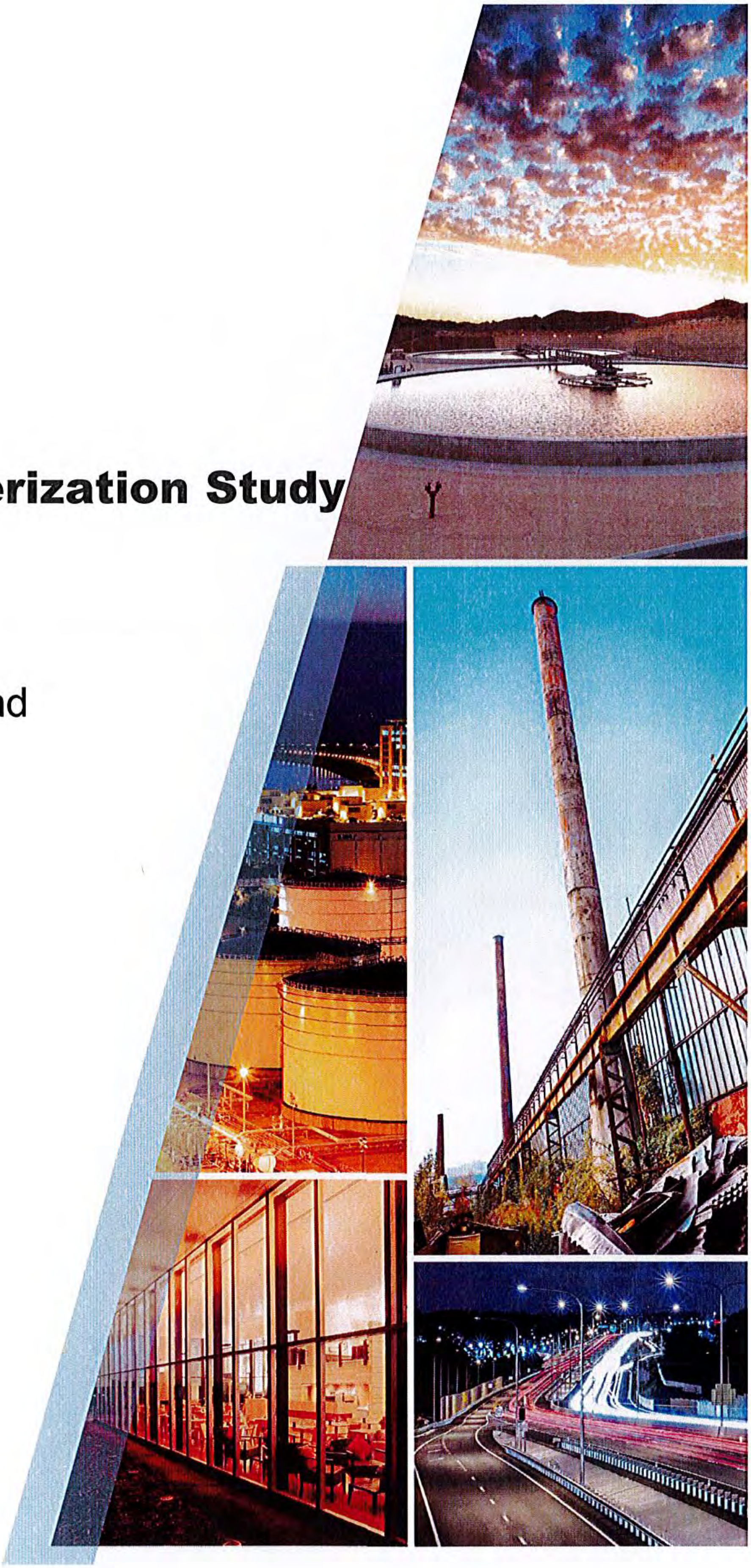
# Waste Characterization Study

## High Acres Landfill and Recycling Center Fairport, New York



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# 1. Project Description

## 1.1 Background

On behalf of Waste Management of New York, LLC (WMNY) and the High Acres Landfill and Recycling Center (HALRC), GHD conducted an evaluation to determine the extent and nature of potential odor sources from material being managed at the facility (refer to Figure 1 for the Site Location). This evaluation was conducted in response to the October 5, 2018 letter from New York State Department of Conservation (NYSDEC) to HALRC, in accordance with the December 2018 Work Plan "Evaluation of Odors from Various Waste Sources" and a scope of work negotiated with the Town of Perinton. Both the NYSDEC and the Town of Perinton approved the December 2018 Work Plan prior to the start of the evaluation. Barton & Loguidice, D.P.C. (B&L) assisted with various aspects of the project including background information on the transfer stations, complaint tracking, EPI cover testing and odor intensity evaluations.

While the overall duration of the evaluation will continue in several additional months in order to determine potential seasonal effects, this report presents the initial findings from the work conducted during the months of December 2018 and January 2019, representing the first phase of the two part study. A subsequent report will present the findings from additional testing to be conducted during the summer months of 2019 and offer conclusions related to the findings. Following conclusion of the evaluation in mid-2019, additional mitigative measures that may be implemented in an effort to further reduce potential odors at HALRC will also be identified.

## 1.2 Objectives

As outlined in the Work Plan submitted in December 2018, the objectives of this this evaluation were to:

1. Evaluate municipal solid waste (MSW) sources, characteristics, and their relationships to odor generation prior to incorporation into an MSW landfill.
2. Evaluate conditions, including odor generation, of MSW being delivered to the HALRC from various sources and modes of transportation.
3. Evaluate handling, transportation and storage operations and potential effect on odor generation.
4. Evaluate odors from MSW prior to incorporation into the landfill from various locations and modes of transportation.
5. Evaluate odors at the working face:
    - Stripping of daily cover
    - MSW odor from local vs. long haul vs. rail
6. Conduct a field study to identify "typical" waste streams from various sources.
7. Collect air samples associated with MSW from various sources and modes of transportation to evaluate the presence of compounds associated with odors.

8. Conduct bench scale testing of a nitrogen purge on the generation of methane from containers.
9. Research methods for recording temperature in shipping containers.

The information gathered above is summarized in the following sections, which outline the activities performed, and the results of the various evaluations performed to-date.

# 2. Evaluation of Municipal Solid Waste Material

Based on review of HALRC waste receipts and information in the 2017 and 2018 annual reports, the waste received at HALRC can be generally broken down into four generalized geographic regions. These include:

- Local – which includes waste from Monroe County, Wayne County, and the greater Rochester area.
- Regional – which includes waste received from counties outside of the local area, including both nearby counties, such as Ontario County and Livingston County, as well as other regional centers throughout the state, including Albany and Syracuse, but not from within the boundaries of New York City.
- NYC – which includes waste received from transfer stations located in New York City (NYC).
- Out-of-state – which includes waste received from outside the State of New York.

The above geographic regions will be used throughout the report for comparison purposes.

## 2.1 Regional Sources of Waste Generation

GHD reviewed the 2017 and 2018 annual report information for HALRC to determine the volumes and types of non-hazardous solid waste received from the various geographic regions. In 2017, HALRC received 936,102 tons of waste for disposal, 233,270 tons of waste material that was beneficially used on-site, and 14,123 tons of leaves, yard waste and organic food waste that was composted on-site. In 2018, the total amount of waste received for disposal was 986,629 tons, with 148,965 tons beneficially used on-site, and 16,770 tons of organic material that was composted on-site.

The breakdown by geographic region of waste received is illustrated in Tables 2.1 and 2.2.

## Table 2.1 Waste Generation Sources in 2017

| Region | | Waste Types | Delivery Method | Percentage |
|---|---|---|---|---|
| Local | Monroe & Wayne Counties | MSW, C&D, Industrial, Compost, and Other | Direct Haul, Transfer Trailer (from Transfer Station) | 35.0% |
| Regional | Albany, Allegany, Broome, Cayuga, Chautauqua, Chemung, Cortland, Delaware Dutchess, Erie, Fulton, Genesee, Greene, Livingston, Madison, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Renesselaer, Rockland, Saratoga, Schenectady, Schuyler, Seneca, Steuben, St. Lawrence, Suffolk, Sullivan, Tioga, Tompkin, Ulster, Washington, Westchester, Wyoming, and Yates Counties | MSW, C&D, Industrial, and Other | Direct Haul, Transfer Trailer (from Transfer Station) | 16.8% |
| NYC | | MSW, Industrial, and Other | Direct Haul, Transfer Trailer (from Transfer Station), Rail (from Transfer Station) | 48.0% |
| Out-of-State | | C&D, Industrial, and Other | Direct Haul, Transfer Trailer (from Transfer Station) | 0.2% |

Note: Industrial includes sludge, asbestos, contaminated soils, and beneficially used materials.

### Table 2.2 Waste Generation Sources in 2018

| Region | | Waste Types | Delivery Method | Percentage |
|---|---|---|---|---|
| Local | Monroe & Wayne Counties | MSW, C&D, Industrial, and Compost | Direct Haul, Transfer Trailer (from Transfer Station) | 50.3% |
| Regional | Albany, Allegany, Broome, Chautauqua, Chemung, Clinton, Cortland, Delaware Dutchess, Erie, Fulton, Genesee, Greene, Herkimer, Livingston, Madison, Montgomery, Nassau, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Rensselaer, Rockland, Saratoga, Schenectady, Seneca, Steuben, St. Lawrence, Suffolk, Tioga, Tompkin, Ulster, Washington, Westchester, and Wyoming Counties | MSW, C&D, and Industrial | Direct Haul, Transfer Trailer (from Transfer Station) | 9.1% |
| NYC | | MSW and Industrial | Direct Haul, Transfer Trailer (from Transfer Station), Rail (from Transfer Station) | 40.5% |
| Out-of-State | | C&D, Industrial, and MSW | Direct Haul, Transfer Trailer (from Transfer Station) | 0.1% |

Note: Industrial includes sludge, asbestos, contaminated soils, and beneficially used materials.

As illustrated in the previous tables, waste is delivered via direct haul (hauled directly to the landfill via a roll-off or waste collection truck), via transfer trailers (where waste collected is routed through a transfer station prior to coming to the landfill, and via rail (where waste collected is also routed through a transfer station prior to arriving at the landfill). Transfer stations are utilized in each of the geographic regions, and based on review of HALRC's waste receipts, a little over 70 percent of all MSW received goes through a transfer station prior to arrival at HALRC.

## 2.2 Types of Waste

The types of non-hazardous solid wastes received at a facility are a factor in determining odor potential. As noted in Section 2.1, GHD reviewed information related to the types of waste received at HALRC. Incoming waste rates vary at the facility from year to year, as does the percentage of waste from the geographic regions (as illustrated in Tables 2.1 and 2.2). However, the overall make-up of the incoming waste received at the landfill stay fairly consistent, as illustrated in Table 2.3.

**Table 2.3 Incoming Waste Type Percentages for 2017 and 2018**

| Waste Type | Percentage Received in 2017 | Percentage Received in 2018 |
|---|---|---|
| MSW | 67.3 | 72.8 |
| C&D | 5.2 | 6.7 |
| Industrial | 0.5 | 1.6 |
| Contaminated Soil | 0.2 | 0.1 |
| Asbestos | 0.3 | 0.3 |
| Sewage Sludge | 4.0 | 4.2 |
| BUD/ADC | 19.7 | 12.9 |
| Yard Waste/Food Waste | 1.2 | 1.5 |
| Other | 1.7 | 0 |

Waste received is divided into broad categories for reporting purposes, which includes MSW, sewage sludge, construction and demolition debris, industrial waste, asbestos, contaminated soils, material beneficially used on-site, yard waste, food waste, and other. The beneficial use of materials at the landfill to replace virgin materials, which includes the use of impacted soils as alternative daily cover, or concrete rubble for road base/aggregate, is also tracked.

In 2018, 16,769.83 tons of leaves, brush, yard waste and organic food waste were accepted at HALRC for processing into compost. The Town of Perinton contributed 14,757.35 tons of that, or 88 percent of the leaves/brush/yard waste/organics accepted by HALRC. It should be noted that while the volume of incoming yard waste and organic food waste used to generate compost is also tracked by HALRC, it is governed by separate solid waste permits since it is not placed in the landfill for disposal. Additional information related to composting operations is provided in Section 2.2.3.

While some of these incoming waste materials are fairly inert, with limited odor generation potential, others do have the ability to generate odors, either at the time of delivery, as they begin to degrade, or both. For instance:

- Contaminated Soils – while some contaminated soils (typically petroleum impacted) may have an odor upon delivery to the facility, the majority of contaminated soil is not a major source of odor at a landfill
- Construction and Demolition Debris – consisting of mostly recognizable wood, wallboard, brick, and rubble, this waste category is fairly inert upon delivery with little odor associated with it. However, over time, some materials contained within construction and demolition debris (C&D), can react with other organic material within the landfill and moisture to generate odor. Thus, while, C&D is generally not considered a major contributor to odor at the working face, if it is not managed properly, or a facility does not have adequate landfill gas collection, C&D can contribute to odor issues at a facility over time.
- Beneficial Use Determination/Alternate Operating Cover (BUD/AOC) – material beneficially used on-site includes an assortment of materials, including contaminated soils, concrete, auto shredder fluff, and several other special wastes, that while classified as a waste material, can be used by the landfill as a replacement for virgin materials, such as foundry sands or brick as replacement for road base. These materials are approved by the NYSDEC prior to receipt by HALRC.

- POTW/Sewage Sludge – the odor potential of sewage sludge can vary based on the processes associated with its generation and condition at delivery (dry, wet). Sewage sludge accepted at HALRC must have greater than 20 percent solids and contain no free liquids. Additionally, HALRC limits the amount of sludge accepted to approximately 5-7 percent of the incoming waste volume, and thus the vast majority of the sewage sludge accepted at HALRC is from local POTW facilities located within Monroe County. Sewage sludge can be a significant source of odors upon delivery, which is further discussed in Section 4.3.2.

The remaining generalized waste categories of MSW, industrial, and other, include a variety of materials, and can be further broken down to better understand their odor potential.

### 2.2.1 MSW

Available records regarding the types of materials comprising MSW in each geographic region were reviewed in an attempt to determine any regional variations in waste from the various areas served by HALRC that may impact odor generation. This included a review of representative Solid Waste Management Plans for the various counties within New York, as well as waste composition studies done by the New York City Department of Sanitation. Due to the randomness and variability associated with materials coming from out-of-state, waste composition data was not compiled for out-of-state wastes.

