTIFIER			Duplicate	Duplicate							
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
Aroclor 1221	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
Aroclor 1232	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
Aroclor 1242	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
Aroclor 1248	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
Aroclor 1254	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
Aroclor 1260	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
Aroclor 1262	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
Aroclor 1268	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)
PCBs, Total	1000	BRL (36.7)	BRL (36.0)	BRL (36.6)	BRL (36.9)	BRL (34.7)	BRL (36.2)	BRL (36.5)	BRL (37.2)	BRL (35.9)	BRL (36.8)	BRL (37.4)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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Table 4-18
Summary of Soil Analytical Results - PCB in SB-18
BodyCote Thermal Processing
Melrose Park, Illinois

	SAMPLE LOCATION	SOIL BORING SB-18									
	SAMPLE ID	SB-18-2'	SB-18-4'	SB-18-6'	SB-18-8'	SB-18-10'	SB-18-12'	SB-18-14'	SB-18-16'	SB-18-18'	SB-18-20'
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18
	SAMPLE DEPTH	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
	QC IDENTIFIER										
PARAMETER	Tier I SRO										
Aroclor 1016	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
Aroclor 1221	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
Aroclor 1232	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
Aroclor 1242	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
Aroclor 1248	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
Aroclor 1254	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
Aroclor 1260	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
Aroclor 1262	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
Aroclor 1268	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)
PCBs, Total	1000	BRL (38.2)	BRL (38.2)	BRL (37.5)	BRL (38.9)	BRL (38.9)	BRL (36.4)	BRL (38.4)	BRL (39.0)	BRL (38.2)	BRL (35.0)

	SAMPLE LOCATION	SOIL BORING SB-18										
	SAMPLE ID	SB-18-22'	SB-18-24'	SB-18-26'	SB-18-28'	SB-18-30'	SB-18-32'	SB-18-34'	SB-18-36'	SB-18-38'	SB-18-40'	DUP-7
	SAMPLING DATE	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	7-Nov-18	8-Nov-18
	SAMPLE DEPTH	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	40'
	QC IDENTIFIER										Duplicate	Duplicate
PARAMETER	Tier I SRO											
Aroclor 1016	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
Aroclor 1221	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
Aroclor 1232	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
Aroclor 1242	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
Aroclor 1248	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
Aroclor 1254	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
Aroclor 1260	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
Aroclor 1262	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
Aroclor 1268	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)
PCBs, Total	1000	BRL (37.0)	BRL (36.0)	BRL (36.9)	BRL (36.3)	BRL (36.6)	BRL (36.8)	BRL (36.6)	BRL (36.7)	BRL (36.9)	BRL (36.1)	BRL (38.0)

Notes

1. All results presented in micrograms per kilogram (ug/Kg).
2. Tier I SRO = Illinois Environmental Protection Agency Tier I Soil Remediation Objective for Industrial/Commercial Properties - industrial/commercial and construction worker (ingestion route)
3. BRL (<1.0) = Below laboratory method reporting limit (reporting limit in parentheses).
4. Detected concentrations appear in BOLD.
5. Concentrations exceeding the Tier 1 SRO are shaded in black
6. All samples were analyzed via EPA Method 8082

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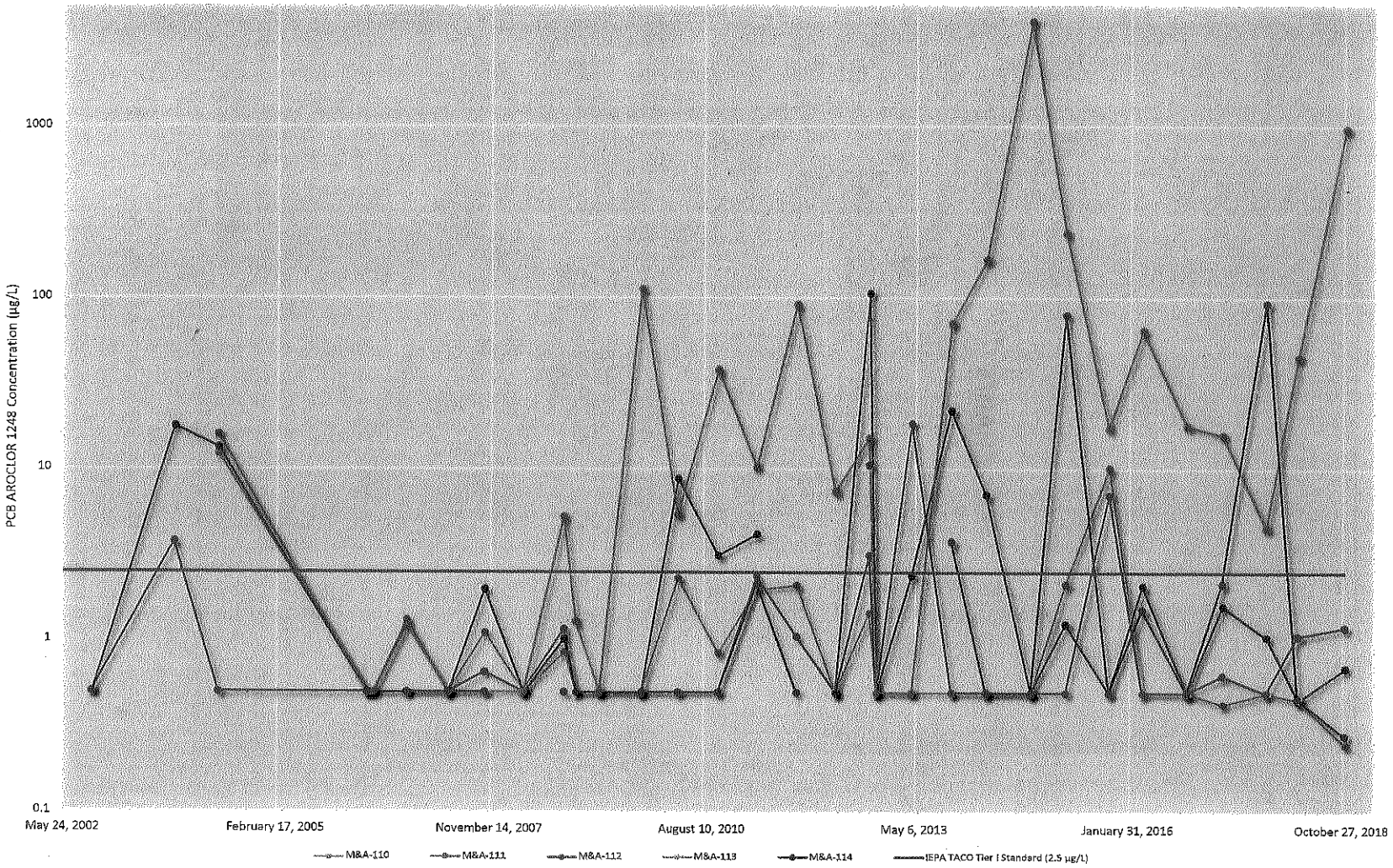
CHART

CHARTS

CHART 4-1
HISTORICAL PCB AROCLOR 1248 CONCENTRATIONS
2018 ANNUAL PCB REPORT
BODYCOTE THERMAL PROCESSING



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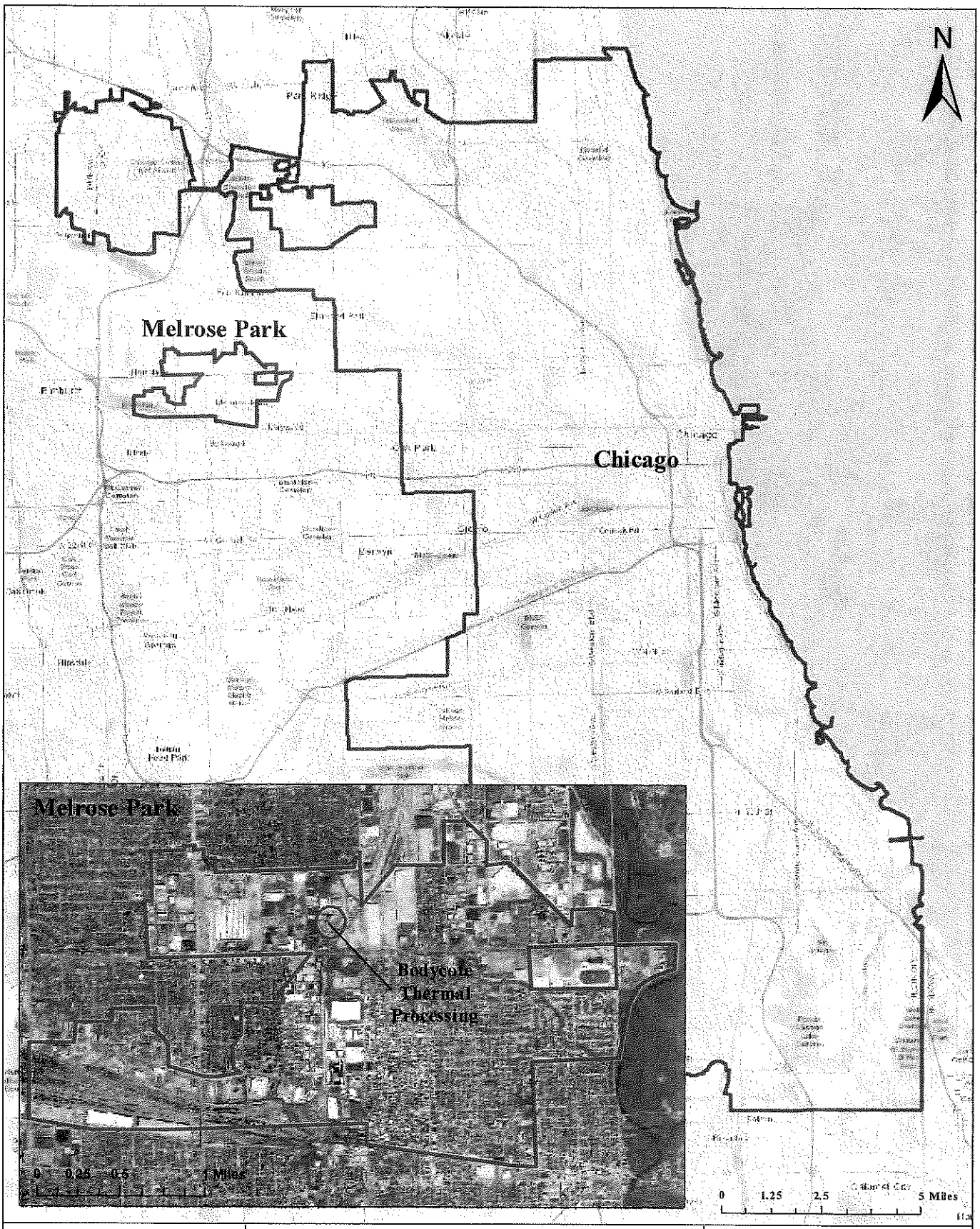
FIGURES

FIGURES

S:\STAFF\GIS\1998002_Bodycote\2017_11_HTB_GWReport\Figure2-1_SiteLOCUS.mxd KEH 1/2/2018



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Heat Treatment Building
Annual PCB Action Summary Report

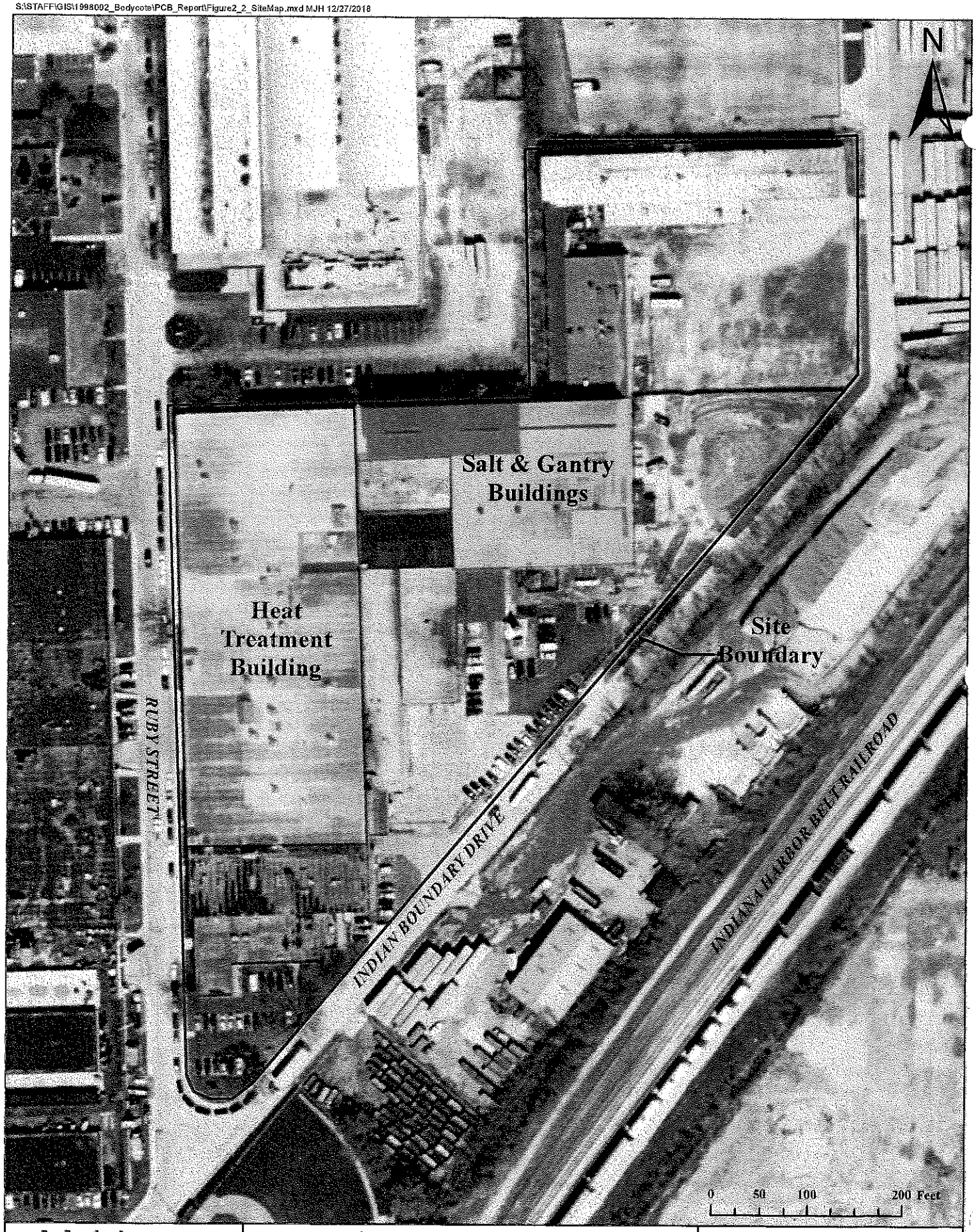
SITE LOCUS

Bodycote Thermal Processing, Inc.
Melrose Park, IL

Figure No. 2-1

Scale: See Scale Bar	
Drawn: KEH	Approved: CLM
Projection: NAD83 Illinois State Plane East (feet)	
Proj. No. R1998002.340.005	Date: 1/2/2018

S:\STAFF\GIS\1998002_Bodycote\PCB_Report\Figure2_2_SiteMap.mxd MJH 12/27/2018



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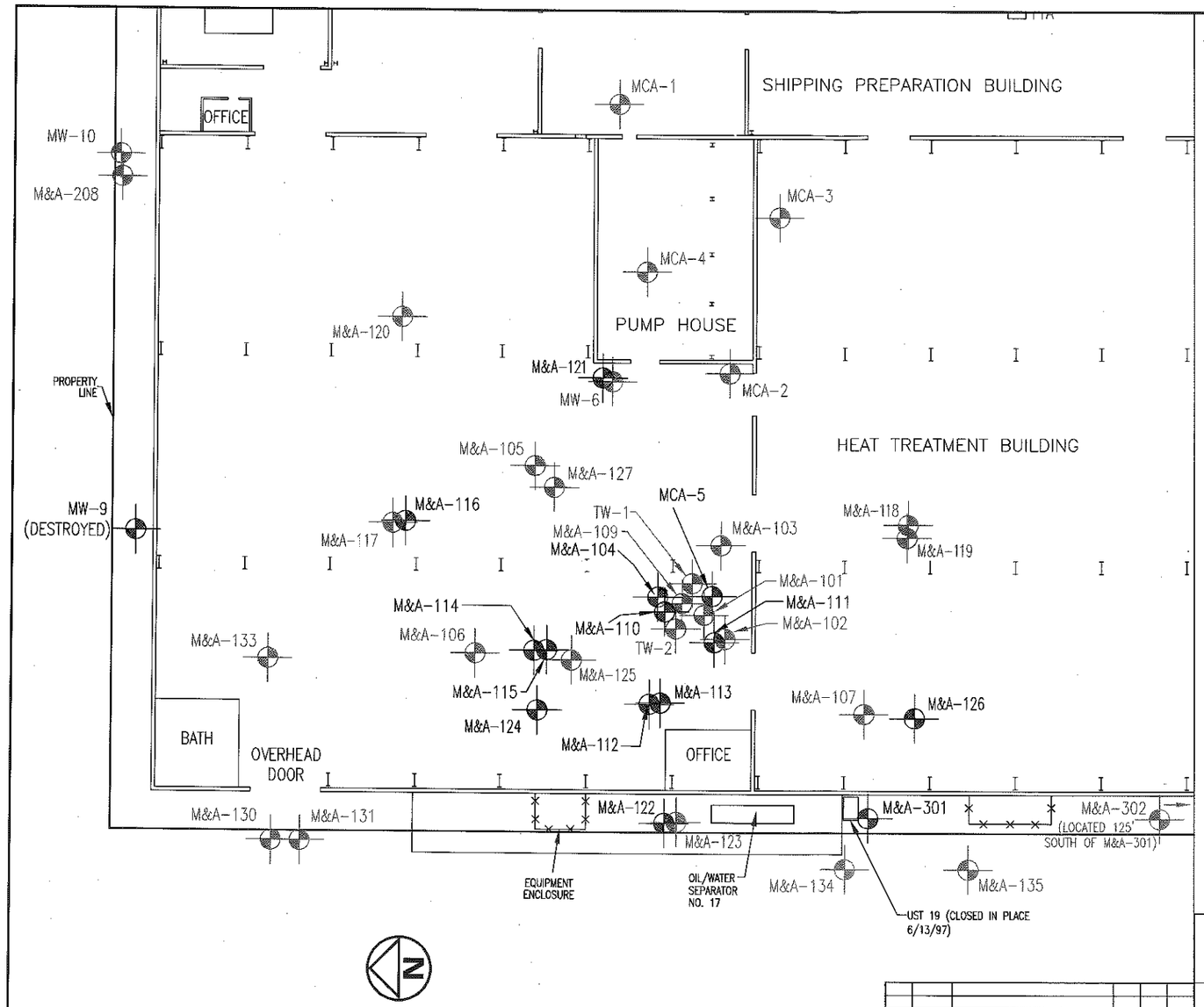
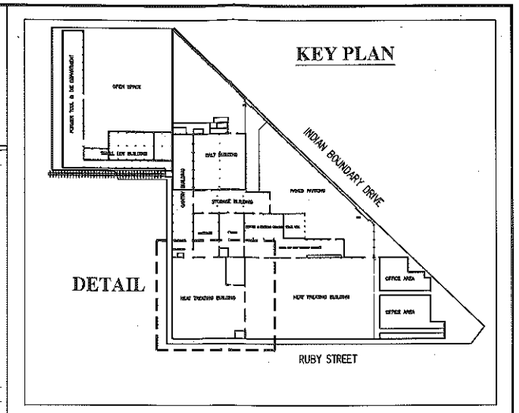
Bodycote Thermal Processing
PCB Annual Summary Report

SITE MAP

1975 North Ruby Street
Melrose Park, IL

Figure No. 2-2	
Scale: See Scale Bar	
Drawn: MJH	Approved: CLM
Projection: NAD83 Illinois State Plane East (feet)	
Proj. No. 1998002.335	Date: 12/27/2018





NOTES:

1. MONITORING WELL AND BORING LOCATIONS INSTALLED PRIOR TO 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY M&A PERSONNEL.
2. MONITORING WELL AND BORING LOCATIONS INSTALLED DURING AND AFTER 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY AN ILLINOIS REGISTERED LAND SURVEYOR.

LEGEND:

- MONITORING WELL LOCATION
- MONITORING WELL CLOSED IN PLACE (2008–2011)
- APPROXIMATE PROPERTY LINE
- CHAIN LINK FENCE
- SUPPORTING COLUMN

SCALE:

0' 30' 60' 90'

BODYCOTE THERMAL PROCESSING, INC.

MELROSE PARK, ILLINOIS

NO.	DATE	DESCRIPTION	DRN	CHK	APP
2	12/04/17	UPDATED FOR FPRS PLAN	MLB	SHL	CLM
1	4/18/17	FOR REGULATORY REVIEW	DJA	KEH	CLM

REVISION

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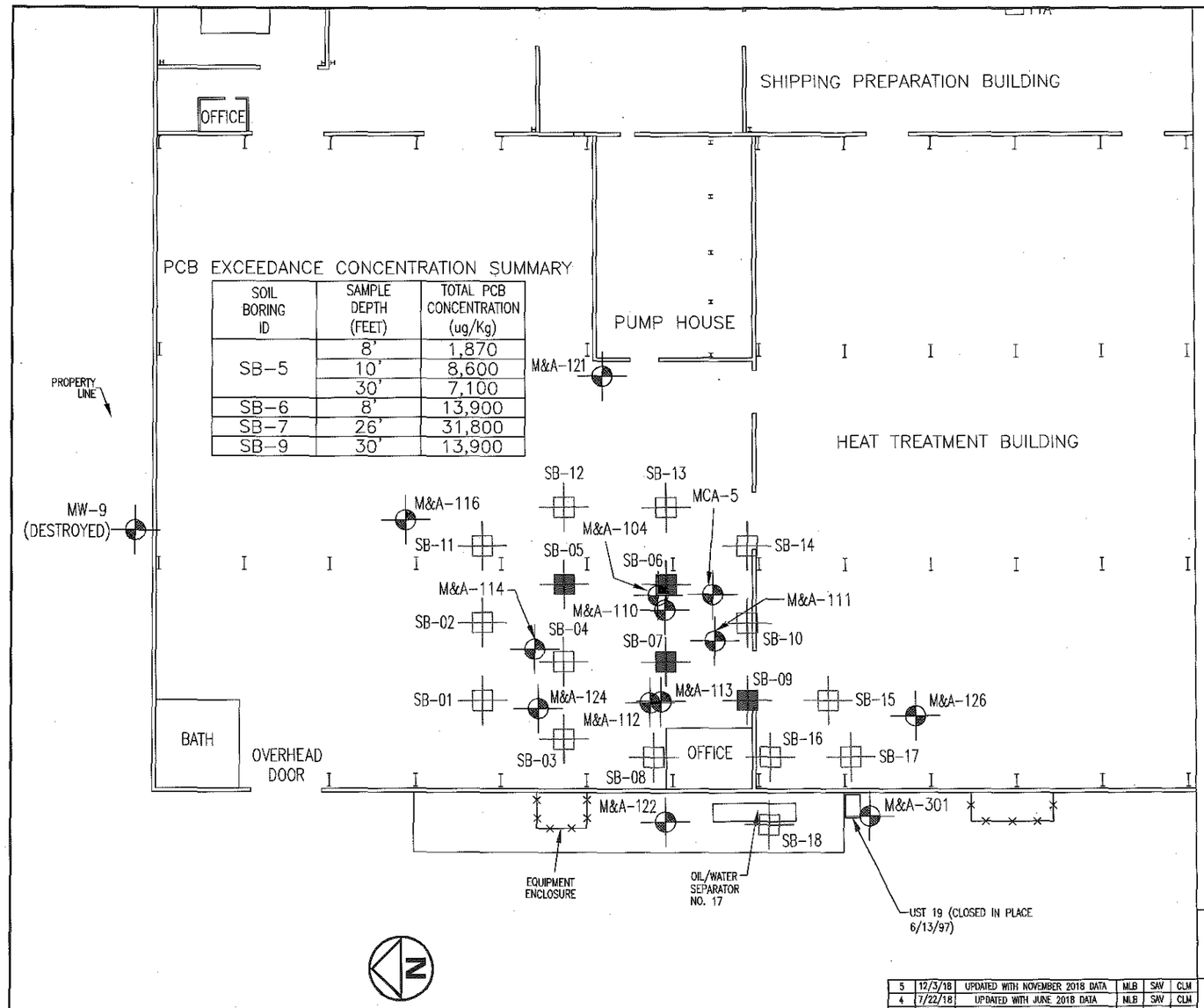
HEAT TREATMENT BUILDING

MONITORING WELL LOCATION PLAN

FIGURE NO. 3-1

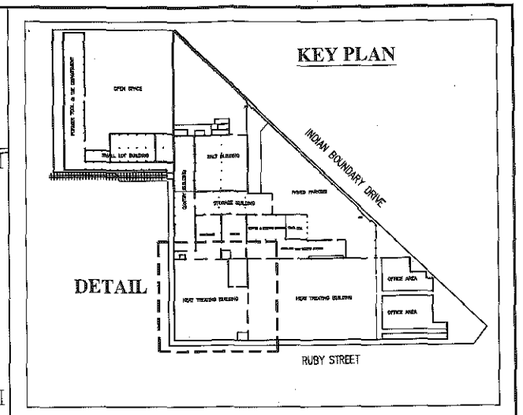
DRAWN BLC | APPROVED CLM | SCALE 1"=30'-0" | PROJ. NO. 1998002.340.005

C:\Users\mlb\appdata\local\temp\AcPublish_10052\Figure 2-2 Well Location Plan.dwg - L-3 Plan - Dec. 19, 2018 8:09am - mlb



PCB EXCEEDANCE CONCENTRATION SUMMARY

SOIL BORING ID	SAMPLE DEPTH (FEET)	TOTAL PCB CONCENTRATION (ug/Kg)
SB-5	8'	1,870
	10'	8,600
	30'	7,100
SB-6	8'	13,900
SB-7	26'	31,800
SB-9	30'	13,900



NOTES:

1. MONITORING WELL AND BORING LOCATIONS INSTALLED PRIOR TO 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY M&A PERSONNEL.
2. MONITORING WELL AND BORING LOCATIONS INSTALLED DURING AND AFTER 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY AN ILLINOIS REGISTERED LAND SURVEYOR.

LEGEND:

- MONITORING WELL LOCATION
- SB-01 — PCB ASSESSMENT SOIL BORING LOCATION
- SB-05 — PCBS DETECTED IN SOIL BORING AT CONCENTRATIONS EXCEEDING 1,000 MICROGRAM PER KILOGRAM (ug/Kg) STATE AND/OR FEDERAL STANDARDS
- APPROXIMATE PROPERTY LINE
- CHAIN LINK FENCE
- SUPPORTING COLUMN

SCALE: 0' 30' 60' 90'

BODYCOTE THERMAL PROCESSING, INC.

MELROSE PARK, ILLINOIS

NO.	DATE	DESCRIPTION	DRN	CHK	APP
5	12/3/18	UPDATED WITH NOVEMBER 2018 DATA	MLB	SAV	CLM
4	7/22/18	UPDATED WITH JUNE 2018 DATA	MLB	SAV	CLM
3	5/17/18	ADD PROPOSED BORING LOCATIONS	MLB	CLM	CLM
2	12/6/17	UPDATED FOR REGULATORY USE	MLB	SHL	CLM
1	12/11/17	FOR REGULATORY REVIEW	DJA	KEH	CLM

REVISION

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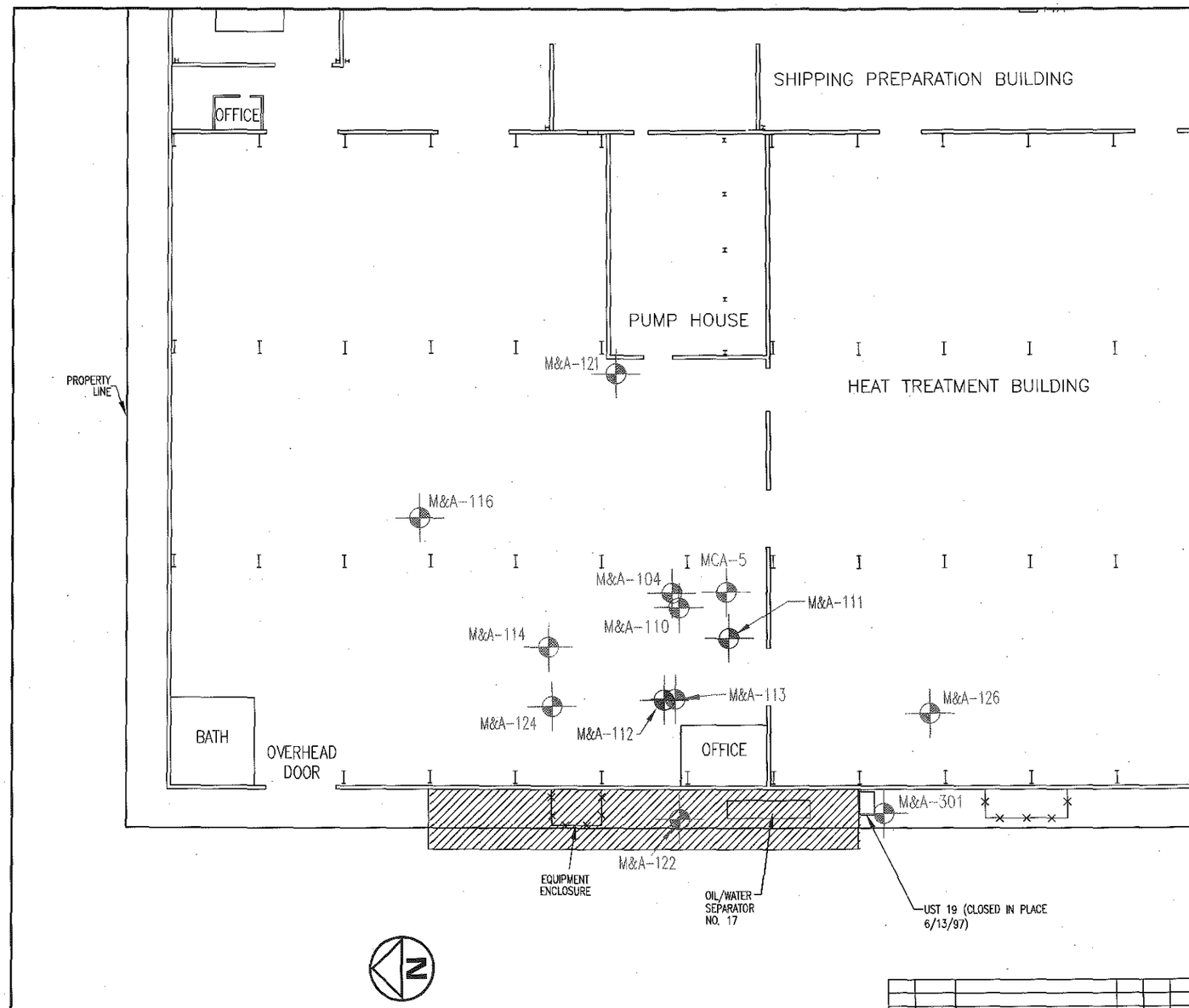
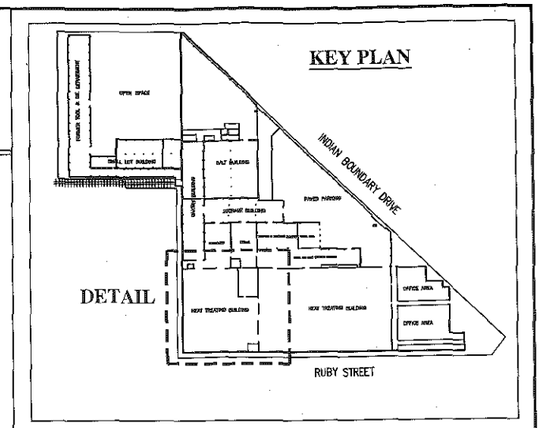
HEAT TREATMENT BUILDING SOIL BORING LOCATIONS PLAN (JUNE & NOVEMBER 2018)

FIGURE NO. 4-1

DRAWN MLB | APPROVED CLM | SCALE 1"=30'-0" | PROJ. NO. 1998002.340.005

C:\Users\mlb\appdata\local\temp\AcPublish_10052\Figure 1 - Soil Boring Locations and PCB eExceedance Plan.dwg - 3-2 Fig - Dec. 19, 2018 8:05am - mlb





NOTES:

1. MONITORING WELL AND BORING LOCATIONS INSTALLED PRIOR TO 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY M&A PERSONNEL.
2. MONITORING WELL AND BORING LOCATIONS INSTALLED DURING AND AFTER 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY AN ILLINOIS REGISTERED LAND SURVEYOR.

LEGEND:

- MONITORING WELL LOCATION
- PCBs NOT DETECTED IN GROUNDWATER AT CONCENTRATIONS ABOVE THE LABORATORY METHOD REPORTING LIMIT OF 0.5 ug/L DURING 2018
- PCBs DETECTED IN GROUNDWATER AT CONCENTRATIONS ABOVE 0.5 ug/L BUT BELOW THE IEPA TACO TIER I CLASS II STANDARD OF 2.5 ug/L DURING 2018
- PCBs DETECTED IN GROUNDWATER ABOVE THE IEPA TACO TIER I CLASS II STANDARD OF 2.5 ug/L DURING 2018
- APPROXIMATE PROPERTY LINE
- CHAIN LINK FENCE
- SUPPORTING COLUMN
- ENGINEERED BARRIER: CONCRETE SLAB

SCALE:

0' 30' 60' 90'

BODYCOTE THERMAL PROCESSING, INC.

MELROSE PARK, ILLINOIS

NO.	DATE	DESCRIPTION	DRN	CHK	APP
3	12/3/18	UPDATED TO SHOW 2018 RESULTS	MLB	SAV	CLM
2	12/6/17	UPDATED TO SHOW 2017 RESULTS	MLB	SHL	CLM
1	12/07/16	FOR REGULATORY USE ONLY	DJA	KEH	MJH

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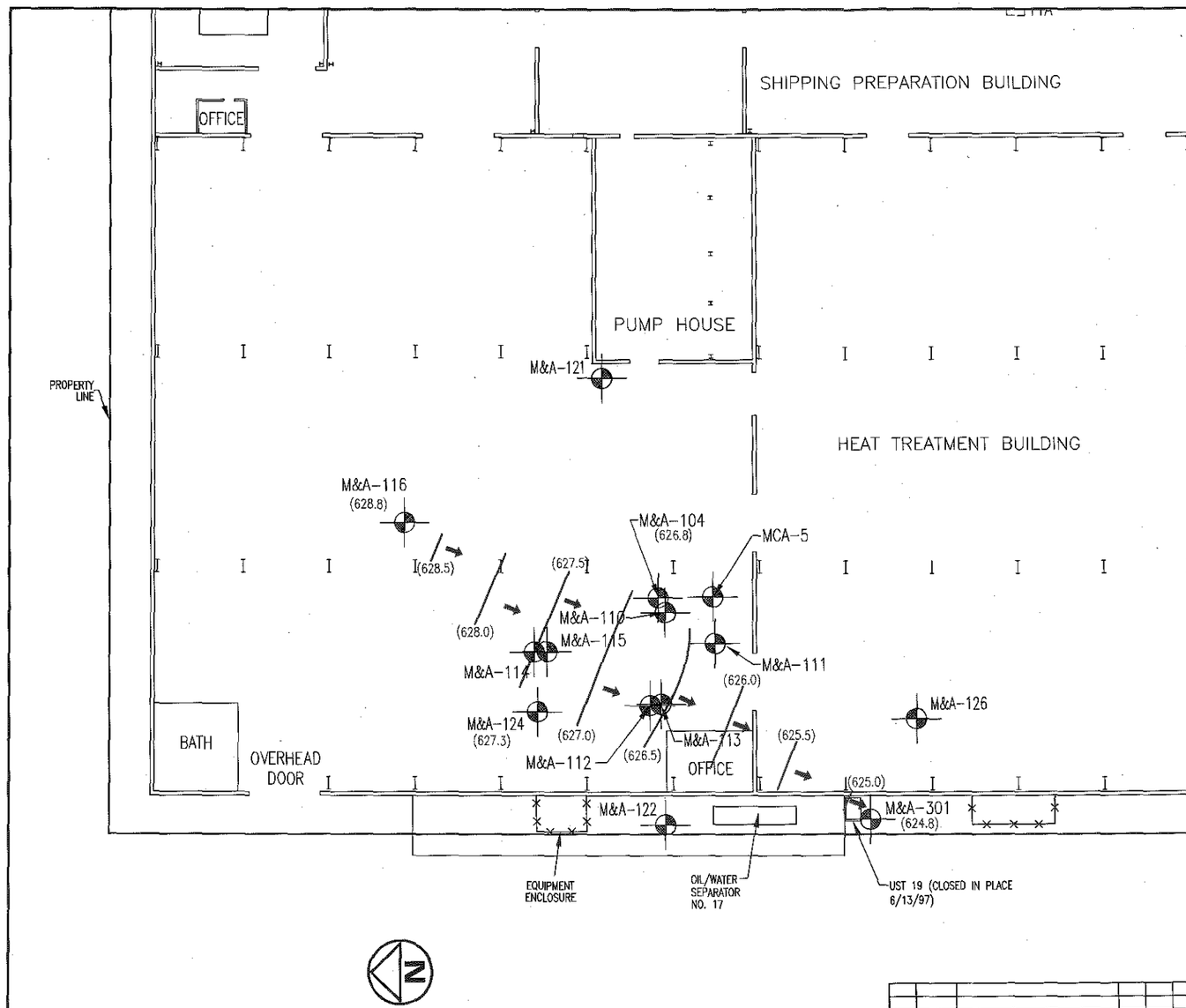
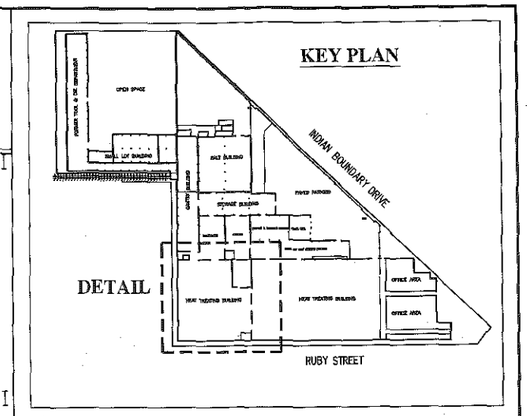
HEAT TREATMENT BUILDING
PCB DETECTION LOCATIONS
APRIL/NOVEMBER 2018

FIGURE NO.
5-1

DRAWN MLB | APPROVED MJH | SCALE 1"=30'-0" | PROJ. NO. 1998002.340.005

C:\Users\mlb\appdata\local\temp\AcPublish_1344\Figure 5-1 PCB Detection Locations.1.dwg – L-3 Plan – Dec. 11, 2018 8:57am – mlb





NOTES:

1. MONITORING WELL AND BORING LOCATIONS INSTALLED PRIOR TO 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY M&A PERSONNEL.
2. MONITORING WELL AND BORING LOCATIONS INSTALLED DURING AND AFTER 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY AN ILLINOIS REGISTERED LAND SURVEYOR.
3. MONITORING WELLS PRESENTED WITHOUT A GROUNDWATER ELEVATION WERE NOT USED TO INTERPOLATE GROUNDWATER CONTOURS DUE TO DEPTH OF SCREEN OR OUTLIER DATA.

LEGEND:

- MONITORING WELL LOCATION
- (630.5') GROUNDWATER ELEVATION, IN RESPECT TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD)
- APPROXIMATE PROPERTY LINE
- SUPPORTING COLUMN
- 1.0 FT. SHALLOW GROUNDWATER CONTOURS (APRIL 2018)
- GROUNDWATER FLOW DIRECTION (APRIL 2018)
- CHAIN LINK FENCE

SCALE:

0' 30' 60' 90'

BODYCOTE THERMAL PROCESSING, INC.