**Table 2.4 MSW Composition from Local Geographic Area**

| Waste Type | Percentage | Notes |
|---|---|---|
| Paper | 31.75 | Detailed composition performed in 2010; results were initially divided out by rural, suburban and urban areas. Percentages represent the total percentages for the combined planning area. |
| Metal | 7.37 | |
| Plastic | 13.8 | |
| Glass | 4.29 | |
| Food Scraps | 15.98 | |
| Yard Waste | 7.8 | |
| Textiles | 5.3 | |
| Wood | 3.37 | |
| Miscellaneous | 10.33 | |

Note: The Monroe County Final Local Solid Waste Management Plan dated July 2015 was used to determine the waste make-up for the "Local" geographic area, as information related to waste types for Wayne County could not be found, nor does there appear to be a Solid Waste Management Plan on record for Wayne County.

### Table 2.5 MSW Composition from Regional Geographic Area

| Waste Type | Percentage | Notes |
|---|---|---|
| Paper | 31.3 | Detailed composition performed in 2009. |
| Plastics | 12.5 | |
| Food Waste | 18.7 | |
| Textiles & Leather | 5.7 | |
| Rubber | 0.5 | |
| Diapers | 2.3 | |
| Ferrous Metals | 2.8 | |
| Non-Ferrous Metals | 1.3 | |
| Electronics | 2.7 | |
| Glass | 4.7 | |
| Wood | 3.6 | |
| Rubble | 0.6 | |
| Yard Waste | 1.2 | |
| Dirt/Fines | 7.9 | |
| Hazardous Waste | 0.1 | |
| Medical/Pharmaceutical Waste | 0.2 | |
| Miscellaneous | 3.8 | |

Note: The Solid Waste Management Plan for the Capital Region Solid Waste Management Partnership Planning Unit dated January 2014 was used for the "Regional" geographic area, as the greater Albany area represents a larger than average portion of the waste within the region, and waste type information could not be found from other counties with similar waste contributions (such as Livingston County, which is part of the GLOW Region Solid Waste Management Committee). Ontario County also represents a greater than average percentage of this region, and while the Final Solid Waste Management Plan dated March 2014 was reviewed, the appendices containing the actual waste sort information were not available, and thus percentages from Ontario County could not be added to the table. It should be noted, many of the counties within this category contribute a negligible amount of waste to the overall, and thus those plans were not reviewed or incorporated into the above.

### Table 2.6 MSW Composition from NYC Geographic Area

| Waste Type | Percentage | Notes |
|---|---|---|
| Clean paper, Cardboard | 18/17 | Results listed for both the 2013 and 2017 waste composition studies (shown as 2013/2017); percentages represent the aggregated results across all the various waste composition sub-studies performed. |
| Metal, glass, plastic, cartons | 15/17 | |
| Food scraps | 18/21 | |
| Food-soiled paper | 7/8 | |
| Yard waste | 6/6 | |
| Textiles | 6/6 | |
| Plastic Shopping bags | 2/2 | |
| Electronic waste | 1/0.3 | |
| Harmful household products | 0.4/0.4 | |
| C&D | 5/5 | |
| Other (non-C&D wood, film plastics, diapers and sanitary products, animal by-products, carpet/upholstery, non-recyclable paper, foam/plastic, fines, and miscellaneous) | 21/19 | |

Note: The 2017 NYC Residential, School, and NYCHA Waste Characterization Study, and the 2013 NYC Curbside Waste Characterization Study were used to determine the waste make-up for the "NYC" geographic area.

Tables 2.4 through 2.6 illustrates the composition of the waste from the geographic regions located within the State of New York. No significant differences were noted, as while there is variability between the regions as far as the waste categories selected for use in the waste composition studies, there is commonality noted across the regions for many of the waste categories. For instance, the amount of food waste or organics, which can be an indicator for an increase in odor, varied only slightly between the three geographic regions, from a low of 15.98 percent in the local region, to similar percentages of 18.7 and 18 in the Albany and 2013 NYC studies, to a high of 21 percent in NYC in the 2017 study. Textiles were also strikingly similar between the regions, with rates of 5.3, 5.7, and 6 percent from the local, regional, and NYC areas respectively. Combining categories to aggregate the metal, glass and plastics within the waste streams for the various regions yields 25.46 percent, 21.3 percent, and 17 percent respectively for the local, regional, and NYC (2017) geographic areas. It is believed the variance in these number may be due to the changes in the waste stream over the past decade, including changes in packaging and increases in recycling, which likely plays a part in the variability seen between the data collected in 2009 and 2010 from the Local and Regional areas, versus that collected in NYC in 2013 or 2017. It is anticipate that these will continue to change over time, based on implementation of some of the measures outlined in the 2010 Beyond Waste Plan put together by the New York State Department of Environmental Conservation, as well as initiatives related to increasing recycling and reducing waste currently underway in NYC as part of Mayer de Blasio's Zero Waste in NYC by 2030.

**Table 2.7 Composition of MSW Discarded in New York State**

| Waste Type | Percentage | Notes |
|---|---|---|
| Paper | 27 | DEC used field based waste composition studies performed within New York State (New York City, and Onondaga County Resource Recovery Authority), municipalities in other states, and other states that have demographic characteristics to some of New York's regions. |
| Glass | 3 | |
| Plastics | 17 | |
| Metal | 6 | |
| Organics | 24 | |
| Textiles | 6 | |
| Wood | 4 | |
| Other | 13 | |

Note: Beyond Waste Plan. A Sustainable Materials Management Strategy for New York State, New York State Department of Environmental Conservation

The 2010 Beyond Waste Plan provides estimates on the difference between rural (less than 350 people per square mile), suburban (between 350 and 5,000 people per square mile), and urban (greater than 5,000 people per square mile). The biggest differences in the types of materials found in residential MSW discarded were seen in the volume of food waste (14 percent, 15 percent, and 20 percent for rural, suburban, and urban respectively), yard waste (3 percent, 11 percent, and 4 percent), and miscellaneous (15 percent, 10 percent, and 9 percent).The 2010 Beyond Waste Plan also included information related to the amount of MSW from the residential versus commercial/industrial sectors, which estimates 54 percent of MSW statewide is residential, versus 46 percent from the commercial/industrial sector. The projected variances in the waste stream between residential and commercial/industrial, highlighted the most pronounced differences were found relating to newspaper, corrugated cardboard, other recyclable paper, food scraps, yard waste, wood, and miscellaneous.

NYC's Mayor de Blasio has also outlined some ambitious goals related to waste management in NYC, including a plan for Zero Waste in NYC by 2030, which is a key component of the Mayor's "One New York: The Plan for a Strong and Just City" (known as OneNYC). These programs put NYC on a path toward long-term waste reduction, and implementation of the initial stages of these plans have already begun in some portions of NYC. Key components include: organics collection, sorting and processing throughout the five boroughs; offering single-stream recycling and eventually an equitable Save-as-You-Throw waste program to engage residents in waste reduction; bringing recycling service to all NYC Housing Authority developments and making public housing fully compliant with recycling laws; making all public schools Zero Waste; expanding opportunities to reuse and recycle textiles and electronics; and reducing commercial waste disposal by 90 percent by 2030 through a variety of new programs and mandates. For instance, the first organics waste collection program was launched in 2013, and by 2017 included approximately 300,000 households and nearly half of all NYC public schools. Each of these changes will have an effect on NYC's MSW waste stream, significantly reducing the overall volume of waste, as well as changing the general make-up of the waste stream going forward.

In addition to the review of the Solid Waste Management Plans for the various regions, the 2010 Beyond Waste Plan, and NYC's OneNYC and Zero Waste program, GHD also conducted visual inspections of the waste upon arrival at HALRC during the week of December 10, 2018 and January 8, 2019. Select photographs of the waste visually inspected are included in Appendix A. A discussion of the findings from these visual inspections can be found in Section 4.3.1.

### 2.2.2 Industrial Wastes and Other

Based on conversation with HALRC representatives, wastes categorized as either industrial or other at HALRC, include a wide variety of wastes. Industrial solid waste means the waste was generated by a commercial, industrial or manufacturing facility, and is not a hazardous waste. This waste stream includes several inert items, such as foundry sand, treated wood, spent carbon filters, non-recyclable industrial plastics, and packaging, as well as other waste materials including ash, off-spec products, food wastes, sludges, and spill clean-up materials.

Prior to acceptance by HALRC, these waste streams undergo additional scrutiny, which include having the generator (business or "owner" or the waste) complete a waste profile, which involves answering a series of questions related to outlining what the waste material is, the physical and chemical characteristics, any potential interactions with other materials, and odor potential associated with the material. These wastes are reviewed on a case-by-case basis by WM, HALRC, and NYSDEC and can be rejected for acceptance.

Since 2017, HALRC has worked with the generators of several industrial waste streams to find alternative disposal facilities for their waste material due to the materials capacity to generate odors. This includes materials such as some sludges from wastewater treatment plants and other industrial facilities, several wastes with a high sulfur content, and an odorous waste from a fiber company.

### 2.2.3 Yard Waste and Organics

Yard waste and organic food wastes are segregated to the extent possible and managed in the designated compost area at HALRC. Material accepted for composting includes leaves, brush, and other yard waste, as well as organic food waste. This material is accepted, handled, tested and managed in accordance with applicable regulations (6NYCRR Part 361-3.2) and Solid Waste Facility Activity Permits 28P20006 and 59PP0001, such that it will eventually become compost. Yard waste, organics and other materials that go into the making of compost have the potential to generate odors as the material degrades.

As previously stated, in 2018, 16,769.83 tons of leave, brush, yard waste and organic food waste were accepted in the compost area. The majority of this material was received from the Town of Perinton, which accounted for 88 percent of the overall incoming compost material accepted at the facility. Additionally, 439.06 tons of organic food waste was collected from three area college campuses (University of Rochester, Nazareth College, and St. John Fisher) and consisted of both pre-consumer and post-consumer source separated organics.

Both the yard waste program for the Town of Perinton, and the college campus organic programs are extremely successful, and are used to generate a high quality compost. However, as discussed in Section 4.3.2, odors are generated as part of the compost process, and may contribute to offsite odors.

## 2.3 Relationship of Collection, Storage and Transportation Times

GHD reviewed available information related to handling techniques during collection, transportation, and storage waste records to evaluate potential differences that may contribute to odor generation between the different geographic regions. Information from WMNY, County Solid Waste Management Plans, and the New York City Department of Sanitation related to the storage and transportation time related to waste from the various regions was included as part of this review.

### 2.3.1 Frequency of Collection

Based on discussions with representatives of WMNY, residential trash collection in the majority of New York State is collected on a weekly basis, which includes both the local and regional geographic areas that utilize HALRC. This is in comparison to residential trash collection in NYC, which, based on collection schedule information from the New York City Department of Sanitation's web-site, occurs a minimum of twice per week throughout New York City's five Boroughs, with large portions of the City's most densely populated areas having residential trash collected three times a week. While the increase in collection frequency is due to the population density and limited storage ability within the urban area, this increased frequency of collection may assist in reducing the odor of the waste upon delivery to HALRC, as it limits the age of the waste between pickup and final disposal.

The collection of residential waste is contrasted with commercial and industrial waste collection throughout the state, which varies significantly by individual facility. Some commercial and industrial facilities may be serviced daily, whereas others may be on a bi-weekly schedule, or even less frequently. The frequency of pick-up varies based on the type of business, type of waste, size of container. Due to the variability in commercial and industrial waste collection schedules across the state, no comparisons between the regions is available.

It should be noted that standard collection schedules, both residential and commercial, may be modified due to holidays or extreme weather conditions. Holiday schedules vary by waste collection company and/or municipality, but based on conversations with several large collection companies, typically result in waste collection being delayed by a day. For most private collection companies, there are 6 holidays a year (New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day), that result in a day delay for those customers whose typical collection day follows the holiday during a given week. A customer's normal collection schedule will resume starting the week after the week of the holiday. Municipal collection is likely delayed by additional holidays, with the actual number varying by municipality.

Extreme weather conditions, may also result in a delay to waste collection. This may be a result of road conditions not being safe for trucks (such as due to snow or ice), or due to other extreme conditions that may close roads or prevent access (such as due to flooding or high winds). It should also be noted that garbage trucks in some municipalities, including NYC, are also used for snow removal, and thus during times of heavy snow, waste collection schedules may be impacted.

### 2.3.2 Storage at Transfer Stations

Transfer stations are used to limit the number of trucks driving long distances to a landfill. Each of the geographic regions serviced by HALRC has transfer stations, where waste from local haul routes is taken and then aggregated with waste from other route trucks and placed into larger transfer trailers for delivery to the landfill. A typical local route truck collects approximately 7 to 9 tons of waste, whereas a transfer trailer can hold between 20 and 26 tons. The large weight difference of transfer trailers is due to the type and configuration of the trailers (walking-floor or live-floor trailers, versus a tipper trailer). Transfer stations can also load waste into engineered containers that are placed on rail cars for delivery to HALRC. In these cases, waste is loaded into a series of 4 containers, weighing approximately 20 ton/each, which are then loaded onto a rail car for delivery to HALRC, for an average weight of 80 tons of waste per rail car.

Waste is typically delivered to the transfer station the same day as it is collected. This is dependent on timing, as there may be cases when a trash route is completed late in the day, and the transfer station may have already closed, etc. In these cases, the collected waste is typically stored overnight in the garbage truck for delivery to the transfer station the next morning. While most transfer stations throughout New York State are not open 24 hours a day, it is noted that the majority of transfer stations in NYC operate 24 hours a day, 6 days a week (closed on Sundays and major holidays).

Once the waste is delivered to the transfer station, it is then combined with other waste, and transferred to a transfer trailer or rail container for delivery to the HALRC. Whether the waste is loaded onto a transfer trailer or rail container the same day, or the next day may be dependent on the operating hours of both the transfer station and the HALRC, as well as the operational practices of the transfer station. For instance, New York State rules for transfer stations (6 NYCRR Part 362) stipulate the tipping floor must be cleaned at the end of each operating day (Section 362-3.5(d)), and that all putrescible waste must be removed from the facility by the end of the next business day after the transfer container becomes full or within seven calendar days of receipt, whichever comes first (Section 362-3.5(f)). In contrast, based upon a review of the Putrescible Solid Waste Transfer Station Permit for the Review Avenue Transfer Station and the Varick Avenue Transfer Station in Brooklyn, while the transfer station operates 24 hours a day six days a week (closed on Sundays), the tipping floor is to be cleared of solid waste, cleaned and deodorized on a daily basis between 11:30 p.m. and 12:00 a.m., Monday through Friday, and from 6:30 a.m. and 7:00 a.m. on Saturdays.