MELROSE PARK, ILLINOIS

NO.	DATE	DESCRIPTION	DRN	CHK	APP
3	4/18	APRIL 2018 GW CONTOURS	MLB	SHL	CLM
2	12/6/17	NOVEMBER 2017 GW CONTOURS	MLB	SHL	CLM
1	4/18/17	FOR REGULATORY USE ONLY	BLC	KEH	CLM

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HEAT TREATMENT BUILDING

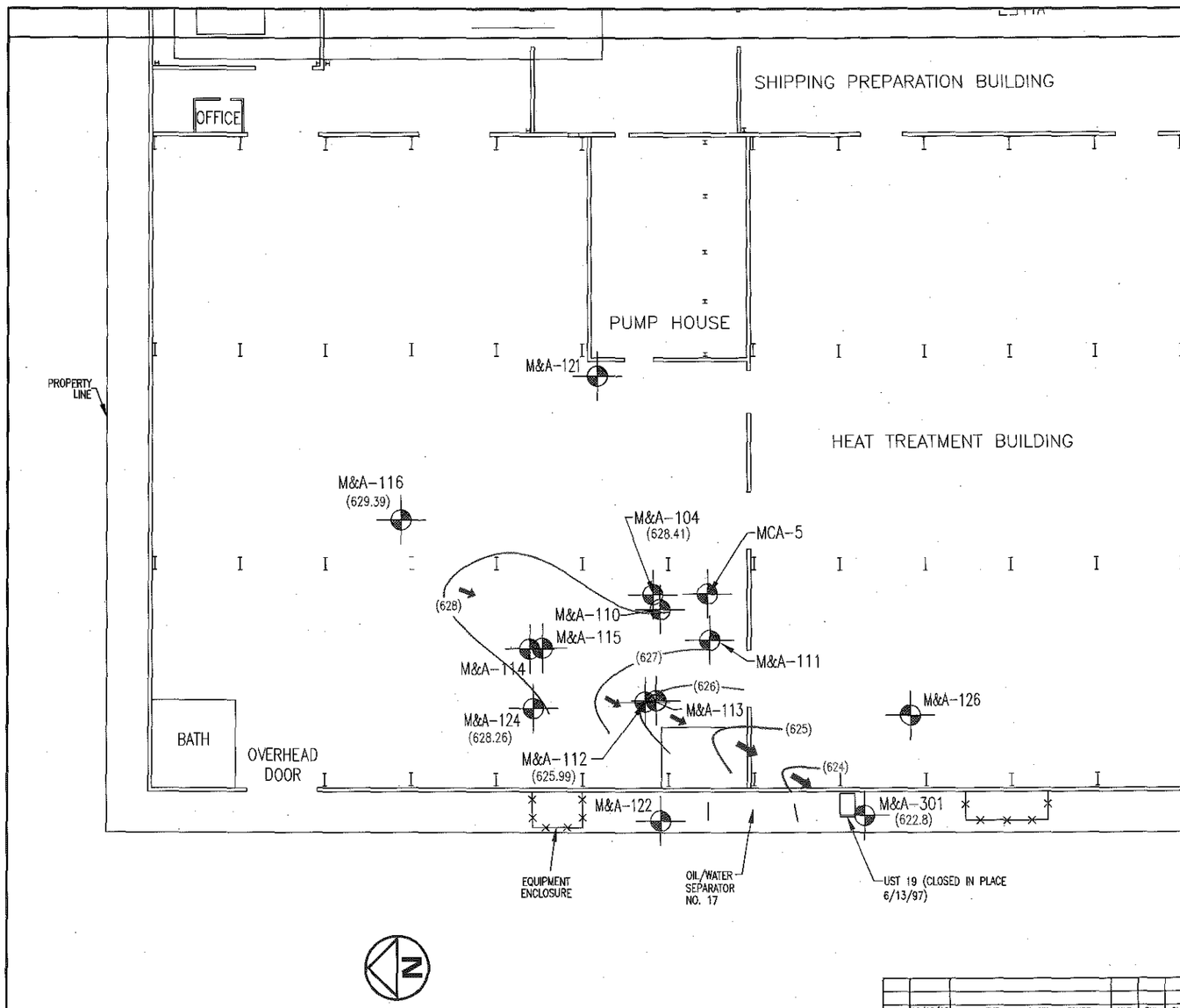
SHALLOW GROUNDWATER CONTOUR PLAN

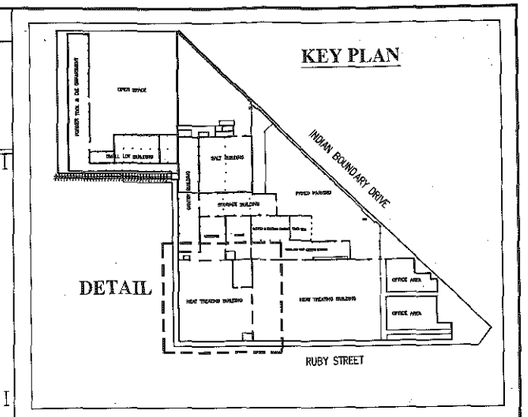
(ARIL 2018)

FIGURE NO. 5-2

DRAWN DJA | APPROVED CLM | SCALE 1"=30'-0" | PROJ. NO. 1998002.340.005

C:\Users\mlb\appdata\local\temp\AcPublish_10052\Figure 4-2 GWC Plan.dwg – 3-4 Fig – Dec. 18, 2018 8:53am – mlb





NOTES:

1. MONITORING WELL AND BORING LOCATIONS INSTALLED PRIOR TO 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY M&A PERSONNEL.
2. MONITORING WELL AND BORING LOCATIONS INSTALLED DURING AND AFTER 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY AN ILLINOIS REGISTERED LAND SURVEYOR.
3. MONITORING WELLS PRESENTED WITHOUT A GROUNDWATER ELEVATION WERE NOT USED TO INTERPOLATE GROUNDWATER CONTOURS DUE TO DEPTH OF SCREEN OR OUTLIER DATA.

LEGEND:

- MONITORING WELL LOCATION
- (630.5') GROUNDWATER ELEVATION, IN RESPECT TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD)
- APPROXIMATE PROPERTY LINE
- SUPPORTING COLUMN
- 1.0 FT. SHALLOW GROUNDWATER CONTOURS (NOVEMBER 2018)
- GROUNDWATER FLOW DIRECTION (NOVEMBER 2018)
- CHAIN LINK FENCE

SCALE:

0' 30' 60' 90'

BODYCOTE THERMAL PROCESSING, INC.

MELROSE PARK, ILLINOIS

NO.	DATE	DESCRIPTION	DRN	CHK	APP
3	12/18/18	NOVEMBER 2018 GW CONTOURS	MLB	SHL	CLM
2	12/6/17	NOVEMBER 2017 GW CONTOURS	MLB	SHL	CLM
1	4/18/17	FOR REGULATORY USE ONLY	BLC	KEH	CLM

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HEAT TREATMENT BUILDING

SHALLOW GROUNDWATER CONTOUR PLAN

(NOVEMBER 2018)

FIGURE NO. 5-3

DRAWN DJA | APPROVED CLM | SCALE 1"=30'-0" | PROJ. NO. 1998002.340.005

C:\Users\ymlb\appdata\local\temp\AcPublish_10052\Figure 5-3 HTB GWC Plan.dwg - 3-4 Fig - Dec. 18, 2018 2:42pm - mlb

APPENDIX A

ESS , SK SHIP# 2E4902375

0062754855KS

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: ILD005071008
2. Page 1 of: 1 / 3
3. Emergency Response Phone: 1-800-468-1760
4. Manifest Tracking Number: 006275485 **SKS**

GENERATOR

5. Generator's Name and Mailing Address
Bodycote Thermal Processing Inc
1975 N Ruby St
MELROSE PARK IL 60160-1103
Generator's Phone: 708-236-5360

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: SAFETY-KLEEN SYSTEMS INC
U.S. EPA ID Number: TXR000041605

7. Transporter 2 Company Name: CLEAN HARBORS ENVIRONMENTAL SVC INC.
U.S. EPA ID Number: MAD039388250

8. Designated Facility Name and Site Address
CLEAN HARBORS DEER PARK
2027 INDEPENDENCE PARKWAY SOUT
LA PORTE , TX 77571
Facility's Phone: 281-930-2300
U.S. EPA ID Number: TXD055141378

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ, UN3082, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S., (TRICHLOROETHYLENE, POLYCHLORINATED BIPHENYLS), 9	001	DM	0182	K	F001 F002 D040
	2. PGII (POLYCHLORINATED BIPHENYLS)					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
OUT OF SERVICE DATE 1-19-2018
TEO:DE 76E99982 B021004 CSG: 1801153234
1)ERG#171:
24 HR EMERGENCY #1-800-468-1760 (CH / SK / TFI)
AUTH OS AGENT FOR BY SEN TO USE SUB CARRIERS; RAIRSS TRUCK SLOPIO IS NOTIFIED WHEN

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Jon DeLong
Signature:
Month 3 Day 7 Year 18

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Cameron Reynolds
Signature:
Month 3 Day 7 Year 18

Transporter 2 Printed/Typed Name: GARY R HUNSLEY
Signature: Gary R Hunsley
Month 3 Day 9 Year 18

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H040 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: A. Gohring
Signature: A. Gohring
Month 3 Day 19 Year 18

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

11821570B/1601006

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: 1L000507180

22. Page: 2

23. Manifest Tracking Number: 006275485 SW

24. Generator's Name: Bodyate Thermal Processing

25. Transporter 3 Company Name: BEDROCK INC, DBA: TRISTATE MOTOR TRANSIT U.S. EPA ID Number: MOD 095038998

26. Transporter 4 Company Name: Clean Harbors Env Svc. U.S. EPA ID Number: MA0039322250

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

GENERATOR

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: Joni Brewer Signature: Joni Brewer Month 03 Day 14 Year 18

34. Transporter 4 Acknowledgment of Receipt of Materials

Printed/Typed Name: R Burger Agent Signature: Regina Burger Month 3 Day 15 Year 18

TRANSPORTER

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

DESIGNATED FACILITY

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

NO PCB
CONTINUATION
SHEET CAME WITH
THIS MANIFEST

APPENDIX B

APPENDIX B

APPENDIX B

Groundwater Laboratory Analytical Reports
April and November 2018

ALPHA ANALYTICAL

ANALYTICAL REPORT

Lab Number:	L1846224
Client:	Mabbett & Associates 5 Alfred Circle Bedford, MA 01730
ATTN:	Michael Bloom
Phone:	(781) 275-6050
Project Name:	BODYCOTE THERMAL PROCESSING
Project Number:	R1998002.340
Report Date:	11/16/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.340

Lab Number: L1846224
Report Date: 11/16/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1846224-01	RECOVERY DRUM	OIL	MELROSE PARK, IL	11/05/18 12:00	11/10/18

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.340

Lab Number: L1846224
Report Date: 11/16/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846224
Project Number:	R1998002.340	**Report Date:**	11/16/18

Case Narrative (continued)

PCBs

L1846224-01 and WG1179677-4 Duplicate: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

The WG1179677 MS was not analyzed because the dilution required by the elevated concentrations of non-target compounds present in the native sample would have caused the spike compounds to be diluted below the range of calibration.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Lisa Westerlind

Title: Technical Director/Representative

Date: 11/16/18

ORGANICS

PCBS

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.340

Lab Number: L1846224
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846224-01 D
Client ID: RECOVERY DRUM
Sample Location: MELROSE PARK, IL

Date Collected: 11/05/18 12:00
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 21,-
Analytical Date: 11/16/18 10:13
Analyst: KB
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 11/15/18 07:50
Cleanup Method: EPA 3665A
Cleanup Date: 11/15/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/15/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
PCBs in Oil by GC - Westborough Lab							
Aroclor 1016	ND		mg/kg	237	--	50	A
Aroclor 1221	ND		mg/kg	237	--	50	A
Aroclor 1232	ND		mg/kg	237	--	50	A
Aroclor 1242	ND		mg/kg	237	--	50	A
Aroclor 1248	1270		mg/kg	237	--	50	B
Aroclor 1254	ND		mg/kg	237	--	50	A
Aroclor 1260	ND		mg/kg	237	--	50	A
Aroclor 1262	ND		mg/kg	237	--	50	A
Aroclor 1268	ND		mg/kg	237	--	50	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.340

Lab Number: L1846224
Report Date: 11/16/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 21,-
Analytical Date: 11/15/18 22:43
Analyst: HT

Extraction Method: EPA 3580A
Extraction Date: 11/15/18 07:50
Cleanup Method: EPA 3665A
Cleanup Date: 11/15/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/15/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
PCBs in Oil by GC - Westborough Lab for sample(s): 01 Batch: WG1179677-1						
Aroclor 1016	ND		mg/kg	4.67	--	A
Aroclor 1221	ND		mg/kg	4.67	--	A
Aroclor 1232	ND		mg/kg	4.67	--	A
Aroclor 1242	ND		mg/kg	4.67	--	A
Aroclor 1248	ND		mg/kg	4.67	--	A
Aroclor 1254	ND		mg/kg	4.67	--	A
Aroclor 1260	ND		mg/kg	4.67	--	A
Aroclor 1262	ND		mg/kg	4.67	--	A
Aroclor 1268	ND		mg/kg	4.67	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	A
Decachlorobiphenyl	80		30-150	A
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	91		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.340

Lab Number: L1846224
Report Date: 11/16/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
PCBs in Oil by GC - Westborough Lab Associated sample(s): 01 Batch: WG1179677-2									
Aroclor 1016	82		-		40-140	-		50	A
Aroclor 1260	77		-		40-140	-		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	86				30-150	A
Decachlorobiphenyl	92				30-150	A
2,4,5,6-Tetrachloro-m-xylene	91				30-150	B
Decachlorobiphenyl	99				30-150	B

Lab Duplicate Analysis
Batch Quality Control

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.340

Lab Number: L1846224
Report Date: 11/16/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
PCBs in Oil by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1179677-4 QC Sample: L1846224-01 Client ID: RECOVERY DRUM							
Aroclor 1016	ND	ND	mg/kg	NC		50	A
Aroclor 1221	ND	ND	mg/kg	NC		50	A
Aroclor 1232	ND	ND	mg/kg	NC		50	A
Aroclor 1242	ND	ND	mg/kg	NC		50	A
Aroclor 1248	1270	1280	mg/kg	1		50	B
Aroclor 1254	ND	ND	mg/kg	NC		50	A
Aroclor 1260	ND	ND	mg/kg	NC		50	A
Aroclor 1262	ND	ND	mg/kg	NC		50	A
Aroclor 1268	ND	ND	mg/kg	NC		50	A

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	0	Q	30-150	A
Decachlorobiphenyl	0	Q	0	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	0	Q	0	Q	30-150	B
Decachlorobiphenyl	0	Q	0	Q	30-150	B

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.340

Lab Number: L1846224
Report Date: 11/16/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1846224-01A	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PCB-OIL(14)

*Values in parentheses indicate holding time in days

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846224
Project Number:	R1998002.340	**Report Date:**	11/16/18

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846224
Project Number:	R1998002.340	**Report Date:**	11/16/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846224
Project Number:	R1998002.340	**Report Date:**	11/16/18

REFERENCES

21 Determination of Polychlorinated Biphenyls in Transformer Fluid and Waste Oils. USEPA 600/4-81-045. September 1982.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1**: EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D.**

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE OF

ALPHA ANALYTICAL

Westborough, MA TEL: 508-895-9220 FAX: 508-895-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/10/18

ALPHA Job #: L1846224

Client Information

Client: Mabbett & Associates, Inc.

Address: 5 Alfred Circle

Bedford, MA 01730

Phone: 781-879-3231

Fax

Email: bloom@mabbett.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Bodycote Thermal Processing

Project Location: Melrose Park, IL

Project #: R1998002.340

Project Manager: Mike Bloom

ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☐ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State/Fed Program Criteria

IEPA/TSCA

Other Project Specific Requirements/Comments/Detection Limits:

~~REQUIRES SOXLET EXTRACTION FOR PCBS~~

ANALYSIS

PCBs 8082

SAMPLE HANDLING

Filtration

☐ Done

☐ Not Needed

☐ Lab to do

Preservative

☐ Lab to do

(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCBs 8082	Sample Specific Comments
46224-01	Recovery Drum	11/5/18	1200	EW	MLB	☐	

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
David Martin	11/9/18 1200	Chris Tebeau	11/10/18 932

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-150395-1
TestAmerica SDG: Bodycote Thermal Processing
Client Project/Site: Bodycote-HTB-PCBs

For:
Mabbett & Associates, Inc.
5 Alfred Circle
Bedford, Massachusetts 01730

Attn: Christopher Mabbett

Authorized for release by:
4/30/2018 2:04:19 PM

Ken Hayes, Project Manager II
(615)301-5035
ken.hayes@testamericainc.com

LINKS

Review your project results through TotalAccess

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-150395-1	MCA-5-041718	Water	04/17/18 11:10	04/19/18 09:35
490-150395-2	M&A-104-041718	Water	04/17/18 16:30	04/19/18 09:35
490-150395-3	M&A-110-041718	Water	04/17/18 17:45	04/19/18 09:35
490-150395-4	M&A-111-041718	Water	04/17/18 12:30	04/19/18 09:35
490-150395-5	M&A-112-041818	Water	04/18/18 10:55	04/19/18 09:35
490-150395-6	M&A-113-041818	Water	04/18/18 11:30	04/19/18 09:35
490-150395-7	M&A-114-041818	Water	04/18/18 09:50	04/19/18 09:35
490-150395-8	M&A-116-041618	Water	04/16/18 15:35	04/19/18 09:35
490-150395-9	M&A-121-041618	Water	04/16/18 17:10	04/19/18 09:35
490-150395-10	M&A-122-041718	Water	04/17/18 14:55	04/19/18 09:35
490-150395-11	M&A-124-041618	Water	04/16/18 15:10	04/19/18 09:35
490-150395-12	M&A-126-041618	Water	04/16/18 13:50	04/19/18 09:35
490-150395-13	M&A-301-041718	Water	04/17/18 15:30	04/19/18 09:35
490-150395-14	DUP-PCB-041718	Water	04/17/18 12:00	04/19/18 09:35

Case Narrative

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Job ID: 490-150395-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-150395-1

Comments
No additional comments.

Receipt
The samples were received on 4/19/2018 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.8° C and 5.5° C.

GC Semi VOA
Method 8082A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 490-510108 and analytical batch 490-510276.

Method 8082A: The %RPD between the primary and confirmation column exceeded 40% for Tetrachloro-m-xylene for the following sample: M&A-104-041718 (490-150395-2). The lower value(s) has been reported and qualified in accordance with the laboratory's SOP.

Method 8082A: The following sample was diluted to bring the concentration of target analytes within the calibration range: M&A-113-041818 (490-150395-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: MCA-5-041718
Date Collected: 04/17/18 11:10
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-1
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:03	1
PCB-1221	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:03	1
PCB-1232	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:03	1
PCB-1242	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:03	1
PCB-1248	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:03	1
PCB-1254	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:03	1
PCB-1260	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*71*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:03*	*1*
Tetrachloro-m-xylene	*86*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:03*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-104-041718
Date Collected: 04/17/18 16:30
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-2
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.446		ug/L		04/23/18 10:55	04/24/18 12:17	1
PCB-1221	ND		0.446		ug/L		04/23/18 10:55	04/24/18 12:17	1
PCB-1232	ND		0.446		ug/L		04/23/18 10:55	04/24/18 12:17	1
PCB-1242	ND		0.446		ug/L		04/23/18 10:55	04/24/18 12:17	1
PCB-1248	ND		0.446		ug/L		04/23/18 10:55	04/24/18 12:17	1
PCB-1254	ND		0.446		ug/L		04/23/18 10:55	04/24/18 12:17	1
PCB-1260	ND		0.446		ug/L		04/23/18 10:55	04/24/18 12:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*78*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:17*	*1*
Tetrachloro-m-xylene	*86*	*p*	*10 - 150*	*04/23/18 10:55*	*04/24/18 12:17*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-110-041718
Date Collected: 04/17/18 17:45
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-3
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:31	1
PCB-1221	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:31	1
PCB-1232	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:31	1
PCB-1242	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:31	1
PCB-1248	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:31	1
PCB-1254	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:31	1
PCB-1260	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*75*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:31*	*1*
Tetrachloro-m-xylene	*82*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:31*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-111-041718
Date Collected: 04/17/18 12:30
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-4
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:45	1
PCB-1221	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:45	1
PCB-1232	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:45	1
PCB-1242	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:45	1
PCB-1248	1.07		0.455		ug/L		04/23/18 10:55	04/24/18 12:45	1
PCB-1254	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:45	1
PCB-1260	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*68*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:45*	*1*
Tetrachloro-m-xylene	*80*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:45*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-112-041818
Date Collected: 04/18/18 10:55
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-5
Matrix: Water

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Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:59	1
PCB-1221	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:59	1
PCB-1232	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:59	1
PCB-1242	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:59	1
PCB-1248	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:59	1
PCB-1254	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:59	1
PCB-1260	ND		0.455		ug/L		04/23/18 10:55	04/24/18 12:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*64*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:59*	*1*
Tetrachloro-m-xylene	*73*		*10 - 150*	*04/23/18 10:55*	*04/24/18 12:59*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-113-041818
Date Collected: 04/18/18 11:30
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-6
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.91		ug/L		04/23/18 10:55	04/24/18 15:18	10
PCB-1221	ND		3.91		ug/L		04/23/18 10:55	04/24/18 15:18	10
PCB-1232	ND		3.91		ug/L		04/23/18 10:55	04/24/18 15:18	10
PCB-1242	ND		3.91		ug/L		04/23/18 10:55	04/24/18 15:18	10
PCB-1248	44.9		3.91		ug/L		04/23/18 10:55	04/24/18 15:18	10
PCB-1254	ND		3.91		ug/L		04/23/18 10:55	04/24/18 15:18	10
PCB-1260	ND		3.91		ug/L		04/23/18 10:55	04/24/18 15:18	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*102*		*10 - 150*	*04/23/18 10:55*	*04/24/18 15:18*	*10*
Tetrachloro-m-xylene	*98*		*10 - 150*	*04/23/18 10:55*	*04/24/18 15:18*	*10*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-114-041818
Date Collected: 04/18/18 09:50
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-7
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.463		ug/L		04/23/18 10:55	04/24/18 13:27	1
PCB-1221	ND		0.463		ug/L		04/23/18 10:55	04/24/18 13:27	1
PCB-1232	ND		0.463		ug/L		04/23/18 10:55	04/24/18 13:27	1
PCB-1242	ND		0.463		ug/L		04/23/18 10:55	04/24/18 13:27	1
PCB-1248	ND		0.463		ug/L		04/23/18 10:55	04/24/18 13:27	1
PCB-1254	ND		0.463		ug/L		04/23/18 10:55	04/24/18 13:27	1
PCB-1260	ND		0.463		ug/L		04/23/18 10:55	04/24/18 13:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*61*		*10 - 150*	*04/23/18 10:55*	*04/24/18 13:27*	*1*
Tetrachloro-m-xylene	*61*		*10 - 150*	*04/23/18 10:55*	*04/24/18 13:27*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-116-041618
Date Collected: 04/16/18 15:35
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-8
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:41	1
PCB-1221	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:41	1
PCB-1232	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:41	1
PCB-1242	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:41	1
PCB-1248	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:41	1
PCB-1254	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:41	1
PCB-1260	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*57*		*10 - 150*	*04/23/18 10:55*	*04/24/18 13:41*	*1*
Tetrachloro-m-xylene	*65*		*10 - 150*	*04/23/18 10:55*	*04/24/18 13:41*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-121-041618
Date Collected: 04/16/18 17:10
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-9
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:55	1
PCB-1221	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:55	1
PCB-1232	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:55	1
PCB-1242	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:55	1
PCB-1248	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:55	1
PCB-1254	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:55	1
PCB-1260	ND		0.446		ug/L		04/23/18 10:55	04/24/18 13:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*63*		*10 - 150*	*04/23/18 10:55*	*04/24/18 13:55*	*1*
Tetrachloro-m-xylene	*68*		*10 - 150*	*04/23/18 10:55*	*04/24/18 13:55*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-122-041718
Date Collected: 04/17/18 14:55
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-10
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:08	1
PCB-1221	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:08	1
PCB-1232	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:08	1
PCB-1242	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:08	1
PCB-1248	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:08	1
PCB-1254	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:08	1
PCB-1260	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*78*		*10 - 150*	*04/23/18 10:55*	*04/24/18 14:08*	*1*
Tetrachloro-m-xylene	*76*		*10 - 150*	*04/23/18 10:55*	*04/24/18 14:08*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-124-041618
Date Collected: 04/16/18 15:10
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-11
Matrix: Water

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Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:22	1
PCB-1221	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:22	1
PCB-1232	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:22	1
PCB-1242	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:22	1
PCB-1248	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:22	1
PCB-1254	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:22	1
PCB-1260	ND		0.455		ug/L		04/23/18 10:55	04/24/18 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*71*		*10 - 150*	*04/23/18 10:55*	*04/24/18 14:22*	*1*
Tetrachloro-m-xylene	*71*		*10 - 150*	*04/23/18 10:55*	*04/24/18 14:22*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-126-041618
Date Collected: 04/16/18 13:50
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-12
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.403		ug/L		04/23/18 10:55	04/24/18 14:36	1
PCB-1221	ND		0.403		ug/L		04/23/18 10:55	04/24/18 14:36	1
PCB-1232	ND		0.403		ug/L		04/23/18 10:55	04/24/18 14:36	1
PCB-1242	ND		0.403		ug/L		04/23/18 10:55	04/24/18 14:36	1
PCB-1248	ND		0.403		ug/L		04/23/18 10:55	04/24/18 14:36	1
PCB-1254	ND		0.403		ug/L		04/23/18 10:55	04/24/18 14:36	1
PCB-1260	ND		0.403		ug/L		04/23/18 10:55	04/24/18 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*77*		*10 - 150*	*04/23/18 10:55*	*04/24/18 14:36*	*1*
Tetrachloro-m-xylene	*69*		*10 - 150*	*04/23/18 10:55*	*04/24/18 14:36*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-301-041718
Date Collected: 04/17/18 15:30
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150395-13
Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.481		ug/L		04/23/18 10:55	04/24/18 14:50	1
PCB-1221	ND		0.481		ug/L		04/23/18 10:55	04/24/18 14:50	1
PCB-1232	ND		0.481		ug/L		04/23/18 10:55	04/24/18 14:50	1
PCB-1242	ND		0.481		ug/L		04/23/18 10:55	04/24/18 14:50	1
PCB-1248	ND		0.481		ug/L		04/23/18 10:55	04/24/18 14:50	1
PCB-1254	ND		0.481		ug/L		04/23/18 10:55	04/24/18 14:50	1
PCB-1260	ND		0.481		ug/L		04/23/18 10:55	04/24/18 14:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*72*		*10 - 150*	*04/23/18 10:55*	*04/24/18 14:50*	*1*
Tetrachloro-m-xylene	*61*		*10 - 150*	*04/23/18 10:55*	*04/24/18 14:50*	*1*

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: DUP-PCB-041718

Lab Sample ID: 490-150395-14

Date Collected: 04/17/18 12:00
Date Received: 04/19/18 09:35

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.463		ug/L		04/23/18 10:55	04/24/18 15:04	1
PCB-1221	ND		0.463		ug/L		04/23/18 10:55	04/24/18 15:04	1
PCB-1232	ND		0.463		ug/L		04/23/18 10:55	04/24/18 15:04	1
PCB-1242	ND		0.463		ug/L		04/23/18 10:55	04/24/18 15:04	1
PCB-1248	0.560		0.463		ug/L		04/23/18 10:55	04/24/18 15:04	1
PCB-1254	ND		0.463		ug/L		04/23/18 10:55	04/24/18 15:04	1
PCB-1260	ND		0.463		ug/L		04/23/18 10:55	04/24/18 15:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*70*		*10 - 150*	*04/23/18 10:55*	*04/24/18 15:04*	*1*
Tetrachloro-m-xylene	*63*		*10 - 150*	*04/23/18 10:55*	*04/24/18 15:04*	*1*

QC Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 490-510108/1-A
Matrix: Water
Analysis Batch: 510276

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 510108

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.500		ug/L		04/23/18 10:55	04/24/18 11:08	1
PCB-1221	ND		0.500		ug/L		04/23/18 10:55	04/24/18 11:08	1
PCB-1232	ND		0.500		ug/L		04/23/18 10:55	04/24/18 11:08	1
PCB-1242	ND		0.500		ug/L		04/23/18 10:55	04/24/18 11:08	1
PCB-1248	ND		0.500		ug/L		04/23/18 10:55	04/24/18 11:08	1
PCB-1254	ND		0.500		ug/L		04/23/18 10:55	04/24/18 11:08	1
PCB-1260	ND		0.500		ug/L		04/23/18 10:55	04/24/18 11:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*74*		*10 - 150*	*04/23/18 10:55*	*04/24/18 11:08*	*1*
Tetrachloro-m-xylene	*87*		*10 - 150*	*04/23/18 10:55*	*04/24/18 11:08*	*1*

Lab Sample ID: LCS 490-510108/2-A
Matrix: Water
Analysis Batch: 510276

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 510108

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	4.00	3.373		ug/L		84	47 - 144
PCB-1260	4.00	3.401		ug/L		85	45 - 144

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*74*		*10 - 150*
Tetrachloro-m-xylene	*86*		*10 - 150*

Lab Sample ID: LCSD 490-510108/3-A
Matrix: Water
Analysis Batch: 510276

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 510108

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	4.00	2.791		ug/L		70	47 - 144	19	50
PCB-1260	4.00	2.590		ug/L		65	45 - 144	27	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*60*		*10 - 150*
Tetrachloro-m-xylene	*74*		*10 - 150*

QC Association Summary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

GC Semi VOA

Prep Batch: 510108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-150395-1	MCA-5-041718	Total/NA	Water	3510C	
490-150395-2	M&A-104-041718	Total/NA	Water	3510C	
490-150395-3	M&A-110-041718	Total/NA	Water	3510C	
490-150395-4	M&A-111-041718	Total/NA	Water	3510C	
490-150395-5	M&A-112-041818	Total/NA	Water	3510C	
490-150395-6	M&A-113-041818	Total/NA	Water	3510C	
490-150395-7	M&A-114-041818	Total/NA	Water	3510C	
490-150395-8	M&A-116-041618	Total/NA	Water	3510C	
490-150395-9	M&A-121-041618	Total/NA	Water	3510C	
490-150395-10	M&A-122-041718	Total/NA	Water	3510C	
490-150395-11	M&A-124-041618	Total/NA	Water	3510C	
490-150395-12	M&A-126-041618	Total/NA	Water	3510C	
490-150395-13	M&A-301-041718	Total/NA	Water	3510C	
490-150395-14	DUP-PCB-041718	Total/NA	Water	3510C	
MB 490-510108/1-A	Method Blank	Total/NA	Water	3510C	
LCS 490-510108/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 490-510108/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 510276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-150395-1	MCA-5-041718	Total/NA	Water	8082A	510108
490-150395-2	M&A-104-041718	Total/NA	Water	8082A	510108
490-150395-3	M&A-110-041718	Total/NA	Water	8082A	510108
490-150395-4	M&A-111-041718	Total/NA	Water	8082A	510108
490-150395-5	M&A-112-041818	Total/NA	Water	8082A	510108
490-150395-6	M&A-113-041818	Total/NA	Water	8082A	510108
490-150395-7	M&A-114-041818	Total/NA	Water	8082A	510108
490-150395-8	M&A-116-041618	Total/NA	Water	8082A	510108
490-150395-9	M&A-121-041618	Total/NA	Water	8082A	510108
490-150395-10	M&A-122-041718	Total/NA	Water	8082A	510108
490-150395-11	M&A-124-041618	Total/NA	Water	8082A	510108
490-150395-12	M&A-126-041618	Total/NA	Water	8082A	510108
490-150395-13	M&A-301-041718	Total/NA	Water	8082A	510108
490-150395-14	DUP-PCB-041718	Total/NA	Water	8082A	510108
MB 490-510108/1-A	Method Blank	Total/NA	Water	8082A	510108
LCS 490-510108/2-A	Lab Control Sample	Total/NA	Water	8082A	510108
LCSD 490-510108/3-A	Lab Control Sample Dup	Total/NA	Water	8082A	510108

Lab Chronicle

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: MCA-5-041718

Lab Sample ID: 490-150395-1
Matrix: Water

Date Collected: 04/17/18 11:10
Date Received: 04/19/18 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			275 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 12:03	SLA	TAL NSH

Client Sample ID: M&A-104-041718

Lab Sample ID: 490-150395-2
Matrix: Water

Date Collected: 04/17/18 16:30
Date Received: 04/19/18 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			280 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 12:17	SLA	TAL NSH

Client Sample ID: M&A-110-041718

Lab Sample ID: 490-150395-3
Matrix: Water

Date Collected: 04/17/18 17:45
Date Received: 04/19/18 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			275 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 12:31	SLA	TAL NSH

Client Sample ID: M&A-111-041718

Lab Sample ID: 490-150395-4
Matrix: Water

Date Collected: 04/17/18 12:30
Date Received: 04/19/18 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			275 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 12:45	SLA	TAL NSH

Client Sample ID: M&A-112-041818

Lab Sample ID: 490-150395-5
Matrix: Water

Date Collected: 04/18/18 10:55
Date Received: 04/19/18 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			275 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 12:59	SLA	TAL NSH

Client Sample ID: M&A-113-041818

Lab Sample ID: 490-150395-6
Matrix: Water

Date Collected: 04/18/18 11:30
Date Received: 04/19/18 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			320 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		10			510276	04/24/18 15:18	SLA	TAL NSH

Lab Chronicle

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-114-041818 — Lab Sample ID: 490-150395-7

Date Collected: 04/18/18 09:50
Date Received: 04/19/18 09:35
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 13:27	SLA	TAL NSH

Client Sample ID: M&A-116-041618 — Lab Sample ID: 490-150395-8

Date Collected: 04/16/18 15:35
Date Received: 04/19/18 09:35
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			280 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 13:41	SLA	TAL NSH

Client Sample ID: M&A-121-041618 — Lab Sample ID: 490-150395-9

Date Collected: 04/16/18 17:10
Date Received: 04/19/18 09:35
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			280 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 13:55	SLA	TAL NSH

Client Sample ID: M&A-122-041718 — Lab Sample ID: 490-150395-10

Date Collected: 04/17/18 14:55
Date Received: 04/19/18 09:35
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			275 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 14:08	SLA	TAL NSH

Client Sample ID: M&A-124-041618 — Lab Sample ID: 490-150395-11

Date Collected: 04/16/18 15:10
Date Received: 04/19/18 09:35
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			275 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 14:22	SLA	TAL NSH

Client Sample ID: M&A-126-041618 — Lab Sample ID: 490-150395-12

Date Collected: 04/16/18 13:50
Date Received: 04/19/18 09:35
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			310 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 14:36	SLA	TAL NSH

Lab Chronicle

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Client Sample ID: M&A-301-041718

Lab Sample ID: 490-150395-13
Matrix: Water

Date Collected: 04/17/18 15:30
Date Received: 04/19/18 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			260 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 14:50	SLA	TAL NSH

Client Sample ID: DUP-PCB-041718

Lab Sample ID: 490-150395-14
Matrix: Water

Date Collected: 04/17/18 12:00
Date Received: 04/19/18 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270 mL	1 mL	510108	04/23/18 10:55	KB	TAL NSH
Total/NA	Analysis	8082A		1			510276	04/24/18 15:04	SLA	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Method	Method Description	Protocol	Laboratory
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL NSH
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL NSH

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote-HTB-PCBs

TestAmerica Job ID: 490-150395-1
SDG: Bodycote Thermal Processing

Laboratory: TestAmerica Nashville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200010	12-09-18

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-150395 Chain of Custody

Cooler Received/Opened On 4/19/2018 @ 0935

Time Samples Removed From Cooler 1938 Time Samples Placed In Storage 2006 (2 Hour Window)

1. Tracking # 8104 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 160406069 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 3.8 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ADH

7. Were custody seals on containers: YES NO and intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

Loc: 490
150395

COOLER RECEIPT FORM

Cooler Received/Opened On 4/19/2018 @0935

Time Samples Removed From Cooler 1930 Time Samples Placed In Storage 2006 (2 Hour Window)

1. Tracking # 8698 (last 4 digits, FedEx) Courier: FedEx

   IR Gun ID 17960353 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 5.5 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

4/30/2018

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☑Other: IEPA / US EPA / TSCA

Client Contact	Project Manager: Chris Mabbett	Site Contact: Michael Bloom	Date: 4/18/18	COC No:
Mabbett & Associates, Inc.	Tel/Fax: 781-275-6050	Lab Contact: Ken Hayes	Carrier: FedEx	1 of 1 COCs
5 Alfred Circle	Analysis Turnaround Time			Sampler: MLB
Bedford, MA 01730-2318	☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only:
(781) 275-6050 Phone	TAT if different from Below STANDARD TAT			Walk-in Client:
N/A FAX	☑ 2 weeks			Lab Sampling:
Project Name: Bodycote - HTB - PCBs	☐ 1 week			
Site: Bodycote Thermal Processing	☐ 2 days			Job / SDG No.:
P O # 5565 / Job # R1998002.339.006	☐ 1 day			

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PCBs - 8082	Sample Specific Notes:
1	MCA-5- 041718	4/17/18	11:10	G	GW	2	N	N	X	
2	M&A-104- 041718	4/17/18	16:30	G	GW	2	N	N	X	
3	M&A-110- 041718	4/17/18	17:45	G	GW	2	N	N	X	
4	M&A-111- 041718	4/17/18	12:30	G	GW	2	N	N	X	
5	M&A-112- 041818	4/18/18	10:55	G	GW	2	N	N	X	
6	M&A-113- 041818	4/18/18	11:30	G	GW	2	N	N	X	
7	M&A-114- 041818	4/18/18	9:50	G	GW	2	N	N	X	
8	M&A-116- 041618	4/16/18	15:35	G	GW	2	N	N	X	
9	M&A-121- 041618	4/16/18	17:10	G	GW	2	N	N	X	
10	M&A-122- 041718	4/17/18	14:55	G	GW	2	N	N	X	
11	M&A-124- 041618	4/16/18	15:10	G	GW	2	N	N	X	
12	M&A-126- 041618	4/16/18	13:50	G	GW	2	N	N	X	
13	M&A-301- 041718	4/17/18	15:30	G	GW	2	N	N	X	
14	DUP-PCB-041718 ~~DUP-HTB~~	4/17/18	12:00	G	GW	2	N	N	X	

Loc: 490
150395

Preservation Used: 1=Ice, 2=HCL, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☑Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐Return to Client ☑Disposal by Lab ☐Archive for ____ Months

Special Instructions/QC Requirements & Comments: Provide same deliverables package as previously provided - Ask Ken Hayes. Carrier Tracking Number:

Tracking Number 4059-7171-7104

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 189643 & 189650 | Cooler Temp. (°C): Obs'd: ____ Corr'd: ____ Therm ID No.: ____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michael Bloom	Mabbett	4/18/18			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				TA-NAS	4-19-18 0935

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-150336-1
TestAmerica SDG: Bodycote Thermal Processing
Client Project/Site: Bodycote - HTB - PCBs

For:
Mabbett & Associates, Inc.
5 Alfred Circle
Bedford, Massachusetts 01730

Attn: Christopher Mabbett

Authorized for release by:
4/30/2018 1:57:18 PM

Ken Hayes, Project Manager II
(615)301-5035
ken.hayes@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote - HTB - PCBs

TestAmerica Job ID: 490-150336-1
SDG: Bodycote Thermal Processing

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-150336-1	LNAPL-041818	Waste	04/18/18 09:15	04/19/18 09:35

Job ID: 490-150336-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-150336-1

Comments
No additional comments.

Receipt
The sample was received on 4/19/2018 9:35 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.7° C.

GC Semi VOA
Method 8082A: The following sample was diluted due to the nature of the sample matrix: LNAPL-041818 (490-150336-1). Elevated reporting limits (RLs) are provided.

Method 8082A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 490-509539 and analytical batch 490-510276.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote - HTB - PCBs

TestAmerica Job ID: 490-150336-1
SDG: Bodycote Thermal Processing

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote - HTB - PCBs

TestAmerica Job ID: 490-150336-1
SDG: Bodycote Thermal Processing

Client Sample ID: LNAPL-041818
Date Collected: 04/18/18 09:15
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150336-1
Matrix: Waste

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.50		mg/Kg		04/19/18 16:03	04/24/18 17:51	5
PCB-1221	ND		2.50		mg/Kg		04/19/18 16:03	04/24/18 17:51	5
PCB-1232	ND		2.50		mg/Kg		04/19/18 16:03	04/24/18 17:51	5
PCB-1242	ND		2.50		mg/Kg		04/19/18 16:03	04/24/18 17:51	5
PCB-1248	17.5		2.50		mg/Kg		04/19/18 16:03	04/24/18 17:51	5
PCB-1254	ND		2.50		mg/Kg		04/19/18 16:03	04/24/18 17:51	5
PCB-1260	ND		2.50		mg/Kg		04/19/18 16:03	04/24/18 17:51	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*113*		*20 - 150*	*04/19/18 16:03*	*04/24/18 17:51*	*5*
Tetrachloro-m-xylene	*76*		*19 - 147*	*04/19/18 16:03*	*04/24/18 17:51*	*5*

QC Sample Results

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote - HTB - PCBs

TestAmerica Job ID: 490-150336-1
SDG: Bodycote Thermal Processing

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 490-509539/1-A
Matrix: Waste
Analysis Batch: 510276

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 509539

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.500		mg/Kg		04/19/18 16:03	04/24/18 17:10	1
PCB-1221	ND		0.500		mg/Kg		04/19/18 16:03	04/24/18 17:10	1
PCB-1232	ND		0.500		mg/Kg		04/19/18 16:03	04/24/18 17:10	1
PCB-1242	ND		0.500		mg/Kg		04/19/18 16:03	04/24/18 17:10	1
PCB-1248	ND		0.500		mg/Kg		04/19/18 16:03	04/24/18 17:10	1
PCB-1254	ND		0.500		mg/Kg		04/19/18 16:03	04/24/18 17:10	1
PCB-1260	ND		0.500		mg/Kg		04/19/18 16:03	04/24/18 17:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*105*		*20 - 150*	*04/19/18 16:03*	*04/24/18 17:10*	*1*
Tetrachloro-m-xylene	*107*		*19 - 147*	*04/19/18 16:03*	*04/24/18 17:10*	*1*

Lab Sample ID: LCS 490-509539/2-A
Matrix: Waste
Analysis Batch: 510276

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 509539

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1248	5.00	4.162		mg/Kg		83	56 - 141

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*99*		*20 - 150*
Tetrachloro-m-xylene	*102*		*19 - 147*

Lab Sample ID: LCSD 490-509539/3-A
Matrix: Waste
Analysis Batch: 510276

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 509539

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1248	5.00	4.175		mg/Kg		84	56 - 141	0	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*98*		*20 - 150*
Tetrachloro-m-xylene	*100*		*19 - 147*

QC Association Summary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote - HTB - PCBs