Special approval is required from the New York City Department of Sanitation for any waste that exceeds these permitted timeframes. Thus, waste going through a transfer station in NYC is processed through the facility on a daily basis, whereas waste going through a transfer station in other parts of New York State may be stored on the tipping floor for a longer period of time depending on the operation of the transfer station. It is believed the daily clearing of the tip floor is a standard requirement for transfer stations in NYC, however, operating permits for all of the transfer stations that utilize HALRC were not reviewed, and thus it is not known if this is standard practice for other transfer stations as well.

It should be noted that at some transfer stations, including both the Varick Avenue Transfer Station and the Review Avenue Transfer Station, an odor neutralizing agent is sprayed onto the waste in the containers before they are closed and leave the facility for transportation to HALRC. This includes both transfer trailers and rail containers. Information on the odor neutralizing/deodorizing material used at the Varick Avenue and Review Avenue Transfer Stations is included in Appendix B.

Operating hours for transfer stations vary, and most do not operate 7 days a week. Thus on weekends and holidays, transfer stations may have approval to store waste on the tip-floor for an extended period of time until the facility re-opens on Monday morning, or following the holiday.

Weather may also impact a transfer station, as high winds, for example, can impact some transfer stations leading to their closure from accepting waste. However, in these instances, waste already received at the facility would likely continue to be loaded for delivery to the landfill, as long as the landfill is operating. Winds that cause a shutdown of HALRC may impact transfer stations by requiring them to store additional waste on their tip-floor, or for waste in-route to HALRC at the time of the closure to either utilize another landfill for disposal, or store the waste within the transfer trailer for later delivery to HALRC. Waste delivered via rail car would likely be stored in the closed containers on-site until such time as HALRC was able to reopen and unload the containers at the working face.

### 2.3.3 Transportation/Travel Times

Local route trucks deliver waste directly to HALRC upon completion of their collection route, which means the waste collected is typically delivered the same day.

Similarly, some wastes from out-of-state or the regional geographic area may also be hauled directly to HALRC, due to special handing concerns that may prevent them from going through a transfer station. These may include asbestos and some industrial wastes that are hauled directly to HALRC. If these materials originate from areas located a distance from HALRC, the additional transportation time needed may include overnight storage, due to the travel distance.

Waste delivered via transfer trailer is typically coming from a transfer station. Thus, this material would first be collected by a route truck, then delivered to a transfer station where it would be stored for a time prior to be loaded into a transfer trailer or rail container for delivery to the HALRC. Based on review of the Varick Avenue and Review Avenue permits, regulatory requirements, and discussions with WMNY on typical operational practices at transfer stations, it is assumed that routing through a transfer station adds from less than one day to the timeline from collection, to in extreme circumstances an additional day or two due to weekends/holidays, or weather events.

Travel time from the transfer station to HALRC must also be factored in, which varies based on the distance between the transfer station and HALRC, road conditions, and traffic. For instance, typical travel times from one of the transfer stations in NYC to HALRC for a transfer trailer is approximately 6 hours, whereas the travel time from the Albany Transfer Station to HALRC is approximately 3 hours and 30 minutes. Thus, it is believed that transport from a transfer station for both the regional and NYC areas in general adds less than 8 hours, or less than a day, over that of waste delivered from the local area.

NYC also utilizes rail to ship waste from certain transfer stations in the City to HALRC. These include the Varick Avenue Transfer Station, Review Avenue Transfer Station, Southwest Brooklyn Transfer Station, and the Hamilton Avenue Transfer Station. Waste delivered via rail, would be similar to that delivered via transfer trailer from the point of collection to the point it is loaded into containers and placed on the rail car. However, once it is loaded onto the rail car, there may be more variability in the storage and travel time than with waste delivered via transfer trailer. Whereas transfer trailers are typically delivered within a certain time window of having been loaded at the transfer station, rail cars inherently have more storage time associated with them. This is due to the wait times associated with additional containers being loaded with waste and then placed on rail cars, and then also connections with other freight material being transported via the railways. Based on discussions with representatives of WMNY, this process averages between two and four days. Thus the use of rail transport can add one to three additional days to the storage and travel time from the time the waste is loaded, over that of delivery via transfer trailer.

While this additional time may seem significant, it should be noted that due to the routine increased frequency of collection in NYC (see Section 2.3.1), the actual residence time from generation to arrival at the landfill of waste collected on a weekly basis and delivered directly to the landfill (accumulated over 7 days and 1 day for collection for a total of 8 days), to that of waste collected three times a week and delivered via rail to the landfill (accumulated over 2 to 3 days, 1 day for collection, 1 to 3 days at the transfer station, 1 to 4 days for delivery, for a total of 5 to 11 days), are actually very similar.

Upon arrival at HALRC, rail cars are typically unloaded, and the rail containers handled such that the waste is placed at the working face within one to two days of arrival. However, for this evaluation, upon arrival at HALRC, select rail containers were stationed for a period of days on-site, versus being landfilled upon delivery. This additional storage time ranged from zero to six days. This was done to determine if there are any potentially adverse odor impacts if rail transfer is delayed.

# 3. Evaluation of Odor Generation Mechanisms

Odors at the High Acres Landfill have been characterized as coming from three primary sources:

1. Landfill Gas
2. Waste/Trash, including special and industrial wastes (operational odors)
3. Compost/Green Waste Storage Areas

Odors from landfill gas and organic materials are fairly well documented. Based on historical analysis data, landfill gas at the HALRC has an average methane concentration of approximately

45-50 percent, with the remainder consisting of 40-44 percent carbon dioxide, 1-2 percent oxygen, 8-10 percent nitrogen, and < 1 percent other trace compounds. Historical laboratory sampling done of the landfill gas collected at HALRC has attributed landfill gas odors to compounds including hydrogen sulfide, carbonyl sulfide and other reduced sulfur compounds, and other odor causing compounds such as limonene and a-pinene.

Much less is known about the odors associated with waste/trash. Section 3.2 outlines a search of available literature, which outlined some of the compounds that contribute to waste odor, but did not reveal a significant amount of data on the issue of waste odors compared to landfill gas odors. However, please note, the evaluation done as part of this study focused on odors emanating from the waste/garbage, and not those associated with the landfill gas system (i.e. landfill gas odors were not part of this study).

## 3.1 n-Butanol Training

HALRC staff and representatives from GHD, Towpath Investigative Services, B&L, and the Town of Perinton's technical staff underwent training on the use of the objective ASTM-based standard (ASTM Method E544-10) using the n-Butanol scale to gauge odor intensity. These training sessions were conducted by Odor Science and Engineering, Inc. and held on June 5, 2018 and again on November 30, 2018 (see Appendix C for an overview of the training). Training certificates of GHD and B&L staff that performed field work as part of this study are also provided in Appendix C. This training was used in conjunction with the other field testing outlined in the following sections to quantify the intensity of the odor in defined and recordable terms (the n-butanol scale).

Odor intensity measures the perceived strength of the sensation related to odor, and is measured using the n-butanol reference scale. The intensity of the odor is compared to known concentrations of n-butanol, which are used to give the odor an intensity reading. The intensity scale is a 1-point scale, ranging from zero, which represents no detectable odor, through eight, which represents a very strong odor.

## 3.2 Literature Search

GHD conducted a literature review of peer reviewed articles/studies on two topics. The first was associated with MSW odors from the point of curbside collection through transportation and handling at transfer stations to point of incorporation into an MSW landfill. The second was associated with the use of an inert gas (such as $N_2$, $CO_2$) placed in the shipping containers at the point of loading to limit biological decomposition of the waste and, therefore, reduce odors.

### 3.2.1 Odor from Collection through Arrival at Landfill

While there is extensive research related to odor and emissions associated with landfill gas, very little research has been done on the odors associated with waste prior to and during disposal at a landfill. Based on the nature of trash, it is anticipated that many of the waste odors may be similar to odors from composting and anaerobic digestion (AD) facilities, as odors typically associated with waste are a result of the gases produced during biological decomposition of the waste material. When looking at decomposition, wastes with a higher organic content, and those decaying under anaerobic (without air) conditions are likely to be more odorous. Only a small amount of the decomposition gases are responsible for odors, such as hydrogen sulfide, dimethyl sulfide and mercaptans, as these compounds are responsible for the strongest and most objectionable odors. In the case of recently collected waste however, the material may not have started to decompose, and thus any associated odors may be associated with the material itself, versus the result of biological decomposition.

Table 3.1 provides a summary of the detection limits associated with compounds anticipated to be contributing to waste odors based on those observed from composting and AD facilities.[1]

**Table 3.1 Detection Limit for Anticipated Waste Odor Compounds**

| Compound | Detection Limit (µg/m³ unless otherwise noted) | Odor |
|---|---|---|
| Dimethyl disulfide | 0.1 | Rotten cabbage |
| Hydrogen sulfide | 0.7 | Rotten eggs |
| Carbon disulfide | 24 | Rotten pumpkin |
| Dimethyl sulfide | 2.5 | Rotten cabbage |
| Methane thiol | 0.04 | Sulfur/Rotten eggs |
| Ammonia | 27 | Medicinal smell |
| Trimethyl amine | 0.11 | Fishy odor |
| Indole | 0.0004 | Feces |
| Skatole | 0.0004 | Feces |
| Acetic acid | 1019 | Vinegar |
| Propionic acid | 28 | Rancid, Body odor |
| Butyric acid | 0.3 | Rancid, Vomit |
| Acetone | 0.40 ppm* | Nail Polish Remover |
| Methyl ethyl ketone | 0.07 ppm* | Alcohol |
| Acetaldehyde | 2 | Garbage |
| Propylaldehyde | 22 | Sweet solvent |
| Methanol | 13000 | Alcohol |
| Ethanol | 342 | Alcohol |
| Limonene | 0.0018 ppm* | Oranges or Turpentine |
| a-pinene | 6 ppb** | Pine |
| Guaiacol | 3-21** | Wood smoke |
| Pyrans | 2000** | Burning wood |
| Furans | 10.06 ppm* | Roast coffee |

Notes:

* Compound noted in BioCycle article, however no odor threshold given. Odor threshold for these compounds taken from Table 6.1 of the American Industrial Hygiene Association's Odor Thresholds for Chemicals with Established Health Standards, 2nd Edition, denoting the lowest value in the range

** Compound noted in BioCycle article, however no odor threshold given. Odor threshold for these compounds found on-line, but source of value was not given and confirmation of value could not be verified.

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[1] Getting To Know Odor Compounds, Nora Goldstein, BioCycle Magazine, 2008

Based on GHD's literature review, it was noted several researchers have looked at the emissions associated with the transportation of waste, however, these studies typically only considered the diesel emissions (typically nitrogen oxides and particulate matter) associated with the actual truck, and did not include emissions or odors associated with the transported waste itself.[2]

GHD did find some international studies that looked into the type of compounds emitted during the initial stages of collection and transportation.[3,4,5,6] Three of these studies[3,4,5] attempted to categorize the types of compounds typically associated with waste collected for disposal or processing. The studies used some form of simulated waste material, and included taking air samples during various stages of waste decomposition, including sampling during the early stages of decomposition. Thus it was theorized these studies would likely be the most applicable to waste during collection and transport to a transfer station or landfill.

As outlined in Tables 3.2, 3.3 and 3.4, the findings of these studies varied somewhat, which can be attributed to variability in the types of waste materials selected for the study, as well the temperatures and conditions under which the studies were performed. However, the studies did identify similar types of compounds in the waste material during the early stages of decomposition, which included hydrocarbons, alcohols, furans, ketones, sulfur compounds, and terpenes, which likely contribute odor.

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[2] Accounting for transportation impacts in the environmental assessment of waste management plans, by Pisoni, Raccanelli, Dotelli, Botta, and Melia, International Journal of Life Cycle Assessment, 2009

[3] Emissions characteristics and variation of volatile odorous compounds in the initial decomposition stage of municipal solid waste, by Haobo Tan, Yan Zhao, Yue Ling, Ying Wang, Xuemei Wang, Waste Management, July 2017

[4] A study of volatile organic compounds evolved in urban waste disposal bins, by Statheropoulos, Agapiou, and Pallis, Atmospheric Environment, 2005

[5] Odours and volatile organic compounds emitted from municipal solid waste at different stage of decomposition and relationship with biological stability, by Scaglia, Orzi, Artola, Font, Davoli, Sanches, and Adai, Bioresource Technology, 2011

[6] A study of the potential release of bioaerosols from containers as a result of reduced frequency residual waste collections, by Gladding and Gwyther, Science of the Total Environmental, 2016

## Table 3.2 Typical Compounds Found During Initial MSW Decomposition

| Category | Typical Compounds | Detection Limit (ppm) | Concentration (ppm) |
|---|---|---|---|
| Saturated Hydrocarbons | Pentane | 1.4 | 3.13 ± 2.93 |
| | Hexane | 1.5 | 0.91 ± 0.90 |
| | 3-Methylheptane | NA | 0.43 ± 0.45 |
| Unsaturated Hydrocarbons | Propylene | 13 | 67.18 ± 79.86 |
| | 1-Butene | 0.36 | 0.61 ± 0.81 |
| | Methylcyclopentane | 1.7 | 0.26 ± 0.32 |
| Aromatics | Toluene | 0.33 | 0.06 ± 0.13 |
| | Benzene | 2.7 | 0.03 ± 0.02 |
| | m-xylene | 0.041 | 0.02 ± 0.004 |
| Oxygenated Compounds | Ethanol | 0.52 | 379.85 ± 409.57 |
| | Ethyl Acetate | 0.87 | 3.30 ± 4.55 |
| | 2-methyl-2-methylacrylate | NA | 2.99 ± 2.82 |
| Halogenated Compounds | Dichloromethane | 160 | 2.58 ± 2.16 |
| | Choroform | 3.8 | 0.58 ± 0.47 |
| | Chlormethane | NA | 0.06 ± 0.03 |
| Sulphur Compounds | Carbonyl Sulfide | NA | 0.22 ± 0.38 |
| | Dimethyl Sulfide | 0.003 | 0.16 ± 0.13 |
| | Dimethyl Disulfide | 0.0022 | 0.05 ± 0.04 |
| Terpenes | Limonene | 0.038 | 0.10 ± 0.07 |
| | a-pinene | 0.018 | 0.03 ± 0.01 |
| | b-pinene | 0.033 | 0.01 ± 0.01 |

Notes:

1. From Table 3 of Emissions characteristics and variation of volatile odorous compounds in the initial decomposition stage of municipal solid waste, by Haobo Tan, Yan Zhao, Yue Ling, Ying Wang, Xuemei Wang, Waste Management, July 2017
2. Used simulated MSW in a lab setting, with samples contained in sealed containers under different conditions.