TestAmerica Job ID: 490-150336-1
SDG: Bodycote Thermal Processing

GC Semi VOA

Prep Batch: 509539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-150336-1	LNAPL-041818	Total/NA	Waste	3580A	
MB 490-509539/1-A	Method Blank	Total/NA	Waste	3580A	
LCS 490-509539/2-A	Lab Control Sample	Total/NA	Waste	3580A	
LCSD 490-509539/3-A	Lab Control Sample Dup	Total/NA	Waste	3580A	

Analysis Batch: 510276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-150336-1	LNAPL-041818	Total/NA	Waste	8082A	509539
MB 490-509539/1-A	Method Blank	Total/NA	Waste	8082A	509539
LCS 490-509539/2-A	Lab Control Sample	Total/NA	Waste	8082A	509539
LCSD 490-509539/3-A	Lab Control Sample Dup	Total/NA	Waste	8082A	509539

Lab Chronicle

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote - HTB - PCBs

TestAmerica Job ID: 490-150336-1
SDG: Bodycote Thermal Processing

Client Sample ID: LNAPL-041818

Date Collected: 04/18/18 09:15
Date Received: 04/19/18 09:35

Lab Sample ID: 490-150336-1

Matrix: Waste

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3580A			1.00 g	10 mL	509539	04/19/18 16:03	AMD	TAL NSH
Total/NA	Analysis	8082A		5			510276	04/24/18 17:51	SLA	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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Method Summary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote - HTB - PCBs

TestAmerica Job ID: 490-150336-1
SDG: Bodycote Thermal Processing

Method	Method Description	Protocol	Laboratory
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL NSH
3580A	Waste Dilution	SW846	TAL NSH

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: Mabbett & Associates, Inc.
Project/Site: Bodycote - HTB - PCBs

TestAmerica Job ID: 490-150336-1
SDG: Bodycote Thermal Processing

Laboratory: TestAmerica Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200010	12-09-18

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-150336 Chain of Custody

Cooler Received/Opened On 4/19/2018 @0935

Time Samples Removed From Cooler 1517 Time Samples Placed In Storage 1523 (2 Hour Window)

1. Tracking # 4313 (last 4 digits, FedEx) Courier: FedEx

   IR Gun ID 17960353 pH Strip Lot N/A Chlorine Strip Lot N/A

2. Temperature of rep. sample or temp blank when opened: 4.7 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) [illegible]

7. Were custody seals on containers: YES NO and intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) ADT

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ADT

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ADT

I certify that I attached a label with the unique LIMS number to each container (intial) ADT

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Report To (optional)
Contact: Chris Mabbett
Company: Mabbett & Associates
Address: 5 Alfred Circle
Address: Bedford, MA 01730
Phone: 781-275-6050
Fax:
E-Mail: cmabbett@mabbett.com

Bill To (optional)
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference# 5565

Lab Job #:
Chain of Custody Number:
Page ____ of ____
Temperature °C of Cooler:

Client: Mabbett & Associates
Client Project #: R1998002.339.006
Project Name: Bodycote - HTB - PCBs
Project Location/State: Bodycote Thermal Processing
Lab Project #:
Sampler: MCB
Lab PM: Ken Hayes

Preservative: 8
Parameter: PCBs-8082

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	PCBs-8082	Comments
	N	LNAPL-041818	4/18/18	9:15	2	OL	X	Loc: 490 150336

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ✓ 10 Days ___ 15 Days Standard TAT Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Michael Bloom	Mabbett	4/18/18		[signature]	TA-NAS	4/19/18	0935

Lab Courier
Shipped
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments
Provide Same deliverables Package as previous
↳ Ask Ken Hayes
Custody Seals 189645 & 189650

Lab Comments: 4.7

TAL-4124-500 (1209)

4/30/2018

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ANALYTICAL REPORT

Lab Number:	L1846223
Client:	Mabbett & Associates 5 Alfred Circle Bedford, MA 01730
ATTN:	Michael Bloom
Phone:	(781) 275-6050
Project Name:	BODYCOTE THERMAL PROCESSING
Project Number:	R1998002.339.005
Report Date:	11/16/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1846223-01	MCA-5-110718	WATER	MELROSE PARK, IL -HTB	11/07/18 10:25	11/10/18
L1846223-02	M&A-104-11518	WATER	MELROSE PARK, IL -HTB	11/05/18 15:25	11/10/18
L1846223-03	M&A-110-11518	WATER	MELROSE PARK, IL -HTB	11/05/18 13:55	11/10/18
L1846223-04	M&A-111-11518	WATER	MELROSE PARK, IL -HTB	11/05/18 16:35	11/10/18
L1846223-05	M&A-112-110818	WATER	MELROSE PARK, IL -HTB	11/08/18 11:15	11/10/18
L1846223-06	M&A-113-110818	WATER	MELROSE PARK, IL -HTB	11/08/18 15:10	11/10/18
L1846223-07	M&A-114-110718	WATER	MELROSE PARK, IL -HTB	11/07/18 12:45	11/10/18
L1846223-08	M&A-116-110618	WATER	MELROSE PARK, IL -HTB	11/06/18 15:50	11/10/18
L1846223-09	M&A-121-110718	WATER	MELROSE PARK, IL -HTB	11/07/18 09:25	11/10/18
L1846223-10	M&A-122-111518	WATER	MELROSE PARK, IL -HTB	11/05/18 10:50	11/10/18
L1846223-11	M&A-124-110618	WATER	MELROSE PARK, IL -HTB	11/06/18 13:55	11/10/18
L1846223-12	M&A-126-110618	WATER	MELROSE PARK, IL -HTB	11/06/18 12:40	11/10/18
L1846223-13	M&A-301-110518	WATER	MELROSE PARK, IL -HTB	11/05/18 11:35	11/10/18
L1846223-14	DUP-2-110818	WATER	MELROSE PARK, IL -HTB	11/08/18 13:00	11/10/18

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

Case Narrative (continued)

Sample Receipt

L1846223-01: The sample identified as "MVA-5-110718" on the chain of custody was identified as "MCA-5-110718" on the container label. At the client's request, the sample is reported as "MCA-5-110718".

L1846223-08 and -09: One container for the PCBs analysis was received broken; however, there was adequate sample container to perform the requested analysis.

PCBs

L1846223-06: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Amita Naik

Title: Technical Director/Representative

Date: 11/16/18

ORGANICS

PCBS

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-01
Client ID: MCA-5-110718
Sample Location: MELROSE PARK, IL -HTB

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 08:44
Analyst: KB

Date Collected: 11/07/18 10:25
Date Received: 11/10/18
Field Prep: Not Specified

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	B
Decachlorobiphenyl	50		30-150	B
2,4,5,6-Tetrachloro-m-xylene	77		30-150	A
Decachlorobiphenyl	59		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005
Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-02
Client ID: M&A-104-11518
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/05/18 15:25
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 08:56
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	81		30-150	B
Decachlorobiphenyl	59		30-150	B
2,4,5,6-Tetrachloro-m-xylene	71		30-150	A
Decachlorobiphenyl	63		30-150	A

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846223
Project Number:	R1998002.339.005	**Report Date:**	11/16/18

SAMPLE RESULTS

Lab ID:	L1846223-03	Date Collected:	11/05/18 13:55
Client ID:	M&A-110-11518	Date Received:	11/10/18
Sample Location:	MELROSE PARK, IL -HTB	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8082A	Extraction Date:	11/11/18 20:55
Analytical Date:	11/15/18 09:09	Cleanup Method:	EPA 3665A
Analyst:	KB	Cleanup Date:	11/12/18
		Cleanup Method:	EPA 3660B
		Cleanup Date:	11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	42		30-150	B
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	50		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-04
Client ID: M&A-111-11518
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/05/18 16:35
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 09:21
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	1.20	P	ug/l	0.250	--	1	B
Aroclor 1254	0.532		ug/l	0.250	--	1	B
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	1.73		ug/l	0.250	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	55		30-150	B
2,4,5,6-Tetrachloro-m-xylene	54		30-150	A
Decachlorobiphenyl	48		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-05
Client ID: M&A-112-110818
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/08/18 11:15
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 09:33
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	0.698		ug/l	0.250	--	1	B
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	0.698		ug/l	0.250	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		30-150	B
Decachlorobiphenyl	50		30-150	B
2,4,5,6-Tetrachloro-m-xylene	85		30-150	A
Decachlorobiphenyl	59		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-06 D
Client ID: M&A-113-110818
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/08/18 15:10
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/16/18 16:37
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	62.5	--	250	A
Aroclor 1221	ND		ug/l	62.5	--	250	A
Aroclor 1232	ND		ug/l	62.5	--	250	A
Aroclor 1242	ND		ug/l	62.5	--	250	A
Aroclor 1248	960		ug/l	62.5	--	250	B
Aroclor 1254	ND		ug/l	62.5	--	250	A
Aroclor 1260	ND		ug/l	62.5	--	250	A
Aroclor 1262	ND		ug/l	62.5	--	250	A
Aroclor 1268	ND		ug/l	62.5	--	250	A
PCBs, Total	960		ug/l	62.5	--	250	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005
Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-07
Client ID: M&A-114-110718
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/07/18 12:45
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 09:46
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	0.282		ug/l	0.250	--	1	B
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	0.282		ug/l	0.250	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	B
Decachlorobiphenyl	30		30-150	B
2,4,5,6-Tetrachloro-m-xylene	50		30-150	A
Decachlorobiphenyl	27	Q	30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-08
Client ID: M&A-116-110618
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/06/18 15:50
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 09:58
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	55		30-150	B
2,4,5,6-Tetrachloro-m-xylene	74		30-150	A
Decachlorobiphenyl	67		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005
Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-09
Client ID: M&A-121-110718
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/07/18 09:25
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 10:11
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	81		30-150	B
Decachlorobiphenyl	62		30-150	B
2,4,5,6-Tetrachloro-m-xylene	82		30-150	A
Decachlorobiphenyl	76		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005
Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-10
Client ID: M&A-122-111518
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/05/18 10:50
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 10:23
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	58		30-150	B
2,4,5,6-Tetrachloro-m-xylene	75		30-150	A
Decachlorobiphenyl	73		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-11
Client ID: M&A-124-110618
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/06/18 13:55
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 10:35
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	79		30-150	B
Decachlorobiphenyl	58		30-150	B
2,4,5,6-Tetrachloro-m-xylene	80		30-150	A
Decachlorobiphenyl	72		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-12
Client ID: M&A-126-110618
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/06/18 12:40
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 10:48
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		30-150	B
Decachlorobiphenyl	59		30-150	B
2,4,5,6-Tetrachloro-m-xylene	77		30-150	A
Decachlorobiphenyl	73		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005
Lab Number: L1846223
Report Date: 11/16/18

SAMPLE RESULTS

Lab ID: L1846223-13
Client ID: M&A-301-110518
Sample Location: MELROSE PARK, IL -HTB

Date Collected: 11/05/18 11:35
Date Received: 11/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 11/15/18 11:00
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	B
Decachlorobiphenyl	38		30-150	B
2,4,5,6-Tetrachloro-m-xylene	74		30-150	A
Decachlorobiphenyl	48		30-150	A

Serial_No:11161819:00

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846223
Project Number:	R1998002.339.005	**Report Date:**	11/16/18

SAMPLE RESULTS

Lab ID:	L1846223-14	Date Collected:	11/08/18 13:00
Client ID:	DUP-2-110818	Date Received:	11/10/18
Sample Location:	MELROSE PARK, IL -HTB	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8082A	Extraction Date:	11/11/18 20:55
Analytical Date:	11/15/18 11:12	Cleanup Method:	EPA 3665A
Analyst:	KB	Cleanup Date:	11/12/18
		Cleanup Method:	EPA 3660B
		Cleanup Date:	11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	B
Decachlorobiphenyl	60		30-150	B
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	74		30-150	A

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 11/15/18 11:37
Analyst: KB

Extraction Method: EPA 3510C
Extraction Date: 11/11/18 20:55
Cleanup Method: EPA 3665A
Cleanup Date: 11/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-14 Batch: WG1178344-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.250	--	A
Aroclor 1262	ND		ug/l	0.250	--	A
Aroclor 1268	ND		ug/l	0.250	--	A
PCBs, Total	ND		ug/l	0.250	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	82		30-150	B
Decachlorobiphenyl	56		30-150	B
2,4,5,6-Tetrachloro-m-xylene	79		30-150	A
Decachlorobiphenyl	67		30-150	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-14 Batch: WG1178344-2 WG1178344-3									
Aroclor 1016	89		92		40-140	4		50	A
Aroclor 1260	77		83		40-140	8		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80		81		30-150	B
Decachlorobiphenyl	59		59		30-150	B
2,4,5,6-Tetrachloro-m-xylene	83		83		30-150	A
Decachlorobiphenyl	74		74		30-150	A

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1846223-01A	Amber 1000ml unpreserved	A	7	7	3.1	Y	Absent		PCB-8082(7)
L1846223-01B	Amber 1000ml unpreserved	A	7	7	3.1	Y	Absent		PCB-8082(7)
L1846223-02A	Amber 1000ml unpreserved	B	7	7	4.3	Y	Absent		PCB-8082(7)
L1846223-02B	Amber 1000ml unpreserved	B	7	7	4.3	Y	Absent		PCB-8082(7)
L1846223-03A	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-03B	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-04A	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-04B	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-05A	Amber 1000ml unpreserved	B	7	7	4.3	Y	Absent		PCB-8082(7)
L1846223-05B	Amber 1000ml unpreserved	B	7	7	4.3	Y	Absent		PCB-8082(7)
L1846223-06A	Amber 1000ml unpreserved	C	7	7	4.4	Y	Absent		PCB-8082(7)
L1846223-06B	Amber 1000ml unpreserved	C	7	7	4.4	Y	Absent		PCB-8082(7)
L1846223-07A	Amber 1000ml unpreserved	C	7	7	4.4	Y	Absent		PCB-8082(7)
L1846223-07B	Amber 1000ml unpreserved	C	7	7	4.4	Y	Absent		PCB-8082(7)
L1846223-08A	Amber 1000ml unpreserved	C	7	7	4.4	Y	Absent		PCB-8082(7)
L1846223-08B	Amber 1000ml unpreserved	C	7	7	4.4	Y	Absent		PCB-8082(7)
L1846223-09A	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-09B	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-10A	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-10B	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)

*Values in parentheses indicate holding time in days

Project Name: BODYCOTE THERMAL PROCESSING
Project Number: R1998002.339.005

Lab Number: L1846223
Report Date: 11/16/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1846223-11A	Amber 1000ml unpreserved	C	7	7	4.4	Y	Absent		PCB-8082(7)
L1846223-11B	Amber 1000ml unpreserved	C	7	7	4.4	Y	Absent		PCB-8082(7)
L1846223-12A	Amber 1000ml unpreserved	A	7	7	3.1	Y	Absent		PCB-8082(7)
L1846223-12B	Amber 1000ml unpreserved	A	7	7	3.1	Y	Absent		PCB-8082(7)
L1846223-13A	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-13B	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		PCB-8082(7)
L1846223-14A	Amber 1000ml unpreserved	A	7	7	3.1	Y	Absent		PCB-8082(7)
L1846223-14B	Amber 1000ml unpreserved	A	7	7	3.1	Y	Absent		PCB-8082(7)

*Values in parentheses indicate holding time in days

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846223
Project Number:	R1998002.339.005	**Report Date:**	11/16/18

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846223
Project Number:	R1998002.339.005	**Report Date:**	11/16/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	BODYCOTE THERMAL PROCESSING	**Lab Number:**	L1846223
Project Number:	R1998002.339.005	**Report Date:**	11/16/18

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 11/10/18

ALPHA Job #: L1846223

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Bodycote Thermal Processing

Project Location: Melrose Park, IL - HTB

Project #: R1998002.340.005

Project Manager: Mike Bloom

ALPHA Quote #:

Client Information

Client: Mabbett & Associates, Inc.

Address: 5 Alfred Circle

Bedford, MA 01730

Phone: 781-879-3231

Fax:

Email: bloom@mabbett.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report Information

☐ FAX ☐ EMAIL

☒ ADEx ☐ Add'l Deliverables

Data Deliverables

Billing Information

☒ Same as Client info PO #: 5670

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
IEPA/TSCA	<0.5 ug/L

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCBs 8082												Sample Specific Comments	TOTAL # BOTTLES
46223-01	MVA-5-110718	11/7/18	1025	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
02	M&A-104-11518	11/5/18	1525	GW	DWM	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
03	M&A-110-11518	11/5/18	1355	GW	DWM	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
04	M&A-111-11518	11/5/18	1635	GW	DWM	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
05	M&A-112-110818	11/8/18	1115	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
06	M&A-113-110818	11/8/18	1510	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
07	M&A-114-110718	11/7/18	1245	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
08	M&A-116-110618	11/6/18	1550	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
09	M&A-121-110718	11/7/18	0925	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
10	M&A-122-11518	11/5/18	1050	GW	DWM	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
					Container Type	A	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	A	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
Dave Martin	11/9/18/1200	[signature]	11/10/18 09:33

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/10/18

ALPHA Job #: L1849223

Project Information

Project Name: Bodycote Thermal Processing

Project Location: Melrose Park, IL - HTB

Project #: R1988002.340.005

Project Manager: Mike Bloom

ALPHA Quote #:

Client Information

Client: Mabbett & Associates, Inc.

Address: 5 Alfred Circle

Bedford, MA 01730

Phone: 781-879-3231

Fax:

Email: bloom@mabbett.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☐ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 5670

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
IEPA/TSCA	<0.5 ug/L

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCBs 8082												Sample Specific Comments	TOTAL # BOTTLES
49223-11	M&A-124-110618	11/6/18	1355	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
12	M&A-128-110618	11/6/18	1240	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
13	M&A-301-110518	11/5/18	1135	GW	DWM	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
14	Dup-2-110618	11/6/18	1300	GW	JNH	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
				Container Type		A	-	-	-	-	-	-	-	-	-	-	-		
				Preservative		A	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
Dave Martin	11/9/18 / 12:00	[illegible]	11/10/18 09:53

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

APPENDIX C

APPENDIX C

Groundwater Sample Log Sheets
April and November 2018

Mabbett
Scientists | Engineers | Program Managers

EQUIPMENT CALIBRATION LOG

Site Name: Cabot Corporation - Billerica, MA
Job No: 1998002.340.004

Decal Letter:

YSI MultiParameter Meter Model No. (handheld & probe): 556 / 600 336 4M Serial No. (handheld & probe): 09F100831 / 14D12

Instrument is calibrated in accordance with manufactures instructions

Date		Conductivity 1000 µS/cm	pH 4.0	pH 7.0	pH 10.0	Dissolved Oxygen 100% % sat.	ppm	Cell Temp	ORP mV	@ Temp	Solution Temp ° C	Barometric Pressure, mm of Hg	Personnel
11/5/18	am	1000	4.00	7.00	10.00	97.5			238.0				Dwm
	pm												
	notes:												
11/6/18	am	1001	3.98	7.00	10.01			11.21				736.9	JNH
	pm					9.95 mg/L							
11/7/18	am	1000	3.99	7.00	10.00	10.36	mg/L	12.78				747.6	JNH
	pm												
	notes:												
11/8/18	am	1001	4.00	7.00	9.98	10.47	mg/L	13.00				755.2	JNH
	pm												
	notes:												
	am												
	pm												
	notes:												

Calibration STD's

Lot Number:								
Expires:					NA		NA	NA

Turbidity Meter Model No.: Geotech Turbidimeter Serial No.: 17091451

Instrument is calibrated in accordance with manufactures instructions

DATE	10 NTU am	10 NTU pm	20 NTU am	20 NTU pm	100 NTU am	100 NTU pm	800 NTU am	800 NTU pm
11/5/18								

notes:

Mabbett®
Scientists | Engineers | Program Managers

LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MLB

Location ID: MBA-104
Sample ID: MBA-104-041718
Date: 4/17/18 Time: 16:30
Sample Method: Low Flow/Stress

Depth to Water: 7.70
Total Depth: 11.90
Water Column: 4.2'
Depth Sampled: 11'

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
15:55	7.99	~~7.99~~	18.23	7.31	2719	2.40	91.2	26.6
16:00	8.06	50	18.22	6.97	2752	1.70	102.1	15.4
16:05	8.24	↓	18.29	6.93	2775	1.68	113.4	12.1
16:10	8.42		18.48	6.91	2787	1.46	121.8	9.11
16:15	8.55		18.49	6.89	2788	1.34	126.5	7.25
16:20	8.73		18.46	6.89	2792	1.19	130.9	6.58
16:25	8.98	↓	18.43	6.88	2796	1.05	132.7	5.68
to End YSI to Preserve Enough Water Column to Complete Sampling								
Total Volume Purged: 1.5 L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	Amber	2	No	NP	–
VOCs	Vaa	3	No	HCl	–

QC Sample Collected? Y / (N)
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MLB

Location ID: M&A-110
Sample ID: M&A-110-041718
Date: 4/17/18 Time: 17:15
Sample Method: Low Flow/Stress

Depth to Water: 26.41
Total Depth: ~~31.8~~ 29.8
Water Column: 3.39
Depth Sampled: 29'