## Table 3.3 Typical Compounds Found in Urban Waste Bins

| Compound | Range (Average) in Overloaded Bins (µg/m$^3$) | Range (Average) in Partially Filled Bins (µg/m$^3$) |
|---|---|---|
| Decane | 501.4-850.8 (694.9) | Not Detected (ND) |
| Acetic acid ethyl ester | 20.9-3356.8 (353.1) | 43.6-243.2 (89.6) |
| di-Limonene | 57.1-667.6 (334.9) | 0.3-757.1 (295.4) |
| Nonane | 54.6-493.1 (257.4) | ND |
| Ethanol | 3.6-350.2 (216.1) | 8.7-59.4 (41.3) |
| Benzene, 1,2,4-Tri-Me | 100.1-374.1 (212.6) | Not Quantified (NQ) |
| Undecane | 0.7-437.10 (159.1) | NQ |
| 1H-Idene, 2,3-Di-H-2-Me | 11.2-280.1 (146.4) | 5.5-9.5 (5.7) |
| Benzene, 1,2,3-Tri-Me | 46.1-88.4 (66.4) | NQ |
| Benzene, 1-ethyl-2-Me | 17.3-56.1 (32.4) | ND |
| Benzene, 1-ethyl-4-Me | 15.9-50.2 (28.1) | NQ |
| Butane, 2-methyl | 16.4-30.7 (23.5) | ND |
| Benzene, 1-ethyl-3-Me | 18.9-127.6 (22.8) | NQ |
| a-Pinene | 18.2-55.1 (20.7) | 0.9-38.3 (3.5) |
| 2-b-Pinene | 9.9-87.9 (18.9) | 1.6-133.6 (11.4) |
| Octane, 2-methyl | 6.1-33.4 (18.3) | ND |
| Disulfide dimethyl | 0.7-90.7 (16.9) | NQ |
| Benzene, ethyl | 1.6-15.7 (12.7) | ND |
| Acetaldehyde | 4.3-25.1 (12.4) | NQ |
| Gamma terpinene | 1.1-116.9 (11.8) | 2.5-10.8 (4.1) |
| Pentane | 5.1-13.1 (8.4) | NQ |
| Pentane, 2-methyl | 7.4-9.2 (8.3) | ND |
| Toluene | 0.6-12.7 (8.1) | NQ |
| m-Xylene | 6.4-7.8 (7.1) | 5.4-10 (6.2) |
| Benzene, 2-Me-1-propenyl | 2.1-362.8 (5.4) | NQ |
| Cyclohexene, 1-ethyl-4-Me | 0.1-19.9 (3.1) | ND |
| Benzene | 0.8-12.7 (2.5) | 0.8-1.6 (0.9) |
| Naphthalene | 1.3-3.4 (2.4) | ND |
| Hexanal | 1.1-3.6 (2.2) | ND |
| Heptane | 0.5-1.3 (0.9) | ND |

Notes:

1. From Table 2 of A study of volatile organic compounds evolved in urban waste disposal bins, by Statheropoulos, Agapiou, and Pallis, Atmospheric Environment, 2005.
2. For this study, the waste was in large bins or containers that had a capacity of 1,100 L (just under 1.45 cubic yards).and a maximum weight of 450 kg (approximately ½ ton)
3. Waste in the overloaded bins remained for 7 days in moderately warm weather (Greece in the fall). Waste in the partially filled bins was sitting in a sheltered area for 6 days at a lower temperature (Greece in the winter).
4. Not Detected (ND) means compound was not identified in any of the waste bins. Not Quantified (NQ) means the compound was identified in less than half of the waste bins.

### **Table 3.4 VOC Emissions from MSW During Initial Phase of Decomposition**

| Category | Compound | Sample A (µg/m³) | Sample B (µg/m³) | Odor Threshold Value (µg/m³) |
|---|---|---|---|---|
| Hydrocarbon aromatic | p-Xylene | 58 | 64 | 4,767 |
| | Styrene | 132 | 150 | 1,361 |
| | 1,2,3 Trimethyl benzene | 103 | 399 | 2,703 |
| Furans | 2 Pentyl furan | 140 | 83 | 90,450 |
| Ketones | Acetone | 70 | 88 | 30,826 |
| | 2 Butanone | 656 | 1,192 | 15,895 |
| | 5 Methyl 2 (1 methylethyl), trans cyclohexanone | 258 | 243 | Not Applicable (NA) |
| Esters | Acetic Acid methyl ester | 37 | 4 | 13,917 |
| | Methyl propionate | 258 | 0 | NA |
| Aliphatic hydrocarbon | Decane | 720 | 958 | 4,400 |
| | 2,6 Dimethyldecane | 48 | 1,220 | NA |
| | Undecane | 1,262 | 0 | 7,800 |
| | Dodecane | 1,733 | 773 | 14,550 |
| Nitride Compounds | Trimethylamine | 269 | 24 | 1 |
| Alcohol | 1 Butoxy 2 propanol | 25 | 110 | NA |
| | 2 Ethyl 1 hexanol | 84 | 412 | 41.7 |
| | 3,7 Dimethyl 3 octanol | 106 | 0 | 691.6 |
| Sulphide compounds | Allyl Mercaptan | 428 | 0 | 0.2 |
| | Dimethyl disulfide | 0 | 68 | 48.3 |
| | Sulfide allyl methyl | 59 | 0 | 0.7 |
| | 1(methylthio) 1 proppene | 123 | 0 | 4 |
| Terpenes | Limonene | 2,993 | 3,042 | 200 |
| | Camphor | 127 | 529 | 1,678 |

Notes:

1. From Table 3 of odors and volatile organic compounds emitted from municipal solid waste at different stage of decomposition and relationship with biological stability, by Scaglia, Orzi, Artola, Font, Davoli, Sanches, and Adai, Bioresource Technology, 2011
2. Used select MSW from a processing plant in northern Italy. Samples collected in a lab setting, with samples contained in sealed containers under controlled conditions for varying lengths of time. Both Samples A and B were from the initial phase of the biological process.
3. Not all identified compounds in this study are included on the above table.

Comparing the detection limit or odor threshold values with the concentrations of the various compounds identified, it is noted that terpenes, hydrocarbons, sulfur and nitrogen compounds appear to account for the majority of odor associated with waste during the early stages of decomposition.

A fourth study[6] conducted in Europe looked at the potential for bioaerosols to form when waste is stored in collection bins for longer periods of time. This research was due to European Union countries increasing recycling goals and thus government agencies looking to extend the time period between residential trash collections. Testing done as part of this study was conservatively done using samples taken directly from sealed waste bins, and thus is not directly applicable to waste collection, which is noted in the study.

Research also notes that in many cases, the development of methane is a good indicator of the potential for odors from decomposing waste, though it is non-odorous itself. Additionally, methane gas generation from waste has been studied extensively, and is well understood. A 1989 University of Wisconsin study[7], considered the definitive work on this subject, determined methane formation does not occur until all existing oxygen in the refuse is depleted and acid-forming phases of decomposition are complete. The University of Wisconsin study determined it took approximately 20 days for oxygen to be consumed, the acid-forming decomposition phase to be completed, and the onset of methane formation to occur. As noted in Section 2.3, waste delivered to HALRC typically arrives within one to 10 days of collection. Thus, even factoring in that due to current waste collection routing, waste may already be 7 days old upon collection, and adding time for transfer to HALRC, the results of the University of Wisconsin study predict that no methane gas would be formed in the containers within this time period. The field work outlined in Sections 4.4 and 4.5 was used to confirm these predictions.

While common knowledge, it should be noted, the various studies reviewed did also confirm that with an increase in temperature, both biological processes and volatilization are accelerated, which in turn may increase the associated odor.[3,5,8] Thus, as discussed in the December Work Plan, seasonal variability can have an impact on the odor potential associated with waste, and thus should be evaluated to determine potential impacts. This will be done in the following stage of the evaluation to be completed later in 2019.

One other item of note, many of the studies reviewed that did look at potential odor associated with waste used similar olfactory evaluation methods to those outlined in the December Work Plan and further discussed in this report. Additionally, a study by the Sanitation Districts of Los Angeles County[9] used similar methane monitoring and laboratory analysis of their waste-by-rail containers to those performed as part of this evaluation, including monitoring of the perimeter of the rail car upon arrival and collection of air samples.

The studies reviewed all noted odors associated with waste vary greatly depending on the types of waste, method of containerization/transport, and climatic conditions present. Thus the findings of the pilot studies conducted in Europe and Asia, or those associated with waste processing or composting, likely have limited applicability to the waste streams in New York and HALRC.

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[7] Bacterial Population Development and Chemical Characteristics of Refuse Decomposition in a Simulated Sanitary Landfill, by Barlaz, Schaefer and Ham, Applied Environmental Microbiology, January 1989

[8] Report on Odor and Gas Management at Solid Waste Facilities, Maine Department of Environmental Protection, January 2009

[9] Potential for Odor and Gas Generation due to the Transport of Municipal Solid Waste in Sealed Containers, Sanitation Districts of Los Angeles County, Solid Waste Management Department, April 2008

### 3.2.2 Use of Inert Gases during Transport

As noted in Section 3.2.1, the ability to predict methane gas generation has been studied extensively. However, based on a recent literature search, there was very limited information related to the use of inert gases during the transportation of waste to limit odor generation, especially in actual practice. It was noted there are several types of containers used in the transport of waste, including both sealed containers as well as open top containers. However, GHD was unable to find any research into the use of inert gas associated with the transportation of waste.

It was believed the Sanitation Districts of Los Angeles County and/or the City of Seattle, both of which have well established waste-by-rail programs, may have piloted the use of inert gas in waste transport, however, no information related to its use was discovered during our research.

Bench-scale testing of the use of inert gas in containers of waste was conducted as part of this evaluation, and is discussed in Section 4.5.

One issue that should be noted is the containers used to ship waste via rail are not air tight, which would limit the use of inert gases during transport (see Appendix D for information related to the containers used in rail transport of waste to HALRC from NYC).

# 4. Field Observations and Testing

This Section describes the field activities performed during the weeks of December 10 and January 8. Field observation activities included a comparison of the waste from the various geographic areas by looking at the physical characteristics of the MSW during transportation by monitoring:

- Temperature (data loggers were used to track internal temps within containerized waste) from placement to unloading
- Moisture content
- Pressure (to see if there is pressure build up within the containers)
- $CH_4$, $O_2$ and $CO_2$ content using GEM (instrument is commonly used for LFG monitoring)

This data, and other observations made on-site is further discussed in the following sections.

## 4.1 Evaluation at Working Face

Barton & Loguidice (B&L) regularly investigates odor issues and conducts odor monitoring at HALRC. As part of this evaluation, B&L, in coordination with GHD, evaluated conditions at the working face area that may contribute to odors, which included during the stripping of daily cover. B&L also assisted HALRC with the evaluation of the EPI Cover trial conducted concurrently with this evaluation.

### 4.1.1 Stripping of Daily Cover

An odor evaluation using the n-Butanol scale was conducted downwind of the working face area during the time that daily cover is stripped from the surface at the beginning of a workday. Odors during the stripping of daily cover were evaluated by B&L on three occasions, December 14, 2018, January 11, 2019 and January 16, 2019. Table 4.1 outlines odors associated with stripping activities based on review of field notes from B&L (see Appendix E).

**Table 4.1 Odor Intensity During Stripping of Daily Cover**

| Date | Odor Intensity | Notes |
|---|---|---|
| December 14, 2018 | 0.5 – 1.0 | Odors during daily cover stripping activities were not consistent or lasting. |
| January 11, 2019 | 0 - 0.5 | No odors detected off-site prior to start of stripping activities.<br>Odor intensity monitoring conducted downwind of working face.<br>No odors off-site following completion of stripping activities. |
| January 16, 2019 | 0.5 – 1.0 | Prior to stripping odors off-site ranged from trace to 0.5 – 1.0 on n-butanol scale.<br>EPI film plastic also being used.<br>No odor detections during monitoring of working face during stripping activities.<br>Following stripping activities, off-site odors ranged from none to 0.5 on n-butanol scale. |

Notes: Odor Intensity is based on n-Butanol scale, ranging from 0 to 8.

### 4.1.2 Evaluation of EPI Cover (Trial)

A trial evaluation of a cover system provided by EPI was underway during this odor evaluation. The EPI Cover System consists of a non-reusable polyethylene film designed for use as an alternative to typical soil cover when placed at the working face at the end of the operating day. Since the film does not require removal prior to waste placement, it provides continuous coverage and control of odors and emissions until landfill operations begin, eliminating the need to strip cover soils each morning. The EPI Cover System film not only assists in effectively controlling odor emission at the working face, but also sheds rainwater away from the working face, helping to minimize water infiltration into the landfill, and thus reduce leachate generation. The film can also be applied during adverse climatic conditions, including rain, snow, and freezing temperatures, allowing for year-round use. The cover is mechanically destroyed upon the subsequent placement of waste, and thus does not impede the movement of landfill gas or leachate following the placement of waste above it.

The timing of the trial evaluation allowed the EPI Cover System to be evaluated for its effectiveness in reducing odors in comparison to conventional cover placement and stripping. Odors were evaluated on the n-Butanol scale for areas with EPI cover material compared to current daily cover practices. B&L conducted an evaluation of the EPI cover on January 16, 2019, in concert with other odor monitoring activities. Prior to any activity at the working face that morning, B&L noted the odor intensity off-site ranged from trace to 0.5 – 1.0 on the n-butanol scale.

The EPI film had been deployed across a portion of the working face following completion of waste placement activities on January 15, 2019, and been in place overnight. During the morning of January 16, visible signs of gas build up under the EPI cover were noted. To determine effectiveness, a section of the EPI cover was planned for removal (approximately 8-foot by 10-foot).

Prior to removal of the small section, only trace odors were noted at the working face. Upon removal of the section of the EPI plastic film, an odor intensity of 1.0 on the n-butanol scale was noted, which then lessened to approximately 0.5 after 10 to 15 minutes of removal of the plastic. As noted in Table 4.1, off-site odors ranged from none to 0.5 on the n-butanol scale following completion of daily cover stripping activities on January 16. B&L's field notes are included in Appendix E, and information related to the EPI cover system and pictures of the EPI in place at HALRC can be found in Appendix F.