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
Insufficient Water Column to Collect YSI Parameters, purged ~ 1/2 L prior to Sample Collection at which OTW = 27.5L								
Total Volume Purged: 0.5 L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	Amber	2	No	NP	–

QC Sample Collected? Y / (N)
ID:

Mabbett®
Scientists | Engineers | Program Managers

LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MCB

Location ID: MGA-111
Sample ID: MGA-111-041718
Date: 4/17/18 Time: 12:30
Sample Method: Low Flow/Stress

Depth to Water: 26.97
Total Depth: 32.8
Water Column: 5.83
Depth Sampled: 31

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
11:30	27.18	~~46.0~~	16.99	8.02	1061	1.23	-109.7	48.8
11:55	27.43	57	17.68	7.47	1047	0.55	-126.0	35.3
12:00	27.25	↓	17.62	7.45	1046	0.45	-132.9	27.1
12:05	27.27		17.04	7.44	1047	0.39	-133.7	22.0
12:10	27.27		17.24	7.44	1040	0.40	-130.2	18.1
12:15	27.27		17.41	7.41	1042	0.38	-131.8	15.7
12:20	27.26		17.67	7.40	1041	0.36	-128.7	14.3
12:25	27.28		17.49	7.39	1040	0.34	-126.2	15.3
			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

Total Volume Purged: 2L

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	Amber	2	N	NP	–
VOCs	Voa	3	N	HCl	–

QC Sample Collected? (Y) / N
ID: DUP-PCB-041718
DUP-VOC-041718
↳ 12:00 on 4/17/18

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MLB

Location ID: MGA-112
Sample ID: MGA-112-041818
Date: 4/18/18 Time: 10:55
Sample Method: Low Flow/Stress

Depth to Water: 10.21
Total Depth: 15.2
Water Column: 4.99
Depth Sampled: 13'

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
10:20	10.87	35	16.50	7.69	2230	2.41	95.0	9.24
10:25	11.14	↓	17.08	7.35	2219	0.65	109.0	8.27
10:30	11.60	↓	17.05	7.27	2235	0.55	116.1	5.20
10:35	↓	↓	17.08	7.23	2234	0.51	118.0	4.57
10:40	↓	↓	17.10	7.23	2236	0.49	119.0	4.81
10:45	↓	↓	17.08	7.23	2236	0.48	119.3	3.17
10:50	↓	↓	17.07	7.22	2238	0.47	119.9	4.26
Total Volume Purged: 1 L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	Amber	2	No	ND	–
VOCs	Vog	3	No	HCl	–

QC Sample Collected? Y / (N)

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: ULB

Location ID: MGA-113
Sample ID: MGA-113-041818
Date: 04/18/18 Time: 11:30
Sample Method: Low Flow/Stress

Depth to Water: 27.69
Total Depth: 31.9
Water Column: N/A
Depth Sampled: –

	At Start	At End
Sheen Observed:	–	–
Odor Observed:	–	–
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
OTP	=26.98							
OTW	=27.69							
Could Not Advance Probe past 31.9'								
Collected Sample after ½ L purge								
Total Volume Purged: ½ L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	Amber	2	No	NP	–

QC Sample Collected? Y / (N)
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MCB

Location ID: MBA-114
Sample ID: MBA-114-041818
Date: 4/18/18 Time: 9:50
Sample Method: Low Flow/Stress

Depth to Water: 13.34 → DTP 13.31
Total Depth: 15.45
Water Column: 2.11
Depth Sampled: 14.5

	At Start	At End
Sheen Observed:	Heavy	LNAPL
Odor Observed:	Waste-Oil	Burned Oil
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
• LNAPL "not measurable" during groundwater / LNAPL Elevational Measurements								
- Collected Sample immediately due to insufficient Water Column								
- LNAPL Coating on EIP								
- During Sampling, recovered ~50mL GW & sample turned to Pure LNAPL								
↳ Collected LNAPL Sample (On seperate COC)								
ID: LNAPL-114-041818								
Time: 9:15								
- Replaced Tubing & Collected GW Sample from bottom of the well								
↳ LNAPL Drawn up @ 85% of 2nd PCB bottle								
Total Volume Purged: 100mL			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs					

QC Sample Collected? Y / (N)
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MCB

Location ID: MdA-116
Sample ID: MdA-116-041618
Date: 4/16/18 Time: 15:55
Sample Method: Low Flow/Stress

Depth to Water: 5.72
Total Depth: 14.80
Water Column: 9.08
Depth Sampled: 13.5

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. mS/cm (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
15:25	6.17	85	18.22	7.33	1.937	3.37	79.5	53.8
15:30	6.51	↓	18.50	7.22	1.974	2.88	89.1	45.4
15:35	7.09		18.50	7.21	1.975	3.07	99.6	39.7
15:40	7.43		18.58	7.21	1.976	3.19	103.6	34.1
15:45	7.69		18.58	7.21	1.975	3.10	108.8	35.1
15:50	7.90		18.52	7.21	1.976	3.17	109.4	33.7
15:55	8.19	↓	18.53	7.21	1.976	3.15	110.3	32.8
Total Volume Purged: 2.5L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCB	Amber/	2	No	NP	–

QC Sample Collected? Y / (N)

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MGB

Location ID: MBA-121
Sample ID: MBA-121-041618
Date: 4/16/18 Time: 17:10
Sample Method: Low Flow/Stress

Depth to Water: 26.35
Total Depth: 33.42
Water Column: 7.07
Depth Sampled: 32.5

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. mS/cm (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
16:20	26.81	35	19.29	7.61	0.991	2.68	61.8	284
16:25	27.35		20.29	7.57	0.965	2.29	12.7	125
16:30	27.42		20.17	7.56	0.962	2.25	12.9	127
16:35	27.52		19.89	7.55	0.962	2.90	17.9	76.3
16:40	27.62		19.90	7.55	0.960	2.73	22.7	58.8
16:45	27.71		19.87	7.54	0.960	2.35	27.9	51.0
16:50	27.84		20.03	7.54	0.957	2.16	29.4	39.4
16:55	27.92		20.05	7.53	0.957	2.39	22.7	37.0
17:00	28.04		20.08	7.52	0.936	2.41	20.2	35.1
17:05	28.15		20.03	7.51	0.957	2.37	19.9	37.4
Total Volume Purged: 1.5L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	Amber	2	No	NP	–

QC Sample Collected? Y / (N)
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MLB

Location ID: MBA-122
Sample ID: MBA-122-041718
Date: 4/17/18 Time: 14:55
Sample Method: Low Flow/Stress

Depth to Water: 24.94
Total Depth: 32.85
Water Column: 7.91
Depth Sampled: 31'

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	-	-

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
14:20	25.17	60	13.71	7.50	1734	1.47	70.9	40.1
14:25	25.26	↓	15.62	7.19	1757	0.45	65.4	26.8
14:30	25.34	↓	15.25	7.15	1754	0.38	64.3	14.6
14:35	25.47	↓	15.60	7.12	1763	0.47	61.8	11.8
14:40	25.52	↓	15.53	7.12	1756	0.42	54.3	4.57
14:45	25.61	↓	15.40	7.12	1769	0.49	52.5	3.18
14:50	25.70	↓	15.38	7.12	1763	0.45	51.1	4.84
Total Volume Purged: 1.75L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH

QC Sample Collected? Y / (N)

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MLB

Location ID: MBA-12d
Sample ID: MBA-12d-041618
Date: 4/16/18 Time: 15:10
Sample Method: Low Flow/Stress

Depth to Water: 7.20
Total Depth: 14.85
Water Column: 7.65
Depth Sampled: 13.8

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. mS/cm (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
14:15	7.70	80	17.07	7.08	1.329	0.53	42.6	46.2
14:20	7.85	↓	17.13	7.08	1.331	1.13	42.1	30.8
14:25	8.11		17.01	7.08	1.330	1.09	42.8	21.6
14:30	8.24		16.93	7.07	1.327	1.05	37.8	18.3
14:35	8.41		16.92	7.06	1.323	0.87	7.2	9.81
14:40	8.66		16.95	7.06	1.319	0.83	-2.7	8.00
14:45	8.76		16.99	7.06	1.318	0.80	-7.3	7.62
14:50	8.86		16.97	7.05	1.317	0.81	-12.2	4.93
14:55	8.97		16.99	7.05	1.315	0.76	-23.9	4.77
15:00	9.05		17.01	7.04	1.314	0.75	-24.2	4.39
15:05	9.16		17.02	7.04	1.315	0.74	-23.8	4.13
Total Volume Purged: 4 L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCB	Amber	2	No	NP	–

QC Sample Collected? Y / (N)

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MLB

Location ID: MBA-126
Sample ID: MBA-126-041618
Date: 4/16/18 Time: 13:50
Sample Method: Low Flow/Stress

Depth to Water: 26.82
Total Depth: 33.8'
Water Column: 6.98
Depth Sampled: 31'

	At Start	At End
Sheen Observed:	No	No
Odor Observed:	No	No
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. mS/cm (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
12:55	26.85	70	16.63	7.25	1.021	1.27	-96.5	401
13:00	26.86	↓	17.39	7.36	1.009	0.50	-118.6	370
13:05	26.85		17.50	7.35	1.007	0.53	-122.2	319
13:10	26.85		17.39	7.34	1.007	0.50	-124.5	199
13:15	26.85		17.63	7.34	1.005	0.50	-125.7	123
13:20	26.86		17.66	7.34	1.005	0.27	-127.1	78.5
13:25	26.87		17.71	7.33	1.008	0.28	-126.5	38.6
13:30	26.86		17.69	7.33	1.008	0.27	-123.6	31.8
13:35	26.86		17.67	7.33	1.010	0.26	-124.6	23.2
13:40	26.86		17.63	7.33	1.010	0.28	-125.1	21.1
13:45	26.88		17.62	7.33	1.009	0.27	-125.4	22.3
Total Volume Purged: 3.5 L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	Amber/250mL	2	No	NP	–

QC Sample Collected? Y / (N)

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MCB

Location ID: MGA-301
Sample ID: MGA-301
Date: 4/17/18 Time: 15:30
Sample Method: Low Flow/Stress

Depth to Water: 8.70 → No LNAPL
Total Depth: 12.53
Water Column: 3.83
Depth Sampled: 11'

	At Start	At End
Sheen Observed:	Moderate	Moderate
Odor Observed:	Light Petro	Light Petro
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
YSI Readings were not taken due to the potential for LNAPL Globules from well annulus to be drawn into well during Purging								
- Collected initial sample after ~500 mL purge to reduce suspended sediments								
- Continued purge to reduce ongoing TSS & re-collect sample @ 15:30 when Drawdown reached 10.5' BGS								
Total Volume Purged: 1.25L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	Amber	2	No	NP	–
VOCs	Voa	3	No	HCL	–

QC Sample Collected? Y / (N)
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Melrose Park, IL
Project Number: 1998002.339
Personnel: MCB

Location ID: MCA-5
Sample ID: MCA-5-041718
Date: 4/17/18 Time: 11:10
Sample Method: Low Flow/Stress

Depth to Water: 6.31
Total Depth: 7.60
Water Column: 1.29
Depth Sampled: 7.3

	At Start	At End
Sheen Observed:	No	N/A
Odor Observed:	No	N/A
PID Reading:	–	–

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
No YSI -> Insufficient Water Column -> Collected Sample without Purging								
Total Volume Purged: 0 L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
VOC	Amber	2	N	NP	–
PCBs	Voa	3	N	HCl	–

QC Sample Collected? Y / (N)

ID:

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GROUNDWATER SAMPLING CALIBRATION LOG

Site Name: Bodycote Thermal Processing
Job No: 1998002.339

Decal Letter: 09F100831

YSI MultiParameter Meter Model No. (handheld & probe): YSI 556 MPS Serial No. (handheld & probe): 09F100831

Instrument is calibrated in accordance with manufactures instructions

Date		Conductivity 1000 µS/cm	pH 4.0	pH 7.0	pH 10.0	Dissolved Oxygen 100% % sat.	ppm	Cell Temp	ORP mV	@ Temp	Solution Temp ° C	Barometric Pressure, mm of Hg	Personnel
4/16	am	–	–	–	–	–	–	–	–	–	–	–	–
	pm	0.999 mS/cm	4.00	7.00	10.01	~~100.9~~ 99.3	–	7.43	–	–	8.10	743.1	MLB
	notes:												
4/17	am	1000-1003	4.00	7.00	10.03	97.5	–	5.92	–	–	6.03	742.4	MLB
	pm												
4/18	am	1000	4.00	7.00	10.05	98.3	–	4.69	–	–	5.14	737.9	MLB
	pm												
	notes:												
	am												
	pm												
	notes:												
	am												
	pm												
	notes:												

Calibration STD's

Lot Number:	7GH159	7GF303	7GF140	7GG061	NA	–	NA	NA
Expires:	8/18	6/19	6/19	6/19		–		

Turbidity Meter Model No.: HACH 2100Q Serial No.: 14100C036018

Instrument is calibrated in accordance with manufactures instructions

DATE	10 NTU am	10 NTU pm	20 NTU am	20 NTU pm	100 NTU am	100 NTU pm	800 NTU am	800 NTU pm
4/16/18	–	10.05	–	20.2	–	100.9	–	800
4/17/18	←	9.89	←	20.7	←	98.7	←	806
4/18/18	10.4	–	21.2	–	103	–	775	–

notes:

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1202 Tech Blvd., Suite 108, Tampa, FL 33619 (813) 628-4200

2

Order No.: RES# 4292
Date: 4/12/2018
Technician: TW

YSI

Company: Mabbett Associates
Contact: John Delong
Phone #: 781-275-6050

Packing List

Item	Serial Number	Tech	QC
556	0	✓	✓
Handheld Display	09F100831	✓	✓

Item	Tech	QC	Item	Tech	QC
Cable 8 '	✓	✓	AC Adaptor		
Flow Cell	✓	✓	Stand		
Barb Kit	✓	✓	D.O Kit	✓	✓
Storage / Cal Cup	✓	✓	Calibration Kit	✓	✓
Sensor Guard		✓			
Manual	✓	✓			
Sonde Cap					
Software					
Extra Batteries	✓	✓			
Display Comm. Cable					
Sonde Comm. Cable					

Calibration Report

556			0	
Parameter	*Accuracy*	*Before*	*After*	*Lot #*
Conductivy 1000 µs/cm	(+/-.5%)	998	1000	7GF290
pH 7 Buffer	(+/- .2)	7.07	7.00	7GH158
pH mV for 7 Buffer	(0 +/- 50)		-3.7	
pH 4 Buffer	(+/- .2)	4.03	4.00	7GH056
pH mV for 4 Buffer	(180 +/- 50)		169.5	
pH 10 Buffer	(+/- .2)	9.87	9.99	7GH579
pH mV for 10 Buffer	(-180 +/- 50)		-170.1	
ORP mV, 237.5	(+/- 20 mV)	227.5	238.00	8G9673
DO 100% Sat	(+/- 2%)	97.6%	100.0%	
0% DO Check	(+/- 2%)		1.70	7GG656
Turbidity 0 NTU	(+/- 5%)			
Turbidity 126 NTU	(+/- 5%)			

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: DWM

Location ID: M+A-110
Sample ID: M+A-110-11518
Date: 11/5/18 **Time:** 1315
Sample Method: Low Flow/Stress

Depth to Water: 25.77
Total Depth: 29.65
Water Column: 3.88
Depth Sampled: ~29
Height of casing (ft): Flush

	At Start	At End
Sheen Observed:	Light	Light
Odor Observed:	-	
Color:	clear	clear
Casing to PVC (ft):	—	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1325	25.45	~80	19.99	6.94	2870	1.68	-43.8	—
1330	26.12	~70	20.00	6.74	2865	1.33	-54.9	19.2
1335	26.20	↓	20.02	6.70	2864	0.96	-55.5	33.0
1340	26.33	↓	20.15	6.67	2844	0.98	-56.7	10.6
1345	26.47	↓	20.09	6.66	2837	0.76	-57.8	5.31
1350	26.60	↓	20.10	6.65	2815	0.75	-59.3	2.75
1355	26.75	↓	20.14	6.66	2794	0.73	-60.3	1.14
*	5. Time	@ 1355						
Total Volume Purged:	0.5		+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCB's	1-Liter Amber	2	N	—	

QC Sample Collected? Y / (N)
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: DWM

Location ID: MTA-104
Sample ID: MTA-104-11518
Date: 11/5/18 Time: 1430
Sample Method: Low Flow/Stress

Depth to Water: 6.12
Total Depth: 11.90
Water Column: 5.78
Depth Sampled: 11.5
Height of casing (ft): Flush

	At Start	At End
Sheen Observed:	–	light
Odor Observed:	–	odor
Color:	clear	clear
Casing to PVC (ft):	–	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1435	6.34	~80	22.03	6.77	2828	1.27	-32.6	331
1440	6.62	↓	22.44	6.75	2885	0.68	-31.7	58.3
1445	6.81		22.57	6.76	2903	0.84	-22.4	32.5
1450	7.05		22.65	6.77	2927	0.87	-26.2	27.0
1455	7.32		22.68	6.81	2925	0.96	-24.2	30.8
1500	7.54		22.68	6.85	2923	1.05	-19.6	18.2
1505	7.80		22.72	6.87	2917	0.85	-6.7	7.88
1510	8.17		22.71	6.86	2916	0.71	-1.4	4.13
1515	8.35		22.72	6.85	2922	0.66	4.3	3.31
1520	8.53		22.74	6.84	2929	0.61	5.5	2.31
1525	8.71	↓	22.77	6.83	2929	0.58	5.1	2.02
	* 3 Time @ 1525 *							
Total Volume Purged: ~1.5 L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	1-L Amber	2	N	–	–
VOCs	~~1L~~ 40ml VOA	3	N	HCl	–

QC Sample Collected? Y / (N)
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: DWM

Location ID: MtA-111
Sample ID: MtA-111-11518
Date: 11/5/18 **Time:** 1600
Sample Method: Low Flow/Stress

			At Start	At End
Depth to Water:	26.23	Sheen Observed:	yes	possible
Total Depth:	32.65	Odor Observed:	no	possible
Water Column:	6.42	Color:	black	clear
Depth Sampled:	~32'			
Height of casing (ft):	Flush	Casing to PVC (ft):	–	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1605	26.65	~80	19.09	7.29	1045	0.98	-137.4	70.5
1610	26.69	↓	19.12	7.32	1042	0.72	-149.1	28.3
1615	26.72	↓	19.20	7.33	1041	0.65	-152.6	15.8
1620	26.77	↓	19.22	7.33	1042	0.58	-153.4	10.8
1625	↓	↓	19.19	7.33	1044	0.57	-154.0	9.77
1630	↓	↓	19.17	7.34	1042	0.54	-153.9	6.91
1635	↓	↓	19.16	7.33	1042	0.51	-157.2	4.73
* 5 Times @ 1635 *								
Total Volume Purged: ~0.5 L			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	1-Liter Amber	2	N	–	–
VOCs	40ml VOA	3	N	HCl	–

QC Sample Collected? Y / N
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Location ID: M&A-113
Site Location: Heat Treatment Building
Sample ID: M&A-113-110818
Project Number: 1998002.340
Date: 11/08/18 **Time:** 1510
Personnel: NVP/JNH
Sample Method: Low Flow/Stress

Depth to product: 29.04
Depth to Water: 31.17
Total Depth: 34.00
Water Column: 2.83
Depth Sampled: 32.50
Height of casing (ft): Flush

	At Start	At End
Sheen Observed:	–	–
Odor Observed:	–	–
Color:	–	–
Casing to PVC (ft):	–	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1435	START	PURGE						
1440	N/A	0.45	17.82	7.30	1017	2.55	-8.0	171
1445	↓	↓	17.82	7.24	1020	2.68	-29.1	166
1450			17.81	7.22	1022	2.69	-38.9	154
1455			17.75	7.20	1028	2.71	-43.1	102.5
1500			17.75	7.21	1028	2.72	-43.9	98.8
1505			17.74	7.21	1030	2.75	-44.2	96.9
1510	Collect	Sample						
Total Volume Purged:	0.071 gal.		+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
VOC 8260	40 ml VOA	3	NO	HCL	–

QC Sample Collected? Y / (N)

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: JNH

Location ID: M+A-121
Sample ID: M+A-121-110718
Date: 11/7/18 **Time:** 0925
Sample Method: Low Flow/Stress

Depth to Water: 26.10
Total Depth: 33.27
Water Column: 7.17
Depth Sampled: 32.5
Height of casing (ft): flush

	At Start	At End
Sheen Observed:	none	none
Odor Observed:	none	none
Color:	~~[illegible]~~ clear	clear
Casing to PVC (ft):	4 inches	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0845	START	PURGE						
0850	26.61	100	22.29	7.89	908	1.16	~~[illegible]~~ -14.8	144
0855	26.95	|	22.32	7.59	901	1.22	-12.8	57.7
0900	27.18	|	22.37	7.54	900	1.16	-10.4	36.3
0905	27.36	|	22.26	7.53	901	1.12	-46.6	55.0
0910	27.55	|	22.26	7.51	900	1.11	-31.8	15.1
0915	27.70	|	22.20	7.49	900	1.08	-33.4	13.8
0920	27.80	|	22.12	7.49	901	1.07	-35.1	12.9
0925	COLLECT	SAMPLE						
Total Volume Purged: ~1 gal			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCB	1L	2	no	no	—