Based on discussions with HALRC operations personnel, HALRC has been pleased with the findings during the EPI cover system trial period. The material is easy to deploy, does not required removal prior to waste placement activities, and able to be used year round. The EPI cover system also does appear to assist with controlling odors at the working face, with the added benefit of reducing emissions from the surface of the working face, based on its ability to hold gas at the surface. While a final determination has not been made, HALRC will likely be requesting approval from NYSDEC for continued use of the EPI cover system following completion of the trial period.

## 4.2 Evaluation of Time/Temperature Data during Transport

GHD researched methods to measure temperature of the waste during transport, and determined the use of temperature probes with data logging capabilities would be the most reliable (refer to Appendix G for information on the CargoData temperature logging units used during the study). Thus, temperature data was collected from the rail containers during transport from randomly selected containers using a temperature probe and data logger that was inserted into the containers at the transfer station. Prior to placement in the waste, the temperature probes were placed in a protective, perforated 4-inch PVC tube (approximately 5 feet in length with a PVC cap on each end) that was painted a bright orange color to aid in retrieval. The protected probes were then placed with the waste within the rail container or transfer trailer during loading at the selected transfer stations on two occasions, once in December 2018 (at Review Avenue Transfer Station), and then again in January 2019 (at the Varick Avenue and MTS Transfer Stations). The location of the probe placement within the waste container or trailer was documented. Upon arrival at HALRC, the waste was unloaded and the temperature probe retrieved.

Upon retrieval, data from the data logger was then downloaded on-site. It should be noted that all of the probes were located, and data was able to be retrieved from each data logger. The temperature data was then plotted to illustrate the internal temperature of the containerized waste over time from initial placement within the container until unloading at HALRC. Ambient outdoor temperature data for the Rochester, NY weather station was also overlaid on the plot of the waste temperature data for the purpose of comparison. The location of the temperature probe within the container is also noted, as the location within the container was determined to have an effect on the temperatures measured. These time versus temperature plots are included in Appendix H.

Based on review of the temperature data, the following is noted:

- Rail containers from the Review Avenue Transfer Station and the Varick Avenue Transfer Station had similar temperature profiles, where the temperature within the rail cars gradually increased slightly at a consistent rate over time. This is illustrated in the time versus temperature graphs in Appendix H for Review containers #9581, #9937, #10081, #10153, #10204, #10481, #10891 in December 2018, and Varick containers #8878, #9155, #9789, and #9941 in

January 2019. Review container #10645 also followed this pattern, through the temperature did start to decrease prior to being unloaded.

- Transfer trailers from the Varick Avenue Transfer Station in January 2019 (Varick Long Haul #1 9A-662/TT-129, Varick Long Haul #2 9A-662/68) also had similar temperature profiles, where they stayed fairly consistent for a couple of days, then sharply decreased. After the sharp decrease, two of the temperature probes then stayed steady and after approximately 2 days started to increase in temperature, while the other two probes gradually decreased in temperature.
- Rail containers from the Hamilton Avenue Transfer Station taken in January 2019 have a consistent temperature profile, which varies from those from the other two transfer stations. Temperatures were consistent, but somewhat erratic following initial placement of the probes, and then increased over a span of approximately 4 days. Temperatures peaked, and then dropped, with multiple spikes over a period of a couple of days, upon which they had a sharp decline, followed by a gradual decline over a period of a couple of days, until they were removed from the containers.
- In December 2018, there were 3 probes placed in one container from Review Avenue Transfer Station Container #9581 (1 was placed in center of waste mass, 1 was placed in the bottom, and 1 was placed on the side of the container). The probe placed in the center of the waste mass showed a steady, constant increase in temperature over time, while the other 2 probes fluctuated on a daily basis along with the change in ambient temperature.

It should be noted that due to low ambient temperatures on January 10, 11, 14 and 15, it was decided by WMNY that the rail containers would need to be heated prior to being dumped at the working face, which would allow the waste to come out of the containers more easily. This was accomplished by placing the rail containers on heating pads made up of concrete stands with gas heaters running underneath.

After reviewing the data from the temperature loggers placed within these containers, it was determined the heating pads had little to no effect on the results of the loggers. Of the 10 rail containers that were heated, 8 of the data loggers stopped logging prior to the container being placed on the heating pads. The 2 containers that were heated where the loggers were still recording had increases in temperature of 0.2 degrees F over 30 minutes and 0.1 degrees F over 120 minutes.

Anticipated factors contributing to temperature increase are the ambient temperatures outside the container and the heat generated as a byproduct of refuse decomposition, as temperature increase is a sign that aerobic decomposition is occurring. A marked increase in temperature could also indicate that the air, or gases, inside the container are expanding and causing internal pressure, which appears to occur in the containers from the Hamilton Avenue Transfer Station to a very limited extent. The type of rail containers used varies by transfer station, and those from the Hamilton Avenue Transfer Station consist of containers having a different closing mechanism, which more tightly seals the gasket around the doors. In contrast, the containers from the Varick Avenue Transfer station and the Review Avenue Transfer Station have top lids that generally rest on the body of the container and are locked into place but not firmly sealed. Details related to the construction of the rail containers can be found in Appendix D. As noted in Section 3.2.2, none of the containers used for the transport of waste to HALRC are sealed such that they are air tight.

## 4.3 Visual and Olfactory Characterization of Waste Streams

### 4.3.1 Visual Inspection of Incoming Waste

In addition to the data review of the waste material from the various regions discussed in Section 2.2, visual inspections of the incoming waste were conducted as part of this evaluation. These included visual observations of waste from each region, including local haul routes, those from long-haul transfer trucks, and of waste delivered via rail from NYC.

During the week of December 10 and January 8, GHD personnel were on-site to observe waste as it was received at HALRC. Upon arrival at the site, GHD discussed the projects objectives with HALRC staff, in an effort to coordinate communication regarding the arrival of the targeted waste loads by region, such that GHD was present at the working face upon their delivery to the facility. This allowed GHD to be at the working face as the targeted loads were unloaded, to make the visual observations as to the physical characteristics by region, and also conduct air sampling for laboratory analysis.

At the working face, GHD personnel viewed waste as it was delivered for its visual characteristics, in an effort to identify any distinguishable characteristics between the wastes of the various regions (local, regional, NYC). The detailed field observations are summarized in in Table 4.2. In addition, GHD documented the types of waste observed, that included taking a series of pictures of waste from each location. A selection of representative photos is included in Appendix A.

**Table 4.2 Visual Characterization of Waste by Geographic Area**

| Date & Time | Source of Material (Region) | Description | Corresponding Sample ID (if applicable) |
|---|---|---|---|
| Conducted during Week of December 10th | | | |
| 12/10<br>13:45 | Rail Container WMNY10612 (NYC) | Mostly black bagged household waste; Majority household MSW with some wood and yard waste, cardboard, carpet pad, and empty plastic containers | --- |
| 12/10<br>14:45 | Compost Area/Food Waste | Brownish, black material; leaves, food waste, disturbed material has moisture | 002, 006 |
| 12/11<br>10:45 | Rear Load Truck 362664 (Local) | While includes a large amount of black bagged household waste, also includes a large amount of leaves and yard waste; thus determined not representative | --- |
| 12/11<br>10:55 | Rear Load Truck 363032 (Local) | White bagged household waste; Majority household MSW with some wood boards, branches, cardboard and pizza boxes, carpet pad and leaves | 001 |
| 12/11<br>13:25 | Rail Container WMNY1189 (NYC) | Mainly black bagged household waste; Majority household MSW with some leaves and wood; also included mattresses and cushions | 003 |
| 12/12<br>10:45 | Food Waste (Local) | Assorted fruits and vegetables, rice, bread | 004 |
| 12/12<br>12:20 | Biosolids (Local) | Black, cohesive material; soils with high moisture content | 005 |
| 12/13<br>10:25 | Front Load Truck (Local) | White bagged household waste; Majority household MSW with some cardboard, hay, wood, organics/food waste, cans, and a deer carcass | 007 |
| 12/13<br>16:40 | Rail Container WMNY10081 (NYC) | Mix of black and white bagged household waste; Majority household MSW with some food waste, wood, plastic containers, and cardboard | 008 |
| 12/13<br>17:30 | Long Haul Truck (NYC) | Mix of black and while bagged household waste; Majority household MSW, however, unable to clearly see waste composition due to lack of available light | 009 |
| 12/14<br>11:25 | Rail Container WMNY9937 (NYC) | Mix of black and white bagged household waste; Majority household MSW with some leaves, cardboard, wood, paper, mattresses, couches, carpet, empty plastic containers and cans | 010 |
| 12/15<br>10:00 | Rail Container WMNY9581 (NYC) | Black bagged household waste; Majority household MSW with some cardboard, wood, leaves, couches, mattresses, paper, and empty plastic containers | 011 |
| 12/17<br>11:45 | Long Haul Truck 10645 (NYC) | Mix of black and white bagged household waste; Majority household MSW with some cardboard, wood, paper, empty plastic containers, leaves, mattresses, carpet/rugs, diapers; minimal food waste | 012 |
| 12/17<br>14:15 | Long Haul Truck | Black bagged household waste; Majority household MSW with some cardboard, couches, wood and leaves | --- |

### Table 4.2 Visual Characterization of Waste by Geographic Area

| Date & Time | Source of Material (Region) | Description | Corresponding Sample ID (if applicable) |
|---|---|---|---|
| Conducted during Week of January 8th | | | |
| 1/8 13:25 | Rail Container WMNY9941 (NYC) | Black bagged household waste; Majority household MSW with some organics/food waste, leave/yard waste, wood and furniture | 013 |
| 1/9 11:10 | Rail Container WMNY8878 (NYC) | Black bagged household waste; Majority household MSW with some organics/food waste, wood furniture, pallets, particle board, plastic and glass bottles | 014 |
| 1/10 11:30 | Rail Container USWX9155 (NYC) | Black bagged household waste; Majority household MSW with some organics/food waste, Christmas trees, rug, furniture and wood pieces, metal rail, plastic and glass bottles, cans, and a mattress | 015 |
| 1/11 12:10 | Rail Container WMNY9789 (NYC) | Black bagged household waste; Majority household MSW with some organics/food waste, wood/furniture, plastic and glass bottles, a Christmas tree, and a porcelain toilet | 016 |
| 1/14 10:00 | Long Haul Truck | Black bagged household waste; Majority household MSW with some yard waste, leaves, Christmas trees, wood furniture, a car seat, and plastics | 017 |
| 1/14 11:05 | Long Haul Truck | Black bagged household waste; Majority household MSW with some wood furniture, fiberglass pieces, large pieces of metal, plastics, and appliances | 018 |
| 1/14 15:25 | Rail Container WMNY1776 (NYC) | Black bagged household waste; Majority household MSW with some yard waste, leaves, Christmas trees, wood, plastic, and glass | 019 |
| 1/14 15:40 | Rail Container WMNY1936 (NYC) | Black bagged household waste; Majority household MSW with some pillows, cushions, mattress, wood, plastics, metal, bottles (plastic and glass), and Christmas trees | 020 |
| 1/15 11:30 | Rail Container WMNY1698 (NYC) | Plastic bagged household waste; Majority household MSW with some leaves/yard waste/Christmas trees, wood/particle board, plastic, rug | 021 |
| 1/15 11:40 | Rail Container WMNY0120 (NYC) | Plastic bagged household waste; Majority household MSW with some wood furniture, wood scraps, metal pieces, a foam mattress, and Christmas trees | 022 |

Based on the visual inspections of the waste at the working face, no visual differentiation between the typical MSW from the various regions could be made. The majority of the waste delivered consisted of household MSW, along with other materials such as yard waste, empty containers, and furniture, all of which are typically found in residential MSW.

GHD also collected a series of air samples, which are further discussed in Section 4.4 and odor intensity readings of waste from each region were collected using the n-butanol scale (see Section 4.3.2).

### 4.3.2 Olfactory Monitoring of Incoming Waste

In addition to the visual observations performed of the physical composition of the waste, olfactory monitoring using odor intensity and the n-butanol scale were conducted on select waste loads. The olfactory monitoring was conducted on the same loads where air samples were collected, as well as some additional loads or areas as time allowed. Results are summarized in Table 4.3.

**Table 4.3 Results of Odor Intensity Monitoring**

| Sample ID | Delivery Method (Region) | Odor Intensity | Peak Odor Intensity |
|---|---|---|---|
| Conducted during Week of December 10th | | | |
| 001 | Rear Load Truck 363032 (Local) | 0.5 | 1.0 |
| 002 | Undisturbed Compost | 1.0 | 1.5 |
| 003 | Rail Container WMNY1189 (NYC) | 1.0 | 1.5 |
| 004 | Food Waste for Composting | 2.0 | 2.5 |
| 005 | Biosolids (Local) | 3.0 – 3.5 | 4.0 |
| 006 | Disturbed Compost | 2.0 – 3.5 | 3.5 |
| 007 | Front Load Truck (Local) | 2.0 | Steady |
| 008 | Rail Container WMNY10081 (NYC) | 1.5 | 2.0 |
| 009 | Long Haul Truck (NYC) | 1.0 | 1.5 |
| 010 | Rail Container WMNY9937 (NYC) | 1.5 | 2.0* |
| 011 | Rail Container WMNY9581 (NYC) | 1.0 | Steady |
| | Rail Container WMNY10891 (NYC) | 1.0 | 1.5 |
| 012 | Rail Container WMNY 10645 (NYC) | 1.0 | Steady |
| | Long Haul Truck (NYC) | 0.5 | 1.0 |
| Conducted during Week of January 8th | | | |
| | Rail yard (between cars) | 1.0 | Steady |
| 013 | Rail Container WMNY9941 (NYC) | 0.5 | 1.0 |
| 014 | Rail Container WMNY8878 (NYC) | 0.5 | 1.0 |
| 015 | Rail Container USWX9155 (NYC) | 0.5 | 1.0 |
| 016 | Rail Container WMNY9789 (NYC) | 0.5 | 1.0 |
| 017 | Long Haul Truck 9A-662/TT-129 (NYC) | 0.5 | Steady |
| 018 | Long Haul Truck 9A-662/98 (NYC) | 0.5 | Steady |
| 019 | Rail Container WMNY1776 (NYC) | 0.5 | 1.0 |
| 020 | Rail Container WMNY1936 (NYC) | 0.5 | Steady |
| 021 | Rail Container WMNY1698 (NYC) | 0.5 | Steady |
| 022 | Rail Container WMNY0120 (NYC) | 0.5 | 1.0 |

Notes: Odor Intensity is based on n-Butanol scale, ranging from 0 to 8.

* An odor intensity of 2.5 was noted while digging through waste for the temperature probe placed within the waste container. This level was not representative of the incoming waste within the container, nor comparable to other odor intensity noted from the other waste streams.

Based on the olfactory monitoring conducted of the waste during delivery of waste from the various geographic regions to the working face, no significant differentiation between the typical MSW from the various regions could be made. As previously noted in Section 4.3.1, the majority of the waste delivered consisted of typical residential MSW, and was also noted to be consistent across the various geographic regions.

It was noted that the highest odor intensity levels, and thus most intense odors, were associated with delivery of the biosolids to the working face (sewage sludge from a local POTW), and also noted in the compost area, during delivery of the food waste, and when the compost piles were disturbed. The odor intensity associated with compost area and the delivery of biosolids were significantly higher than those measured at the working face during delivery of MSW.

## 4.4 Collection of Air Samples

### 4.4.1 Air Monitoring of Transportation Containers

Upon arrival at HALRC, the rail containers were unloaded from the rail cars and staged in an area adjacent to the rail yard. Each container had a hose-barb sample port installed into its side-wall upon arrival to allow for monitoring of the interior of the container while allowing the containers to stay closed until disposal. The rail containers were monitored to determine the presence of any potential odorous emissions each day until the waste was disposed of at the working face using the following methods:

- Monitoring outside each container was conducted using a Flame Ionization Detector (FID). The rear door of each container (the side from which waste is unloaded) was monitored with an FID and the readings were logged in a field book. The FID instrument measures total volatile organic compounds (VOCs) and displays the measurement as a concentration value in units of parts per million (ppm). A reading of less than 2 ppm was considered to be "background" and any readings above this background level were recorded. Monitoring conducted included checking the seams/seals of the rail containers, with measurements being taken within 5-10 centimeters of the container, which is in general accordance with EPA Method 21. It should be noted that the top lid of the container could not be monitored due to safety hazards (height of container is approximately 15 feet)
- Monitoring inside the container was conducted using a toxic vapor analyzer (TVA). The inside of each container was monitored using a Landtec GEM 5000 instrument (GEM). The GEM provides readings a methane ($CH_4$), carbon dioxide ($CO_2$), oxygen ($O_2$), balance gas, and static pressure (P). This is the same instrument used to monitor landfill gas at HALRC.

While it was anticipated that local waste collection vehicles and transfer trailers would also be evaluated, this could not be done safely, due to the number of vehicles at the working face.

In December 2018, eight rail cars were evaluated over a period of five days. In January 2019, an additional eight cars were initially evaluated over a period of four days, with an additional four containers added and evaluated on days five and six. Results are summarized in a series of Tables in Appendix I. In review of the results, the following was noted:

- A total of 40 methane readings were collected. Methane readings reading varied, ranging from no detection of methane in 11 of the 40 readings, to a high of 8.8 percent methane in container WMNY1776 on January 14, 2019. Additionally, in 21 of the 40 readings methane was detected at concentrations below 1 percent.

- Carbon dioxide, oxygen, and balance gas readings were also collected, and varied significantly between the 40 samples collected. Some samples were somewhat reflective of atmospheric conditions, with oxygen concentrations around 21 percent, and carbon dioxide concentrations under 1 percent. However, some were significantly different, with very low oxygen concentrations, and high levels of carbon dioxide.
- Forty sets of pressure readings were collected, and varied from no pressure in nine of the forty readings, to a high of 0.06-inches water column.
- While the majority of the readings collected were similar to those of background, the FID detected emissions greater than background on the following rail containers:
  - On December 13, low level readings were detected along the seals of the rear door on the following rail containers: WMNY9581 (8 ppm along base), WMNY10204 (13 ppm along base), WMNY10153 (4-5 ppm along right side), and WMNY9937 (5 ppm along base). Similar readings were recorded in these same areas on December 14 and 15 or until the containers were unloaded.
  - On January 8, a reading of 2.5-6.3 ppm was detected along the seal of the door of container WMNY10192 due to a loose gasket along the bottom of the container. A similar reading or 2.5-7.5 ppm was detected along the seal on the right side of the door to container WMNY8992.
  - On January 15, a reading of 40 ppm was detected along the bottom left of container WMNY0120 from the MTS Southwest Brooklyn Transfer Station. This container was also monitored the prior day, January 14, and nothing was detected above background.

It should be noted that the FID reads total VOCs, and does not differentiate between individual compounds. Additionally, all of the readings recorded as part of the evaluation represent very low level detections. For reference, surface emissions scanning over the surface of the landfill is conducted on a quarterly basis using an FID. The USEPA has set a threshold of 500 ppm methane for surface emissions at a landfill, though HALRC has agreed to use a lower compliance limit of 200 ppm methane when conducting surface emission monitoring. Raw landfill gas is approximately 500,000 ppm methane. In comparison, the highest reading recorded during monitoring of the containers was 40 ppm, with the majority of the other detections being below 10 ppm.

### 4.4.2 Air Samples during Waste Placement

As discussed in Section 4.3, GHD was on-site to observe the placement of waste at the working face to determine "typical" loads from each of the regions serviced by HALRC and evaluate variations in odor during placement of MSW from various sources and modes of transportation. In addition to the visual observations performed of the physical composition of the waste, scans were performed using olfactory and air monitoring instruments.

As outlined in the December 2018 Work Plan, the following air/gas samples were collected:

- Rail shipping containers
- Potentially odorous loads (based on a review of incoming waste streams)
- Transfer trailers, front-loaders, rear-loaders, compost, special wastes, etc.

Samples were collected using the following method:

1. After the waste was unloaded from truck/transfer trailer/rail container, a 2-mil plastic sheet of 9'x12' was placed over the waste pile in an area that was observed to be representative of the waste stream. The plastic sheet was left in place for a minimum of 15-20 minutes to allow for emissions to accumulate.
2. A 6-liter silonite can fitted with a 1-hour time-integrated flow controller was placed on top of the plastic sheet. A piece of Teflon tubing was extended from the silonite can to the area underneath the plastic sheet. The canister was opened for sample collection. After sample collection, the canister valve was closed and the can was packaged and labeled for shipment to the laboratory for analysis.

While it is understood that these methods would not necessarily detect all of the compounds in the above list, it was expected to indicate concentrations of odorous compounds present at detectable limits and determine if these compounds are common to more than one source or if there is a high variability between sources. The intent of collecting air samples from waste was to determine what compounds would be similar to, and those different from, landfill gas.

Collected air samples were collected and analyzed for the following parameters:

- Volatile organic compounds (VOCs) via USEPA method TO-15 plus tentatively identified compounds (TICs)
- Reduced sulfur compounds via ASTM method 5504

The collection of the air samples was undertaken concurrently with the olfactory readings using the n-butanol scale (as discussed in Sections 3.1 and 4.3.2).

Temperatures of each load were collected in the field using an AM Probe Infrared Thermometer (IR-712). The IR-712 thermometer has a temperature range of 0 degrees F to 1,022 degrees F. Samples were also collected of representative waste from each load to determine moisture content of the waste. Results of the temperature monitoring and analysis for moisture content are included in a table in Appendix J.

Results of the air sampling, moisture content and field testing of temperature are summarized in a table in Appendix J. Appendix J also includes a series of some summary charts, graphing the results, as well as the laboratory analysis. The following was noted:

- Several of the known odor producing compounds, such as acetone, d-limonene, alpha-pinene, acetone, dimethyl sulfide, and dimethyl disulfide (refer to Section 3.2.1) were detected above the respective odor threshold in the majority of samples collected, but were below the threshold values in some of the samples.
- Other odor compounds were detected in all of the samples collected, however, were at concentrations reported below the respective odor thresholds, including, but not limited to, ethyl acetate, toluene, methylene chloride, and nonane.
- Hydrogen sulfide was detected in only 7 of the 22 samples collected, and all seven detections were at very low levels, with the highest detection being 23 $\mu g/m^3$ (or 16.5 ppb).

- Waste associated with a local front load truck exhibited higher concentrations of ethylbenzene and xylene compared with the rest of the samples (Sample 007). In review of field notes for this load of waste, the odor was classified as having a varnish or solvent-like odor with an odor intensity of 2.0, which was the highest odor intensity measured that was not associated with organics or biosolids. It is noted that front load trucks typically contain waste from local businesses, and may include commercial or industrial sources.
- The highest concentration of dimethyl sulfide was detected in the food waste sample.
- The compost, food waste and sludge samples had significantly lower VOC concentrations than the MSW, which would be anticipated.
- One of the samples from a transfer trailer had sulfur compound concentrations significantly higher than all of the other samples. Specifically, the dimethyl disulfide concentration was an order of magnitude higher than the similar other readings in the other wastes. Thus it is believed to have been reading significantly impacted by a specific waste type within the vicinity of the sample, and not generally representative of MSW.

GHD evaluated fourteen different odorous compounds to determine if any particular trends existed between the various loads (See Appendix J). No specific trends were evident. In most cases, some compounds were detected at relatively high concentrations in some waste streams, and very low concentrations in others. In some cases, only one compound was detected at a higher concentration (relative to the other samples) in all of the waste streams. As with the sample referenced above, this is more likely due to the specific waste sample collected, than indicative of the characteristic of a specific method of transport or region where the waste originated.

It should be noted that these results were from random samples collected from portions of covered waste, at one point in time. They are not emission rates, or ambient air concentrations, nor do they correlate to potential fence-line concentrations which would be orders of magnitude lower, if present, or detectable at all.

## 4.5 Bench Scale Test of Nitrogen Purge

To evaluate the potential for using a nitrogen purge to prevent decomposition of waste in rail containers, a bench scale test was conducted. This consisted of collection two 5-gallon containers of freshly tipped municipal waste for analysis. One of the containers was purged with nitrogen and the other left untreated. Two sets of containers were collected. Gas samples were extracted from each container every other day for 10 days, and then again after approximately 20 days. The samples were analyzed for their methane concentration in GHD's treatability lab in Niagara Falls, New York.

### Table 4.4 Methane Concentration in Purged/Non-Purged Samples – Trial 1

| Days Following Collection | Nitrogen Purged Sample (% Methane) | Non-Purged Sample (% Methane) |
|---|---|---|
| Day 0 | ND | ND |
| Day 3 | ND | ND |
| Day 4 | ND | ND |
| Day 5 | ND | ND |
| Day 6 | ND | ND |
| Day 7 | ND | ND |
| Day 10 | ND | ND |
| Day 19 | ND | ND |
| Day 24 | ND | ND |

Note: ND = Not detected at reporting limit of 0.2%

### Table 4.5 Methane Concentration in Purged/Non-Purged Samples – Trial 2

| Days Following Collection | Nitrogen Purged Sample (% Methane) | Non-Purged Sample (% Methane) |
|---|---|---|
| Day 0 | ND | ND |
| Day 1 | ND | ND |
| Day 2 | ND | ND |
| Day 3 | ND | ND |
| Day 6 | ND | ND |
| Day 7 | ND | ND |
| Day 8 | ND | ND |
| Day 9 | ND | ND |
| Day 10 | ND | ND |
| Day 14 | ND | ND |
| Day 21 | ND | ND |

Note: ND = Not detected at reporting limit of 0.2%

As shown in Tables 4.4 and 4.5, methane was not detected in any of the samples collected. As discussed in Section 3.2.1, the results correlate to the previous research done at the University of Wisconsin, which determined it took over 20 days for oxygen to be consumed, the acid-forming decomposition phase to be completed, and the onset of methane formation to occur.

## 4.6 Ambient $H_2S$ Monitoring Program

On March 2, 2018, GHD submitted a Revised Ambient Monitoring Work Plan to the NYSDEC for HALRC, and on March 6, 2018, five Acrulog hydrogen sulfide ($H_2S$) monitoring units were installed at the following locations around the perimeter of the facility:

- West Monitoring Station
- North Monitoring Station
- East Monitoring Station
- South Monitoring Station

- Dudley Elementary School Monitoring Station

Figure 2 presents the location of each of these stations.

The Acrulog units collect measurements of hydrogen sulfide at a frequency of every 10 minutes at each station.

Over the past year, bi-weekly reports have been to NYSDEC and Town of Perinton describing the monitoring and the results obtained during the previous reporting period. $H_2S$ has been detected on rare occasions (less than 0.1 percent of all readings), and there were no occasions when the NYSDEC threshold of 10 ppb as a one-hour average, attributable to the landfill, was exceeded. Table 4.6 below provides a summary of the ambient $H_2S$ Monitoring conducted over the past year.

**Table 4.6 Summary of Ambient Monitoring Program – March 6, 2018 Through March 6, 2019**

| Station Name | # Readings Collected | % Readings Collected (% of potential total) | # of Detections | % Non-Detections (% of Total Readings) |
|---|---|---|---|---|
| West Monitoring Station (WMS) | 52,457 | 99.80 | 9 | 99.98 |
| North Monitoring Station (NMS) | 50,319 | 95.74 | 47 | 99.91 |
| East Monitoring Station (EMS) | 49,996 | 95.12 | 124 | 99.75 |
| South Monitoring Station (SMS) | 49,760 | 94.67 | 17 | 99.97 |
| School Monitoring Station (School) | 52,506 | 99.90 | 48 | 99.91 |
| **Grand Totals** | **255,038** | **97.05** | **245** | **99.90** |

# 5. Review of Inspection Reports and Odor Logs

Inspection reports from the NYSDEC during the evaluation periods of December 10th through December 17th and January 8th through January 15th are included in Appendix K. The following was noted in review of the NYSDEC inspection reports related to odors:

- Inspections during the evaluation periods were performed almost daily, occurring on 12/10, 12/11, 12/12, 12/14, 12/17, 1/8, 1/10, 1/11, and 1/14.
- The odor control system was in operation throughout the entire evaluation period.
- Slight to moderate garbage related odors were noted on-site by the NYSDEC inspector, periodically on the perimeter access roads or near the working face.

GHD also reviewed odor log of complaints received during the on-site portion of the evaluation to determine if correlations could be made to activities occurring on-site with off-site odor. Table 5.1 outlines the complaints received and the findings of Towpath Investigative Services. A total of six odor complaints were received during the time period from December 10 to December 17, and five were received from January 8 to January 15. Based on review of field notes, no correlations to on-site activities could be made with the odor complaints received during either the December or January periods.