QC Sample Collected? Y / N
ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: DW MM

Location ID: M+A-122
Sample ID: M+A-122-11518
Date: 11/5/18 **Time:** 1015
Sample Method: Low Flow/Stress

Depth to Water: 24.11
Total Depth: 32.55
Water Column:
Depth Sampled: ~30
Height of casing (ft): -

	At Start	At End
Sheen Observed:	--	-
Odor Observed:	-	
Color:	see notes	clear
Casing to PVC (ft):	-	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1030	24.40	~80	15.01	7.33	1623		-1.5	--
1035	24.50	|	15.16	7.14	1572	1.80	-7.0	28.11
1040	24.60	|	15.23	7.05	1526	0.88	-4.0	16.43
1045	24.68	|	15.59	7.03	1535	0.81	-0.1	10.87
1040	24.77	|	15.57	7.02	1528	0.76	2.2	4.13
1045	24.85	|	15.62	7.01	1525	0.71	3.0	2.22
1050	24.92	↓	15.67	7.01	1522	0.67	3.7	0.56
*	5. Time @ 1050 *							
Total Volume Purged:	1.75		+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PLB	1-liter	2	N	N	—

QC Sample Collected? Y / (N)
ID:

Sample ID: MW-A-122-11518 Date: 11/5/18

Project Number: [redacted] 1998002.340.001

ADDITIONAL PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
Total Volume Purged:			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

NOTES:

- initial flow contained black sediment
- sheen observed in purge bucket, potential prior contamination

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: J Herbert

Location ID: M+A-112
Sample ID: M+A-112-110818
Date: 11/8/18 Time: 1115
Sample Method: Low Flow/Stress

Depth to Water: 8.48
Total Depth: 15.18
Water Column: 6.70
Depth Sampled: 14.5
Height of casing (ft): flush

	At Start	At End
Sheen Observed:	none	none
Odor Observed:	none	none
Color:	clear	clear
Casing to PVC (ft):	4 inches	

* Some particulates
* Some oil at top at start

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1050	START	PURGE						
1055	8.92	100	19.91	7.08	2411	1.20	111.9	4.20
1100	9.26	↓	19.86	7.06	2455	0.62	103.7	5.18
1105	9.73	↓	20.14	7.03	2452	0.45	98.7	1.69
1110	10.21	↓	20.28	7.01	2456	0.51	94.2	2.55
1115	LOW WATER - COLLECT SAMPLES							
~~1120~~								
~~1125~~								
Total Volume Purged:	~1 gal		+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
VOC	40 mL VOA	3	no	HCl	–
PCB	1L Amber	2	no	no	–

QC Sample Collected?
Y / N
ID: VOC (0.p-1)

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: JNH

Location ID: M+A-116
Sample ID: M+A-116-110618
Date: 11/6/18 Time: 1560
Sample Method: Low Flow/Stress

Depth to Water: 5.10
Total Depth: 14.81
Water Column: 9.71
Depth Sampled: 14
Height of casing (ft): Flush
Casing to PVC (ft): 2 inches

	At Start	At End
Sheen Observed:	none	none
Odor Observed:	none	none
Color:	clear	clear

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm³)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1505	START	PURGE						
1510	5.58	120	23.36	7.65	1937	0.52	74.6	72.0
1515	5.98		23.40	7.59	1941	0.38	69.1	26.9
1520	6.39		23.51	7.57	1943	0.37	65.6	14.1
1525	6.80		23.58	7.57	1951	0.47	63.1	8.71
1530	7.23		23.70	7.61	1973	0.84	61.6	4.85
1535	7.72		23.72	7.68	1995	1.72	61.8	8.15
1540	8.24		23.73	7.69	2000	1.75	62.2	5.13
1545	8.71		23.73	7.69	2004	1.66	62.6	4.84
1550	COLLECT	SAMPLE						
Total Volume Purged: 1.5 gal			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCB	1 L Amber	2	no	no	

QC Sample Collected? (Y) / N
ID: Dup-2 @ 1300 PCB only

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: JNW

Location ID: M+A-126
Sample ID: M+A-126-110618
Date: 11/6/18 **Time:** 1240
Sample Method: Low Flow/Stress

Depth to Water: 26.02
Total Depth: 33.80
Water Column: 7.78
Depth Sampled: 33
Height of casing (ft): —

	At Start	At End
Sheen Observed:	none	none
Odor Observed:	none	none
Color:	foggy/gray	Clear
Casing to PVC (ft):	6 inch	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
11:55	START	PURGE	—					
12:00	26.04	130	18.29	7.59	996	1.05	-93.8	185
1205	26.06		18.37	7.68	991	0.70	-109.2	91.0
1210	26.07		18.37	7.72	991	0.57	-113.8	54.7
1215	26.07		18.35	7.73	992	0.50	-116.4	36.2
1220	26.07		18.45	7.75	992	0.44	-118.7	22.9
1225	26.08		18.43	7.76	993	0.49	-120.0	19.9
1230	26.08		18.39	7.77	995	0.46	-120.7	18.7
1235	26.09		18.39	7.76	999	0.45	-121.0	17.8
1240	COLLECT	SAMPLE	—					
Total Volume Purged: 2 gal			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCB	1 L Amber	3	no	no	—

QC Sample Collected? Y / N

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Location ID: M+A-124
Site Location: Heat Treatment Building
Sample ID: M+A-124-110618
Project Number: 1998002.340.004
Date: 11/6/18 **Time:** 1355
Personnel: JNH
Sample Method: Low Flow/Stress

Depth to Water: 6.73
Total Depth: 14.89
Water Column: 8.16
Depth Sampled: 14
Height of casing (ft): Flush

	At Start	At End
Sheen Observed:	—	—
Odor Observed:	—	—
Color:	Clear	Clear
Casing to PVC (ft):	2 inches	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1320	START	PURGE	—	—	—			
1325	6.98	120	21.18	7.54	1357	0.60	-60.2	3.06
1330	7.23		21.32	7.48	1358	0.45	-69.7	3.28
1335	7.48		21.45	7.44	1353	0.39	-76.0	1.62
1340	7.74		21.52	7.43	1336	0.37	-86.8	2.86
1345	7.97		21.53	7.43	1307	0.37	-89.7	3.11
1350	8.19		21.54	7.43	1301	0.39	-90.8	2.91
1355	Collect	Sample	—	—	—	—	—	—
Total Volume Purged:	1.5-2 gal		+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCB	1L Amber	3	no	no	

QC Sample Collected? Y / N

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: JNH

Location ID: M+A - 114
Sample ID: M+A - 114-110718
Date: 11/7/18 Time: 1245
Sample Method: Low Flow/Stress

Depth to Water: 12.96
Total Depth: 15.40
Water Column: 2.44
Depth Sampled: 15

	At Start	At End
Sheen Observed:	Heavy	Heavy
Odor Observed:	Burnt Oil	Strong
PID Reading:	—	—

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1245	Sample - Collected w/out purging due to small Water Column							
Total Volume Purged:	—		+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCBs	1L Amber	2 (1 not full)	No	No	—

QC Sample Collected? Y / (N)

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Site Location: Heat Treatment Building
Project Number: 1998002.340.004
Personnel: MLB/MWM

Location ID: MEA-301
Sample ID: MEA-301-110518
Date: 11/5/18 Time: 11:35
Sample Method: Low Flow/Stress

Depth to Water: 10.71
Total Depth: 12.40
Water Column:
Depth Sampled: 12
Height of casing (ft): —

	At Start	At End
Sheen Observed:	Moderate	—
Odor Observed:	Petro	—
Color:	Clear	—
Casing to PVC (ft):	—	

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
No YSI Parameters Collected Due to Insufficient Water Column								
- Purged 200mL to Clear Suspended Sediments & Collected Sample								
- Limited Sample Volume 1.75L total for PCBs								
Total Volume Purged: 200mL			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
VOC	Vials/40mL	3	No	HCL	—
PCBs	Amber/1L	2	No	N/A	—

QC Sample Collected? Y / N

ID:

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LOW FLOW/LOW STRESS PURGE DATA LOG SHEET

Site Name: Bodycote Thermal Processing
Location ID: MCA-5
Site Location: Heat Treatment Building
Sample ID: MCA-5-110718
Project Number: 1998002.340.004
Date: 11/7/18 **Time:** 1025
Personnel: JNH
Sample Method: Low Flow/Stress

Depth to Water: 4.31
Total Depth: 7.58
Water Column: 3.27
Depth Sampled: 7
Height of casing (ft): flush
Casing to PVC (ft): 6 inch

	At Start	At End
Sheen Observed:	none	none
Odor Observed:	none	none
Color:	Clear	clear

PURGE DATA

Time	Water Depth (ft.)	Purge Rate (mL/min)	Temp. (°C)	pH (S.U.)	Sp. Cond. (μS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
1005	START	PURGE						
1010	4.69	100	22.44	7.18	5017	1.03	3.7	20.9
1015	4.97	↓	22.68	7.19	5069	0.80	-35.2	3.09
1020	5.34	↓	22.78	7.17	5100	0.62	-41.1	1.40
1025	LOW WATER LEVEL - COLLECT SAMPLES							

Total Volume Purged: 0.5 gal | +/- 3% | +/- 0.1 | +/- 3% | +/- 10% | +/- 10% | +/- 10%

SAMPLE ANALYSIS

Analysis	Container Type/Size	Number Collected	Field Filtered	Preservative	Container pH
PCB	1L Amber	2	no	no	—
VOC	40 mL VOA	3	no	HCl	—

QC Sample Collected? Y / N

ID:

Bodycote Thermal Processing
Groundwater Elevation Data

Date: 11/05/18

HEAT TREATMENT BUILDING WELLS

Well #	TOC	DTB	DTP	DTW	DTB Field Measured	Notes
MCA-5	634.49	7.79	–	4.31	7.58	
M&A-104	634.53	12	–	6.12	11.90	
M&A-110	634.52	30	–	25.77	29.65	
M&A-111	634.39	33	–	26.23	32.65	
M&A-112	634.47	15	–	8.48	15.18	
M&A-113	634.47	33	29.04	31.17	34.00	Tied into DNAPL Recovery System
M&A-114	634.49	15	–	12.96	15.40	
M&A-115	634.48	33	–	27.25	28.35	
M&A-116	634.48	15	–	5.10	14.81	
M&A-121	634.49	33	–	26.10	33.27	
M&A-122	632.99	33	–	24.11	32.55	
M&A-124	634.49	15.5	–	6.73	14.89	
M&A-126	634.45	35	–	26.02	23.80	
M&A-301	633.46	13	–	10.71	12.40	

SALT AND GANTRY BUILDINGS

M&A-201	-	15	–	5.88	16.51	
M&A-207	634.5	13	–	5.33	12.55	
M&A-211	633.41	15	–	0.60	12.06	
M&A-213	634.46	15	–	4.18	14.79	
M&A-216	634.50	13	–	8.04	11.70	
M&A-217	634.49	13	–	3.71	–	
M&A-218	634.17	13	–	3.13	12.42	
M&A-219	634.25	15	–	6.68	14.94	
M&A-223	634.44	15	–	5.81	14.36	
M&A-224	634.42	15	–	8.42	14.85	
M&A-225	634.44	15	–	5.72	14.77	
M&A-226	634.48	15	–	8.61	–	
MW-302	-	15	–	2.69	–	
MW-303	–	–	–	5.23	–	Inaccessible in November 2017
Well-1	636.44	42.15	–	20.24	42.17	

MISC. MONITORING WELLS

Notes:

TOC = to of casing
DTB = depth to bottom
DTW = depth to water
GWE = groundwater elevation

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APPENDIX D

APPENDIX D

Soil Boring Log Sheets
June and November 2018

Boring Log/Well Construction Diagram

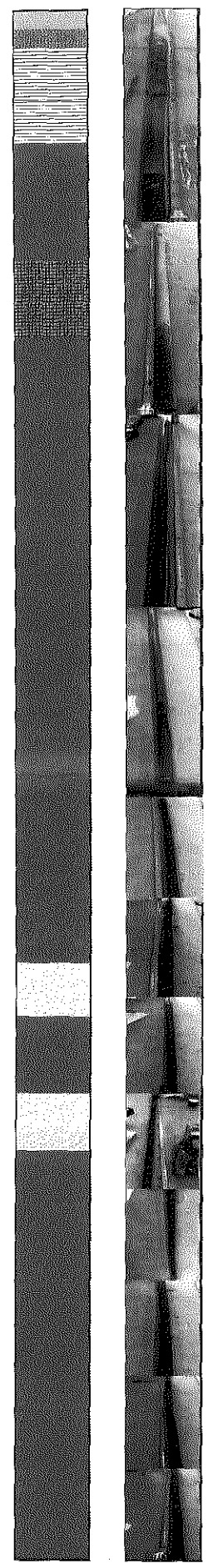
Mabbett®

Five Alfred Circle, Bedford, Massachusetts 01730
Phone:(781) 275-6050 Fax: (781)275-5651

PROJ. NO. 1998002.339.007
BORING LOCATION: SB-04
DATE STARTED: 6/18/2018
DATE COMPLETED: 6/18/2018
LOGGED BY: MLB

CONTRACTOR: Earth Tech. Solutions Inc.
METHOD: Direct-Push
CASING: Stainless Steel
DIAMETER: 3"
GROUNDWATER DEPTH: Approximately 24" below grade

SAMPLE DEPTH (FT)	SAMPLE INTERVAL	REC (in)	HEADSPACE (ppmv)	SOIL DESCRIPTION	SOIL LOG	Photo Log	PCB CONCENTRATION (mg/kg)
0	0-5'	24"	0.9	Roller-bit through 5" thick concrete floor.			
				1" Cave-in; Concrete dust			
1				5" Fill; Dark brown very fine soil with abundant fine to very coarse grains, gravel and fines.			
2				9" Fill; Gray and dark brown silty clay with abundant fine to coarse grain sand, granular coal, and small gravel.			
3							
4				8" Grayish-brown silty clay with some fine to coarse sand grains and small gravel interspersed.			
5							
6	5-10'	38"	116	5" Fill; Gray and dark brown silty clay with abundant fine to coarse grain sand, granular coal, and small gravel.			
7				24" Loosely packed, very light yellowish-brown very fine sand with frequent interspersed coarse sand grains and small to medium sub-angular gravel.			
8							
9				8" Very dense packed brown silty clay with trace coarse sand grains.			
10							
11	10-15'	56"	493	56" Slightly moist, very dense, dark grayish -brown silty clay with trace medium to coarse grain sands and small sub-rounded gravel.			
12							
13							
14							
15							
16	15-20	59"	0.2	59" Slightly moist, very dense, dark grayish -brown silty clay with trace medium to coarse grain sands and small sub-rounded gravel. More moisture and higher malleability observed at bottom 2" of segment			
17							
18							
19							
20							
21	20-22½'	39"	0	39" Dry expanded 2×2 sections of dark grayish-brown silty clay with very fine sand and some interspersed medium to coarse grain sand and small gravel. Mostly fine sand observed at ⅓ and ⅔ through core respectively.			
22							
23	22½-25'	45"	1180	27" Dry expanded 2×2 sections of dark grayish-brown silty clay with very fine sand and some interspersed medium to coarse grain sand and small gravel. Mostly fine sand observed at ⅓ and ⅔ through core respectively.			
24				10" Saturated dark gray very fine sand.			
25				8" Saturated dark gray very fine to medium sand.			
26	25-27½'	40"	407	8" Saturated dark gray very fine to medium sand.			
27				8" Dry and expanded dark grayish-brown silty clay with some very fine to medium sand grains, trace coarse sand grains, and small gravel.			
28	27½'-30	45"	0.4	31" Saturated dark gray very fine to medium sand.			
29				2" Slightly moist silt and very fine sand.			
30				8" Dark grayish-brown silty clay with trace small gravel and coarse sand grains.			
31	30-32½	43"	0.3	43" Dark grayish-brown silty clay with trace small gravel and coarse sand grains. Slightly moist at top 6". Bottom portion of the segment is dry and expanded with higher frequency of coarse sand grains and small gravel with depth.			
32							
33	32½-35	45"	0.3	45" Dry and expanded dark grayish-brown silty clay with trace small gravel and coarse sand grains.			
34							
35							
36	35-37½	41"	0.2	18" Dry and expanded dark grayish-brown silty clay with trace small gravel and coarse sand grains.			
37				8" Slightly moist dark grayish-brown silty clay with trace coarse grains small gravel.			
38	37½-40	38"	0.2	38" Slightly moist, very dense, dark grayish-brown silty clay with trace coarse sand grains and small gravel.			
39							
40							



PCBs not detected at concentrations exceeding laboratory lower method detection limits

UNC=UNCERTAIN
PEN=PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC=LENGTH OF SAMPLE RECOVERED
SS=SPLIT SPOON SAMPLE
S=SAMPLE TAKEN OFF AUGER
HEADSPACE=RESULT OF FIELD SCREENING WITH MiniRae 2000, PID

RQD=LENGTH OF SOUND CORES > IN./LENGTH CORED %
DEPTH=DEPTH BELOW GROUND SURFACE
(GRAPHICAL COLUMN SHOWS LOCATION OF SAMPLE)

SOIL TYPES
silt & clay
concrete
gravel
sand
silt
clay
sand & gravel
Fill
Cave-in

Notes:
DUP-04 collected at 12:15 from 4'
VOC sample ID: SB-4-22½-25' collected at 16:22

Boring Log/Well Construction Diagram

Mabbett®

Five Alfred Circle, Bedford, Massachusetts 01730
Phone:(781) 275-6050 Fax: (781)275-5651

PROJ. NO. 1998002.339.007
BORING LOCATION: SB-03
DATE STARTED: 6/18/2018
DATE COMPLETED: 6/18/2018
LOGGED BY: MLB

CONTRACTOR: Earth Tech. Solutions Inc.
METHOD: Direct-Push
CASING: Stainless Steel
DIAMETER: 3"
GROUNDWATER DEPTH: Approximately 24' below grade

SAMPLE DEPTH (FT)	SAMPLE INTERVAL	REC (in)	HEADSPACE (ppmv)	SOIL DESCRIPTION	SOIL LOG	Photo Log	PCB CONCENTRATION (mg/kg)
0	0-5'	44"	0.1	Roller-bit through 5" thick concrete floor.			PCBs not detected at concentrations exceeding laboratory lower method detection limits
1				15" Fill; Dark yellowish-brown to dark grayish-brown with depth. Very fine to fine grain and silty soil with abundant medium to very coarse sand grains and small to medium gravel.			
2				R" Light grayish-brown to yellowish-brown/gray , densely compacted, silty clay with some very fine to medium sand and trace coarse grains and some gravel.			
3							
4							
5							
6	5-10'	35"	0.1	Cave-in; Concrete dust			
7				29" Light grayish-brown to yellowish-brown/gray with dark grayish-brown coloring, densely compacted, silty clay with some very fine to medium sand and trace coarse grains and some gravel.			
8							
9							
10							
11	10-15'	60"	0	16" Brown, dense, silty clay with some medium to coarse grains and small gravel.			
12				1" Dark brown medium to coarse grain sand and gravel with silty clay			
13				R" Grayish-brown to dark gray silty clay with trace fine to medium sand grains and small gravel. Segment is slightly moist at bottom 2"			
14							
15							
16	15-20	50"	0.1	50" Gray silty sand with grayish-brown segments. Trace coarse grains and small gravel. Loosely packed, moist, and more malleable sand located at 16-17'. Bottom 3' observed to be slightly moist and densely compacted.			
17							
18							
19							
20							
21	20-22½'	46"	0.2	14" Grayish-brown silty clay with some fine to medium sand grains and small gravel. Very dry extruded and expanded.			
				13" Moist, slightly malleable, grayish-brown silty clay			
22				R" Grayish-brown silty clay with some fine to medium sand grains and small gravel. Very dry extruded and expanded.			
23	22½-25'	44"	0.3	13" Grayish-brown silty clay with some fine to medium sand grains and small gravel. Very dry extruded and expanded.			
24				20" Saturated gray very find sand with increasing clay at depth.			
25				R" Moist to dry with depth, gray silty clay with trace fine grain sand.			
26	25-27½'	41"	0.1	41" Gray silty clay with some very fine sand and interspersed coarse sand grains and small gravel. Moist at top 4" and reminder of the segment is dry and expanded.			
27							
28	27½'-30	53"	9.9	30" Dry gray silty clay with some very fine sand and interspersed coarse sand grains and small gravel. Increasing gravel and coarse sand grains in bottom 1' of segment.			
29							
30							
31	30-32½	42.5"	90.1	29" Slightly moist, dense, grayish-brown silty clay with some fine grain sand and trace coarse sand grains and small gravel.			
32				R" Saturated gray very fine to fine grain sand.			
33	32½-35	39.5"	0	5" Grayish-brown silty clay with trace fine sand.			
34				R" Grayish-brown silty clay with trace fine sand with coarse grain sand and interspersed gravel. Slightly moist exterior and dry extruded interior.			
35							
36	35-37½	46"	0.1	46" Dry grayish-brown silty clay with trace fine and coarse grain sand and interspersed gravel. Extruded 1-2" into sample sleeve due to piece of gravel. Very densely packed at depth.			
37							
38	37½-40	45"	0.1	45" Dry, very densely packed, grayish-brown silty clay with trace fine and coarse grain sand and intercourse gravel. Higher volume of large gravel located at top a of segment.			
39							
40							