**Table 5.1 Odor Complaints During Evaluation Periods**

| Date/Time of Compliant | Description of Odor | Wind Direction | Time of Investigation | Investigation Summary with Odor Intensity |
|---|---|---|---|---|
| 12/10/18 8:45 p.m. | Sweet Human Waste | ENE 4 mph | 9:08 p.m. | No odor detected |
| 12/13/18 10:41 a.m. | Garbage | SE 9 mph | 11:06 a.m. | 0.5, infrequent puffs of garbage odor |
| 12/13/18 4:30 p.m. | Human Waste | S 6 mph | 4:52 p.m. | 1.0, frequent puffs of garbage odor lasting 2 minutes then dissipating with wind shifts |
| 12/14/18 10:43 a.m. | Garbage | S 8 mph | 11:10 a.m. | 1.0, Steady garbage odor |
| 12/14/18 3:02 p.m. | Garbage | S 7 mph | 3:36 p.m. | 1.5, Steady garbage odor |
| 12/14/18 3:58 p.m. | Garbage | S 8 mph | 4:11 p.m. | 1.5, Steady garbage odor |
| 1/8/19 10:47 a.m. | Rotting food and garbage | SE 7 mph | 12:03 p.m. | No odor detected |
| 1/8/19 3:21 p.m. | Strong Trash | SSE 4 mph | 4:35 p.m. | No odor detected |
| 1/8/19 3:40 p.m. | Garbage and toxic | SSE 4 mph | 4:32 p.m. | No odor detected |
| 1/8/19 4:36 p.m. | Garbage | S 5 mph | 5:05 p.m. | No odor detected |
| 1/15/19 10:01 a.m. | Garbage | SW 7 mph | 10:24 a.m. | No odor detected |

# 6. Summary/Conclusions

In December and January the first of two phases of field testing was conducted as part of the evaluation. Work was performed in accordance with the December 2018 Work Plan previously submitted and approved by the NYSDEC and the Town of Perinton. Additional observations and data will be collected during the summer of 2019, as the purpose of the study was to determine if various wastes were more odorous than others, which needs to factor in seasonal variations. Thus, until the additional data collection is completed as part of the second phase of the study, formulating any conclusions would be premature.

The following preliminary trends were noted during this initial phase of the evaluation:

- Based on the waste characterization information reviewed and visual observations made at the working face, no significant differences were identified related to waste composition from the various incoming MSW waste streams based on the geographic region of origin, mode of transportation, or whether or not the waste was routed through a transfer station.

- Due to the different collection timeframes, the age of residential MSW waste upon arrival at HALRC is not markedly different based on the geographic region of origin or mode of transportation. This is based on review of collection frequencies, transportation time frames, and transfer station operating requirements in NYC versus those of other parts of New York.
- The EPI Cover System has performed well during the initial trial period, assisting HALRC operations staff with odor control at the working face as it eliminates the need for cover stripping in the morning. HALRC will likely be requesting approval from the NYSDEC to continue use of the material beyond the initial trial period, such that it can be used as necessary by operations going forward.
- Based on the work performed to date, which is subject to change based on the collection of additional data, there was no discernable difference in the odor intensity of MSW waste streams based on the geographic region of origin, mode of transportation, or use of a transfer station. However, there are certain waste streams that generated odors of a much higher intensity than MSW. These include biosolids/sewage sludge and those associated with composting operations.
- While there was some variability in the temperature data collected from the various locations during the winter data collection period, no trends indicating a significant temperature increase during transport were identified.
- A review of the results of the chemical analysis did not indicate a common odor causing compound or waste stream as containing particularly odorous compounds. The results were variable, and likely indicative of the composition of the individual sample, rather than the region of which the waste was generated, or mode of transport.

# 7. References

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Photo 1 – Cargo Data Logger Unit Installed Within PVC Cap

Photo 2 – Front of Cargo Data Logger Unit Prior to Operation

**Site Photographs**

Photo 3 – Scale at Review Transfer Station

Photo 4 – Side View of Rail Container WMNY 10891 at Review Transfer Station

Photo 5 – Temperature Probe Being Loaded Into Rail Container at Review Transfer Station

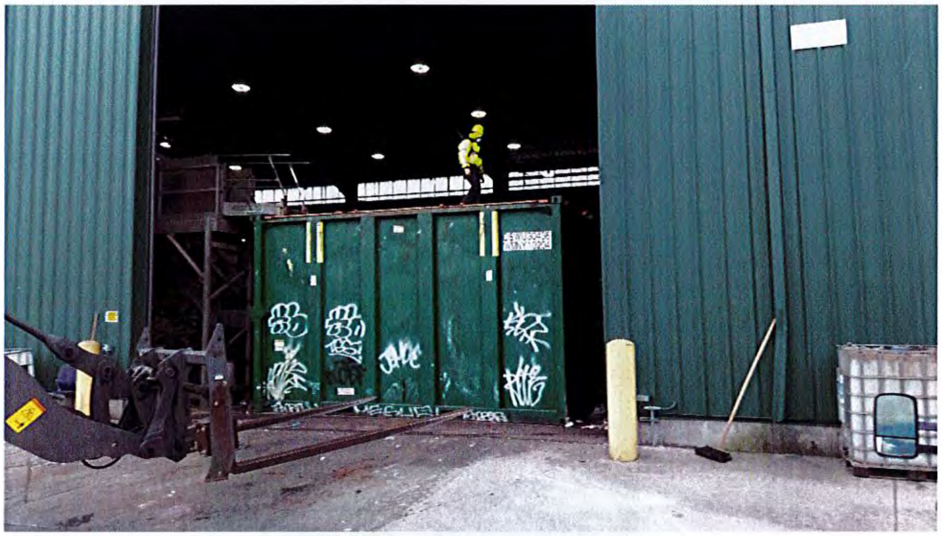


Photo 6 – Rail Container Being Transported From Review Transfer Station to Rail Yard

## Site Photographs

Photo 7 – Temperature Probe Placed on Bottom of Rail Container USWX 9581

Photo 8 – Temperature Probe Placed in Center of Rail Container USWX 9581

## Site Photographs

Photo 9 – Temperature Probe Placed on Side of Rail Container USWX 9581

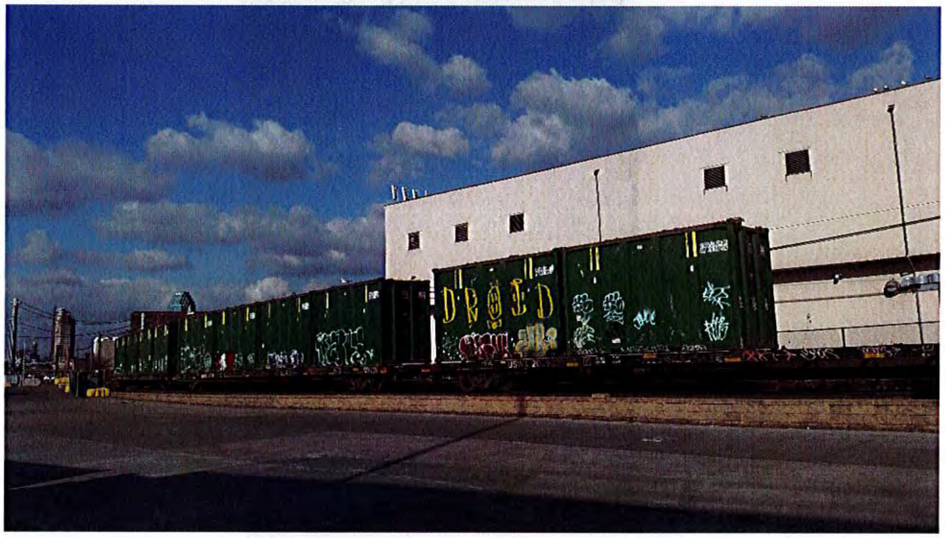


Photo 10 – Rail Containers Placed Onto Rail Yard at Review Transfer Station

Photo 11 – Odor Science Technician Preparing to Collect Sample at Landfill

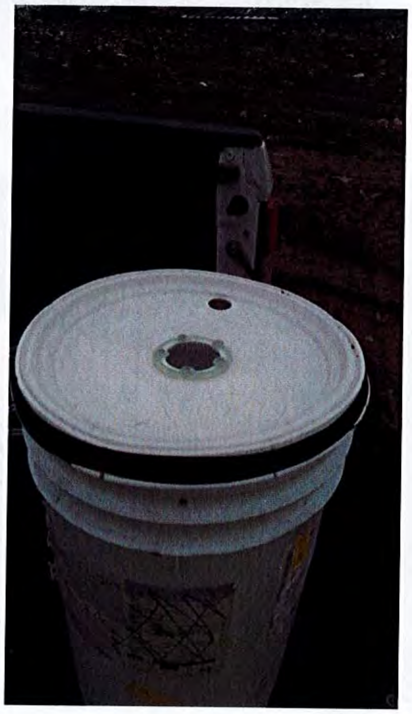


Photo 12 – Sample apparatus used by Odor Science

Photo 13 – Trucks / Equipment Applying Cover Soil at Active Region of Cell 12
(Looking South)

Photo 14 – View of Active Region of Cell 12 (Looking East)

## Site Photographs

Photo 15 – Rail Container Being Transported to Active Region of Cell 12 to be Unloaded

Photo 16 – Rail Container Being Unloaded in Active Region of Cell 12

Photo 17 – Pile of Garbage after Being Unloaded From Rail Container

Photo 18 – Equipment Used to Spread Out Garbage Pile Prior to Cover Soil

## Site Photographs

Photo 19 – Food Waste / Compost Area (Looking West)

Photo 20 – Compost Windrow

**Site Photographs**

Photo 21 – Local Rear Loader Truck

Photo 22 – Local Rear Load Truck Dumping Garbage

Photo 23 – Excavator Spreading Out Local Rear Load Garbage Pile

Photo 24 – Local Rear Load Waste Sample Collection in Silonite Can

Photo 25 – Local Rear Load Waste Moisture Content Sample Bag

Photo 26 – Laying Out Plastic Sheeting for Undisturbed Compost Sample;
Odor Science Collecting Tedlar Sample in Conjunction with Silonite Can

Photo 27 – Undisturbed Compost - Silonite Can Sample Retrieval

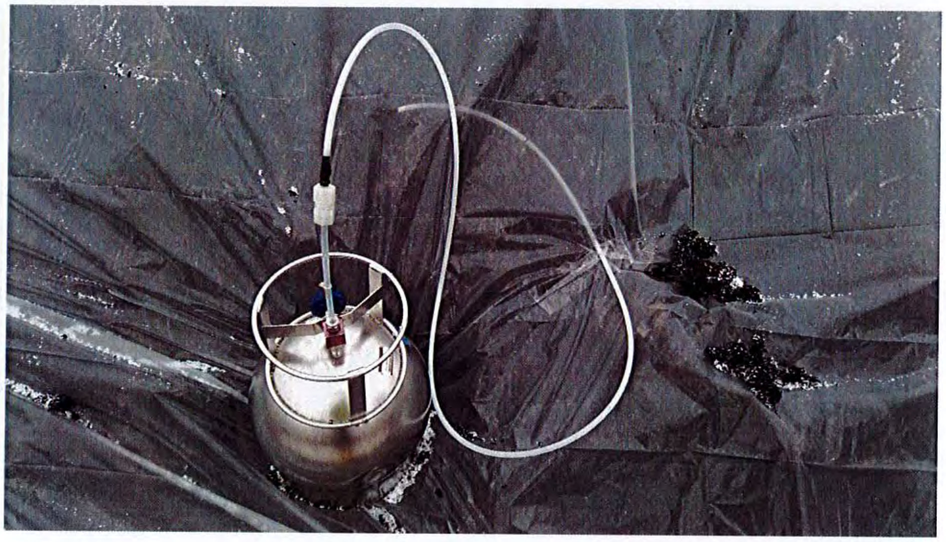


Photo 28 – Undisturbed Compost - Silonite Can Sample Retrieval (Close-up)

Photo 29 – Truck Delivering Rail Container Waste for Sampling

Photo 30 – Rail Container Material - Silonite Can Sample Retrieval

## Site Photographs

Photo 31 – Food Waste Recently Unloaded

Photo 32 – Plastic Sheeting Laid Over Food Waste Pile

## Site Photographs

Photo 33 – Food Waste - Silonite Can Sample Retrieval

Photo 34 – Biosolids Truck Preparing to Unload

## Site Photographs

Photo 35 – Biosolids Truck Unloading Material

Photo 36 – Laying Out Plastic Sheeting for Biosolids Sample;
Odor Science Collecting Tedlar Sample in Conjunction with Silonite Can