UNC=UNCERTAIN
PEN=PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC=LENGTH OF SAMPLE RECOVERED
SS=SPLIT SPOON SAMPLE
S=SAMPLE TAKEN OFF AUGER
HEADSPACE=RESULT OF FIELD SCREENING WITH MiniRae 2000, PID
RQD=LENGTH OF SOUND CORES > IN./LENGTH CORED %
DEPTH=DEPTH BELOW GROUND SURFACE
(GRAPHICAL COLUMN SHOWS LOCATION OF SAMPLE)

SOIL TYPES
silt & clay
concrete
gravel
sand
silt
clay
sand & gravel
Fill
Cave-in

Notes:
DUP-03 collected at 12:10 from 16'
VOC sample ID: SB-3-30-32½' collected at 14:40

Boring Log/Well Construction Diagram

Mabbett®

Five Alfred Circle, Bedford, Massachusetts 01730
Phone:(781) 275-6050 Fax: (781)275-5651

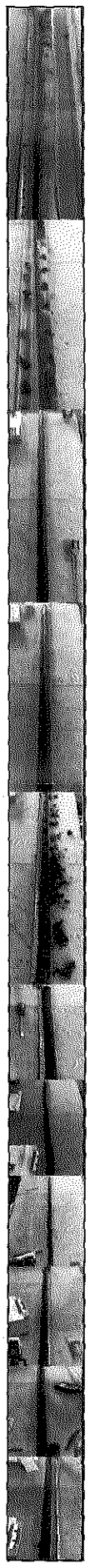
PROJ. NO. 1998002.339.007
BORING LOCATION: SB-02
DATE STARTED: 6/18/2018
DATE COMPLETED: 6/18/2018
LOGGED BY: MLB

CONTRACTOR: Earth Tech. Solutions Inc.
METHOD: Direct-Push
CASING: Stainless Steel
DIAMETER: 3"
GROUNDWATER DEPTH: Approximately 29' below grade

SAMPLE DEPTH (FT)	SAMPLE INTERVAL	REC (in)	HEADSPACE (ppmv)	SOIL DESCRIPTION	PCB CONCENTRATION (mg/kg)
0	0-5'	47"	0	Roller-bit through 5" thick concrete floor.	
1				14" Fill; Dark brown silty clay and fine to coarse sand with small to large gravel.	
2				24" Densely packed, yellowish-brown/gray silty clay with fine to medium sand interspersed with some coarse sand grains and small gravel.	
3					
4				R" Grayish-brown silty clay with a little fine to medium sand and small gravel	
5					
6	5-10'	34"	0.4	7" Cave-in	
7				R" Slightly moist, dark grayish-brown, silty clay with a little medium to course sand grains and small gravel.	
8					
9					
10					
11	10-15'	59"	0.6	37" Slightly moist, dark gray/brown, silty clay with trace medium to course sand grains and small gravel.	
12					
13				R" Slightly moist, slightly more malleable than the above layer, gray/brown silty clay with trace fine grain sands and small gravel in millimeter scale lenses.	
14					
15					
16	15-20	52"	0.1	52" Gray to grayish-brown silty clay with some interspersed coarse grain sand grains and gravel or crushed stone. Segment is moist at center of sleeve with drier clay at the top	
17					
18					
19					
20					
21	20-25'	60"	0.4	10" Slightly moist gray to grayish-brown silty clay with some interspersed coarse grain sand grains and gravel or crushed stone.	
				3" Gray very fine to fine grain, dry, sand.	
22			0.5	18" Gray silty clay with trace fine to medium grain sand and small gravel	
23				17" Dark grayish-brown silty clay and very fine to fine grain sand with abundant small to large gravel.	
24			413	R" Dark grayish-brown very fine to fine grain sand with interspersed silt lenses. Very moist at top of segment becoming dry with depth.	
25					
26	25-27½'	33'	26.8	4" Very dry, Grayish-brown silty clay with some very fine to medium sand.	
27				R" Yellowish-brown, densely compacted, silty clay with trace medium to coarse sand grains and gravel. Segment is moist at top and becoming dry with depth.	
28	27½'-30	48'	0.1	23" Very dry, grayish-brown silty clay with fine to medium grain sand.	
29				R" Saturated to super saturated at depth; dark gray very fine to fine grain sand.	
30					
31	30-32½	39"	0.2	4" Super saturated to moist with depth; dark gray very fine to fine grain sand.	
32				R" Very dry, grayish-brown silty clay with trace fine to medium grain sand and interspersed small gravel. Laminar separation observed throughout the segment.	
33	32½-35	44"	0.1	31" Very dry, grayish-brown silty clay with trace fine to medium grain sand and interspersed small gravel. Laminar separation observed throughout the segment.	
34					
35				R" Moist, densely compacted and slightly malleable, grayish-brown silty clay.	
36	35-37½	39"	0.1	39" Slightly moist, very dense, grayish-brown silty clay with some fine to medium sand grains and trace small gravel.	
37					
38	37½-40	43"	0.1	43" Slightly moist becoming drier with depth; very dense, grayish-brown silty clay with some fine to medium sand grains and trace gravel.	
39					
40					

SOIL LOG

Photo Log



PCBs not detected at concentrations exceeding laboratory lower method detection limits

UNC=UNCERTAIN
PEN=PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC=LENGTH OF SAMPLE RECOVERED
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DEPTH=DEPTH BELOW GROUND SURFACE
(GRAPHICAL COLUMN SHOWS LOCATION OF SAMPLE)

SOIL TYPES
silt & clay
concrete
gravel
sand
silt
clay
sand & gravel
Fill
Cave-in

Notes:
DUP-02 collected at 12:05 from 18'
VOC sample ID: SB-2-24-25' collected at 11:40

Boring Log/Well Construction Diagram

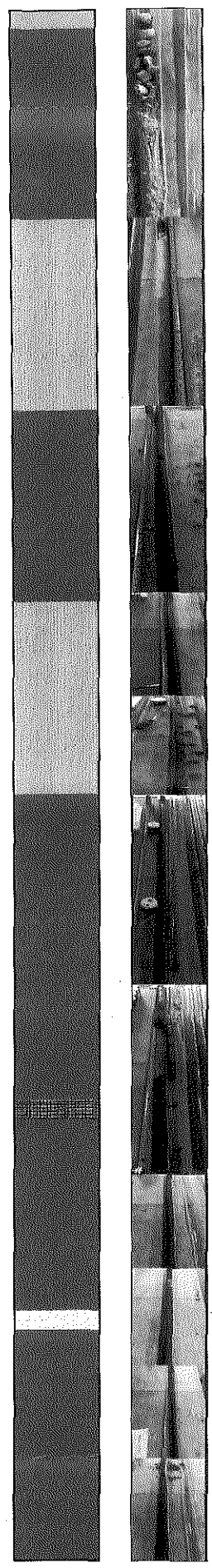
Mabbett®

Five Alfred Circle, Bedford, Massachusetts 01730
Phone:(781) 275-6050 Fax: (781)275-5651

PROJ. NO. 1998002.339.007
BORING LOCATION: SB-01
DATE START/FINISH: 6/18/2018
DATE: 6/18/2018
LOGGED BY: MLB

CONTRACTOR: Earth Tech. Solutions Inc.
METHOD: Direct-Push
CASING: Stainless steel
DIAMETER: 3"
GROUNDWATER DEPTH: Approximately 22' below grade

SAMPLE DEPTH (FT)	SAMPLE INTERVAL	REC (in)	HEADSPACE (ppmv)	SOIL DESCRIPTION	SOIL LOG	Photo Log	PCB CONCENTR-ATION (mg/kg)
0	0-5'	15"	0.1	Roller-bit through 5" thick concrete floor.			
1				5" Gray with brown modelins,silty clay, slight moisture, sample retained smaller diameter than casing.			
2							
3							
4							
5							
6	5-10'	30"	0.2	30" Gray / brown, slightly moist, very dense silty clay.			
7							
8							
9							
10							
11	10-15'	60"	0	31" Grayish-brown, slightly moist, very dense silty clay.with trace small gravel			
12							
13				R" Grayish-brown, moist, silty clay. More maliable and less ridgid than the silty clay observed at 5-10'.			
14							
15							
16	15-17½'	41.5"	1.4	41.5" Grayish-brown, slightly moist, dense and maliable clay. Extruded beyond penitration interval.			
17							
18	17½-20'	48"	0.1	48" Grayish-brown, slightly moist, dense and maliable clay becoming less moist			
19							
20							
21	20-25'	59"	0.1	7" Grayish-brown, very dense, dry, silty clay with fine to medium sand			
22				8" Slightly moist exterior and very dry interior, Grayish-brown, silty clay with trace rounded small gravel			
23				18" Dark gray/ brown, very dry and densly compacted, silty clay with fine grain sand.			
24				12" Saturated Gray/brown fine grain sand with some silty clay.			
25				R" Dry, gray/brown, densly compacted, silty clay with trace fine grain sand.			
26	25-30'	60'	0.1	8" Moist, grayish-brown, very dense, silty clay.			
27				15" Very dry grayish-brown silty clay with trace fine grain sand.			
28				9" Moist, grayish-brown, maliable, silty clay.			
29				1" Grayish-brown silty clay with abundant small gravel.			
30				R" Slightly moist, grayish-brown silty clay with trace coarse sand grains and some very fine sand grains. Segment becoming more gray and more dry with depth.			
31	30-32½	46"	0.1	46" Very dry, gray/brown silty clay with medium to coarse grain sand grains and small gravel interspursed. Some 6" thick sections of laminar seperation divede the segment			
32							
33	32½-35	38"	0.1	8" Very dry, grayish-brown silty clay with medium to coarse grain sand grains and			
34				7" Saturated, gray fine to medium sand with trace silt			
35				R" Grayish-brown, dense, silty clay becoming slightly moist at depth.			
36	35-37½	39"	0	39" Very slightly moist, brown with some gray, very dense, silty clay with some fine to course grain sand and trace small gravel.			
37							
38	37½-40	43"	0.1	14" Cave in; Grayish-brown silty clay with 2×2" sections loose dark gray fine to course grain sand with fines and gravel.			
39				R" Dry, dark grayish-brown silty clay with trace fine to course grain sand and small gravel interspersed.			
40							



PCBs not detected at concentrations exceeding laboratory lower method detection limits

UNC=UNCERTAIN
PEN=PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC=LENGTH OF SAMPLE RECOVERED
SS=SPLIT SPOON SAMPLE
S=SAMPLE TAKEN OFF AUGER
HEADSPACE=RESULT OF FIELD SCREENING WITH MiniRae 2000, PID
RQD=LENGTH OF SOUND CORES > IN./LENGTH CORED %
DEPTH=DEPTH BELOW GROUND SURFACE
(GRAPHICAL COLUMN SHOWS LOCATION OF SAMPLE)

SOIL TYPES
silt & clay
concrete
gravel
sand
silt
clay
sand & gravel
Fill

Notes:
PCB soil samples collected at 2'
VOC sample collected at 23-34' bg at 10:20
DUP-01 collected from 40' at 12:00

Boring Log/Well Construction Diagram

Mabbett®

Five Alfred Circle, Bedford, Massachusetts 01730
Phone:(781) 275-6050 Fax: (781)275-5651

PROJ. NO. 1998002.340.008
BORING LOCATION: SB-15
DATE STARTED: 11/7/2018
DATE COMPLETED: 11/7/2018
LOGGED BY: DWN

CONTRACTOR: Earth Tech Solutions Inc.
METHOD: Direct-Push
CASING: Stainless Steel
DIAMETER: 3"
GROUNDWATER DEPTH: Approximately 24" below grade

SAMPLE DEPTH (FT)	SAMPLE INTERVAL	REC (in)	HEADSPACE (ppmv)	SOIL DESCRIPTION	SOIL LOG	Photo Log	PCB CONCENTR-ATION (µg/kg)
0				Roller-bit through 2" thick concrete floor.			PCBs not detected at concentrations exceeding laboratory lower method detection limits
1							
2	0-5'	12"	0.181	6" Fill material; Blackish-gray fine to medium grain sand with some small sub-angular gravel.			
3							
4				R" Brown Fine to medium sand with some small sub-angular gravel.			
5							
6			0.184	26" Gray brown, densely packed, silt with some clay.			
7	5-10'	60"					
8				R" Gray brown, dry, densely packed, clay with some silt.			
9			0.204				
10							
11			0.197	23" Gray brown, moist, loosly packed fine grain sand with trace silt.			
12	10-15'	60"					
13				R" Gray brown, densely packed, fine grain sand with some silt.			
14			0.202				
15							
16			0.177	60" Gray brown, densely packed, wet, fine grain sand with some silt.			
17							
18	15-20	60"					
19			0.21				
20							
21	20-22½	42"	0.131	23" Gray brown, loosly packed, moist, fine grain sand with trace silt.			
22				R" Gray brown densely packed fine grain sand with some silt.			
23	22½-25	44"	0.124	20" Gray brown, loosly packed, moist, fine grain sand with some silt.			
24				R" Gray brown, densely packed, saturated, silt with some clay and fine grain sand.			
25							
26	25-27½	35"	0.294	35" Gray brown, densely packed, moist, silt with a little clay.			
27							
28	27½-30	42"	0.29	26" Gray brown, densely packed, moist, silt with a little clay.			
29							
30				R" Gray brown, moist, fine grain sand with some silt and a little clay.			
31	30-32½	29"	0.323	8" Gray brown, moist, fine grain sand with some silt and a little clay.			
32				R" Gray medium to coarse grain sand with some fine sand grains, trace silt, and medium to large sub-angular gravel interspersed.			
33							
34	32½-35	21"	0.265	21" Gray medium to coarse grain sand with some fine sand grains, trace silt, and medium to large sub-angular gravel interspersed.			
35							
36	35-37½	38"	0.235	2" Gray medium to coarse grain sand with some fine sand grains, trace silt, and medium to large sub-angular gravel interspersed.			
37				R" Gray brown, densely packed, wet silt with a little clay and trace small gravel.			
38	37½-40	45"	0.299	28" Gray brown, densely packed, wet silt with a little clay and trace small gravel.			
39							
40				R" Gray brown, saturated, silt with some clay and trace small gravel.			

UNC=UNCERTAIN
PEN=PENETRATION LENGTH OF SAMPLER OR CORE BARREL
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DEPTH=DEPTH BELOW GROUND SURFACE
(GRAPHICAL COLUMN SHOWS LOCATION OF SAMPLE)

SOIL TYPES
silt & clay
concrete
gravel
sand
silt
clay
sand & gravel
Fill
Cave-in

Notes:
DUP-5 collected at 28' @12:01
VOC sample ID: SB-15-5-7½' collected at 09:41
SB-15-37½-40 collected at 10:41

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Boring Log/Well Construction Diagram

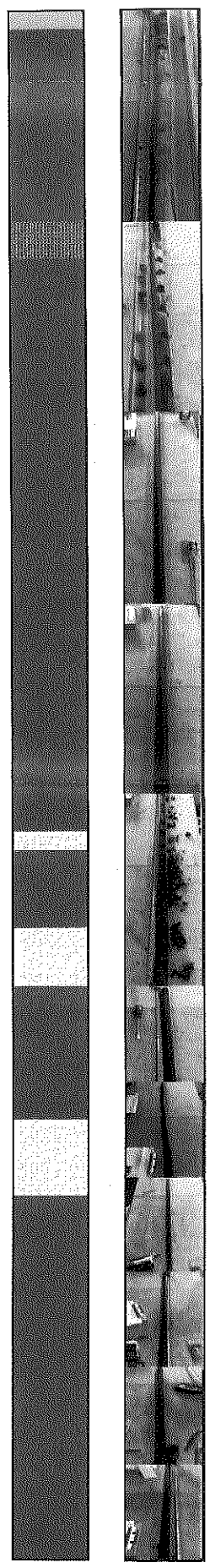
Mabbett®

Five Alfred Circle, Bedford, Massachusetts 01730
Phone:(781) 275-6050 Fax: (781)275-5651

PROJ. NO. 1998002.339.007
BORING LOCATION: SB-02
DATE STARTED: 6/18/2018
DATE COMPLETED: 6/18/2018
LOGGED BY: MLB

CONTRACTOR: Earth Tech, Solutions Inc.
METHOD: Direct-Push
CASING: Stainless Steel
DIAMETER: 3"
GROUNDWATER DEPTH: Approximately 29' below grade

SAMPLE DEPTH (FT)	SAMPLE INTERVAL	REC (in)	HEADSPACE (ppmv)	SOIL DESCRIPTION	SOIL LOG	Photo Log	PCB CONCENTR-ATION (mg/kg)
0	0-5'	47"	0	Roller-bit through 5" thick concrete floor.			
1				14" Fill; Dark brown silty clay and fine to coarse sand with small to large gravel.			
2				24" Densely packed, yellowish-brown/gray silty clay with fine to medium sand interspersed with some coarse sand grains and small gravel.			
3							
4				R" Grayish-brown silty clay with a little fine to medium sand and small gravel			
5							
6	5-10'	34"	0.4	7" Cave-in			
7				R" Slightly moist, dark grayish-brown, silty clay with a little medium to course sand grains and small gravel.			
8							
9							
10							
11	10-15'	59"	0.6	37" Slightly moist, dark gray/brown, silty clay with trace medium to course sand grains and small gravel.			
12							
13				R" Slightly moist, slightly more malleable than the above layer, gray/brown silty clay with trace fine grain sands and small gravel in millimeter scale lenses.			
14							
15							
16	15-20	52"	0.1	52" Gray to grayish-brown silty clay with some interspersed coarse grain sand grains and gravel or crushed stone. Segment is moist at center of sleeve with drier clay at the top			
17							
18							
19							
20							
21	20-25'	60"	0.4	10" Slightly moist gray to grayish-brown silty clay with some interspersed coarse grain sand grains and gravel or crushed stone.			
				3" Gray very fine to fine grain, dry, sand.			
22			0.5	18" Gray silty clay with trace fine to medium grain sand and small gravel			
23				17" Dark grayish-brown silty clay and very fine to fine grain sand with abundant small to large gravel.			
24			413	R" Dark grayish-brown very fine to fine grain sand with interspersed silt lenses. Very moist at top of segment becoming dry with depth.			
25							
26	25-27½'	33'	26.8	4" Very dry, Grayish-brown silty clay with some very fine to medium sand.			
27				R" Yellowish-brown, densely compacted, silty clay with trace medium to coarse sand grains and gravel. Segment is moist at top and becoming dry with depth.			
28	27½'-30	48'	0.1	23" Very dry, grayish-brown silty clay with fine to medium grain sand.			
29				R" Saturated to super saturated at depth; dark gray very fine to fine grain sand.			
30							
31	30-32½	39"	0.2	4" Super saturated to moist with depth; dark gray very fine to fine grain sand.			
32				R" Very dry, grayish-brown silty clay with trace fine to medium grain sand and interspersed small gravel. Laminar separation observed throughout the segment.			
33	32½-35	44"	0.1	31" Very dry, grayish-brown silty clay with trace fine to medium grain sand and interspersed small gravel. Laminar separation observed throughout the segment.			
34							
35				R" Moist, densely compacted and slightly malleable, grayish-brown silty clay.			
36	35-37½	39"	0.1	39" Slightly moist, very dense, grayish-brown silty clay with some fine to medium sand grains and trace small gravel.			
37							
38							
39	37½-40	43"	0.1	43" Slightly moist becoming drier with depth; very dense, grayish-brown silty clay with some fine to medium sand grains and trace gravel.			
40							



PCBs not detected at concentrations exceeding laboratory lower method detection limits

UNC=UNCERTAIN
PEN=PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC=LENGTH OF SAMPLE RECOVERED
SS=SPLIT SPOON SAMPLE
S=SAMPLE TAKEN OFF AUGER
HEADSPACE=RESULT OF FIELD SCREENING WITH MiniRae 2000, PID

RQD=LENGTH OF SOUND CORES > IN./LENGTH CORED %
DEPTH=DEPTH BELOW GROUND SURFACE
(GRAPHICAL COLUMN SHOWS LOCATION OF SAMPLE)

SOIL TYPES
silt & clay
concrete
gravel
sand
silt
clay
sand & gravel
Fill
Cave-in

Notes:
DUP-02 collected at 12:05 from 18'
VOC sample ID: SB-2-24-25' collected at 11:40

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