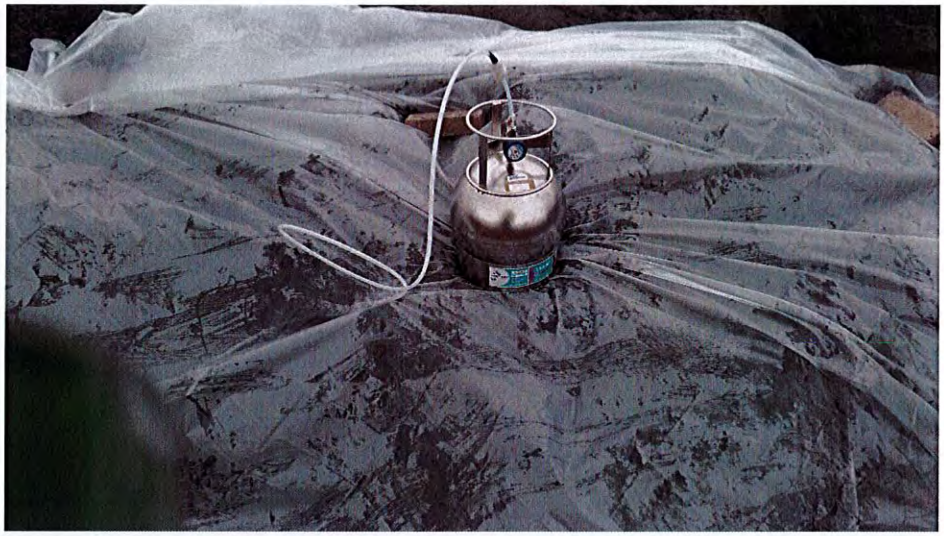


Photo 37 – Biosolids - Silonite Can Sample Retrieval

Photo 38 – Loader Disturbing Compost Material Pile

Photo 39 – Disturbed Compost Material

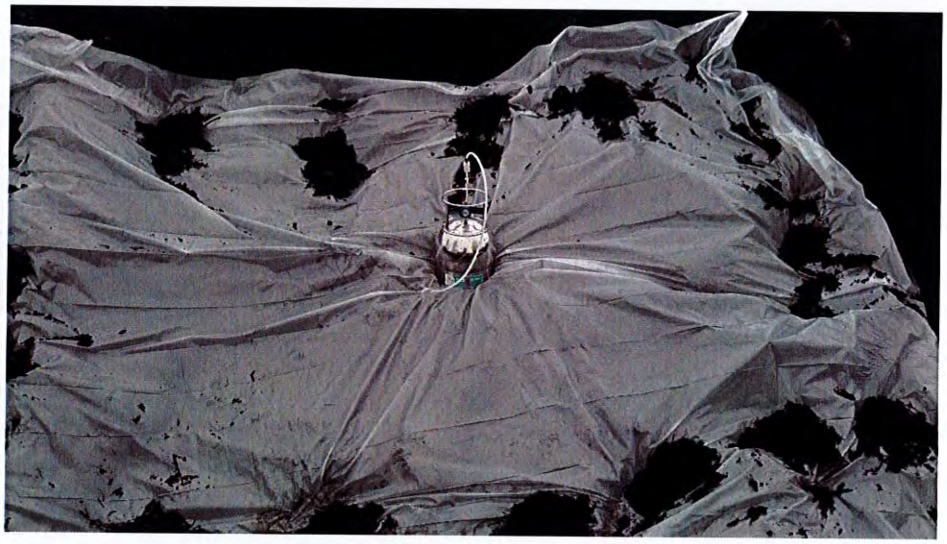


Photo 40 – Disturbed Compost Material - Silonite Can Sample Retrieval

Photo 41 – Local Front Load Truck

Photo 42 – Local Front Load Truck Dumping Waste

Photo 43 – Waste Pile – Local Front Load Truck

Photo 44 – Silonite can Setup – Local Front Load Waste

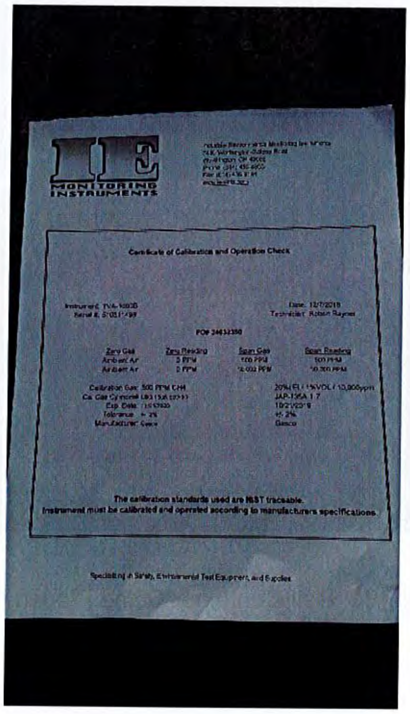
## Site Photographs

Photo 45 – Equipment Retrieving Rail Containers from High Acres Rail Yard

Photo 46 – Rail Container Being Placed Onto Truck

## Site Photographs

Photo 47 – TVA FID used for Screening of Rail Container Openings



Certificate of Calibration and Operation Check

Instrument: TVA-1000B
Serial #: [illegible]

Date: 12/7/2018
Technician: Robin Rayner

PO# [illegible]

| Zero Gas | Zero Reading | Span Gas | Span Reading |
|---|---|---|---|
| Ambient Air | 0 PPM | 500 PPM | 500 PPM |
| Ambient Air | 0 PPM | 10,000 PPM | 10,000 PPM |

Calibration Gas: 500 PPM CH4
Cal Gas Cylinder#: [illegible]
Exp. Date: [illegible]
Tolerance: +/- 2%
Manufacturer: Gasco

20% LEL / 1% VOL / 10,000ppm
JAP-135A 1.7
10/21/2019
+/- 2%
Gasco

The calibration standards used are NIST traceable.
Instrument must be calibrated and operated according to manufacturers specifications.

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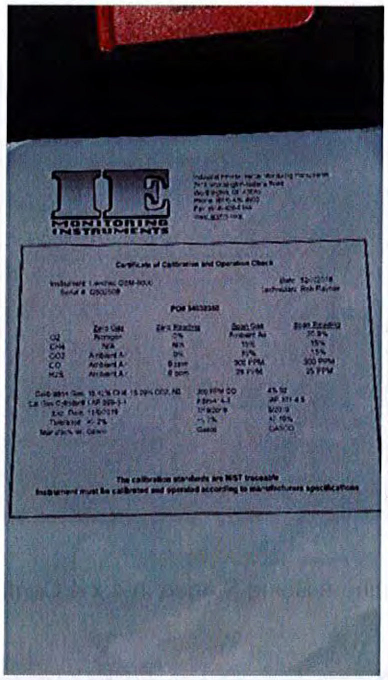
Photo 48 – IE Calibration Certificate for TVA FID

**Site Photographs**



Certificate of Calibration and Operation Check

|  | Zero Gas | Zero Reading | Span Gas | Span Reading |
|---|---|---|---|---|
| O2 | Nitrogen | 0% | Ambient Air | 20.9% |
| CH4 | N/A | N/A | 15% | 15% |
| CO2 | Ambient Air | 0% | 15% | 15% |
| CO | Ambient Air | 0 ppm | 300 PPM | 300 PPM |
| H2S | Ambient Air | 0 ppm | 25 PPM | 25 PPM |

The calibration standards are NIST traceable
Instrument must be calibrated and operated according to manufacturers specifications

Photo 49 – IE Calibration Certificate for Landtec GEM 5000 Unit

Photo 50 – Landtec GEM 5000 Unit Used for Rail Container Gas Monitoring

## Site Photographs

Photo 51 – Rail Containers Being Staged in 4 x 4 Configuration Adjacent to Rail Yard

Photo 52 – Rail Container Review #10081 in Staging Area – Day 1

Photo 53 – Hose Barb Sample Port Installed on Side of Rail Container for Monitoring with Landtec GEM 5000 Unit

Photo 54 – Rail Containers Review #10081 and Review #10153 Being Loaded onto Truck for Transport to Cell 12 Active Area

Photo 55 – Review Rail Container #10081 Being Unloaded in Cell 12 Active Area

Photo 56 – Waste Pile from Review Container #10081

**Site Photographs**

Photo 57 – Temperature Probe Retrieved From Review Rail Container 10081

Photo 58 – Preparing to Retrieve and Download Data from Temperature Logger for Review Rail Container 10081

Photo 59 – PVC Cap Removed From Temperature Probe for Review Rail Container 10081

Photo 60 – Temperature Logger Unit for Review Rail Container 10081 at the End of Journey

Photo 61 – Silonite Can Setup – Review Container 10081 Waste

Photo 62 – Long Haul Trailer #1 Preparing to Unload Waste

## Site Photographs

Photo 63 – Long Haul Trailer #1 Unloading Waste

Photo 64 – Long Haul Trailer #1 Waste Pile

Photo 65 – Silonite Can Setup – Long Haul Trailer #1

Photo 66 – Review Container 9937 (Day 2) Being Loaded Onto Truck for Transport to Cell 12 Active Area

Photo 67 – Review Container 9937 (Day 2) Being Unloaded

Photo 68 – Waste Pile – Review Rail Container 9937 (Day 2)

## Site Photographs

Photo 69 – Temperature Probe Retrieved From Review Container 9937 Waste

Photo 70 – Silonite Can Setup – Review Rail Container 9937 Waste (Day 2)

Photo 71 – Truck Preparing to Unload Review Container 9581 Waste

Photo 72 – Review Container 9581 (Day 3) Waste pile With Overlay Plastic Sheet

Photo 73 – Silonite Can Setup – Review Container 9581 Waste (Day 3)

Photo 74 – Review Container 10645 (Day 4) Unloading Waste

Photo 75 – Review Container 10645 (Day 4) Waste Pile

Photo 76 – Plastic Sheet Over Review Container 10645 (Day 4) Waste

Photo 77 – Silonite Can Setup - Review Container 10645 (Day 4) Waste

Photo 78 – Arrival of Long Haul Trailer 2

Photo 79 – Long Haul Trailer #2 Unloading Waste

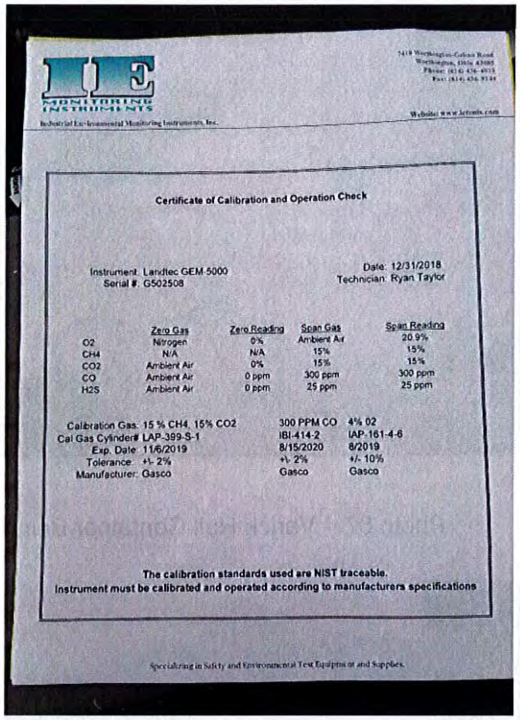
Photo 80 – Long Haul Trailer #2 Waste Pile

Photo 81 – Temperature Probes being loaded into Rail Container WMNY 1776 at MTS Hamilton Transfer Station

Photo 82 – Temperature Probe being loaded into Rail Container WMNY 1936 at MTS Southwest Transfer Station

Photo 83 – Temperature Probes being loaded into Rail Container WMNY 1698 at MTS Hamilton Transfer Station

Photo 84 – Temperature Probe being loaded into Rail Container WMNY 0120 at MTS Southwest Transfer Station



IE MONITORING INSTRUMENTS

Industrial Environmental Monitoring Instruments, Inc.

7419 Worthington-Galena Road
Worthington, Ohio 43085
Phone: [illegible]
Fax: [illegible]

Website: [illegible]

**Certificate of Calibration and Operation Check**

Instrument: Landtec GEM-5000
Serial #: G502508

Date: 12/31/2018
Technician: Ryan Taylor

| | Zero Gas | Zero Reading | Span Gas | Span Reading |
|---|---|---|---|---|
| O2 | Nitrogen | 0% | Ambient Air | 20.9% |
| CH4 | N/A | N/A | 15% | 15% |
| CO2 | Ambient Air | 0% | 15% | 15% |
| CO | Ambient Air | 0 ppm | 300 ppm | 300 ppm |
| H2S | Ambient Air | 0 ppm | 25 ppm | 25 ppm |

| | | | |
|---|---|---|---|
| Calibration Gas: | 15 % CH4, 15% CO2 | 300 PPM CO | 4% 02 |
| Cal Gas Cylinder# | LAP-399-S-1 | IBI-414-2 | IAP-161-4-6 |
| Exp. Date: | 11/6/2019 | 8/15/2020 | 8/2019 |
| Tolerance: | +\- 2% | +\- 2% | +/- 10% |
| Manufacturer: | Gasco | Gasco | Gasco |

**The calibration standards used are NIST traceable.**
**Instrument must be calibrated and operated according to manufacturers specifications**

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Photo 85 – IE Calibration Certificate for TVA-1000 Unit

Photo 86 – TVA-1000 Unit Used for Rail Container Gas Monitoring

**Site Photographs**

Photo 87 – Varick Rail Container Being Staged

Photo 88 – Varick Rail Container #9941 in Staging Area – Day 1

## Site Photographs

Photo 89 – Varick Rail Container #9941 Being Unloaded on high plateau edge near south slope

Photo 90 – Waste Pile from Varick Container #9941

Photo 91 – Temperature Probe Retrieved From Varick Rail Container #9941

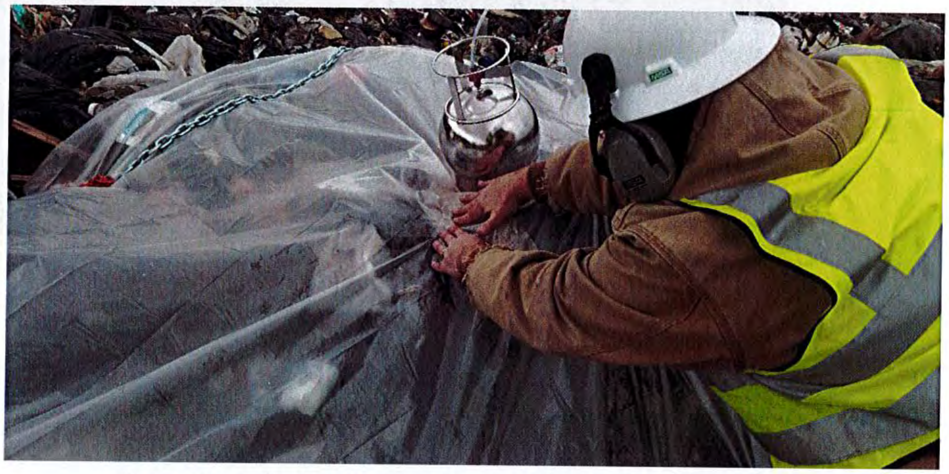


Photo 92 – Silonite Can Setup – Varick Container #9941 Waste

Photo 93 – Varick Rail Container # 8878 Being Staged

Photo 94 – Varick Rail Container # 8878 Being Unloaded on high plateau near south slope

## Site Photographs

Photo 95 – Waste Pile from Varick Container #8878

Photo 96 – Silonite Can Setup – Varick Container #8878 Waste

Photo 97 – Varick Rail Container # 9155 being transferred from heating pad to truck

Photo 98 – Varick Rail Container # 9155 Being Unloaded on high plateau near south slope

## Site Photographs

Photo 99 – Waste Pile from Varick Container # 9155

Photo 100 – Silonite Can Setup – Varick Container # 9155 Waste

## Site Photographs

Photo 101 – Varick Rail Container #9789 being moved from heating pad to truck

Photo 102 – Varick Rail Container # 9789 unloaded on high plateau near south slope

Photo 103 – Waste Pile from Varick Rail Container # 9789

Photo 104 – Silonite Can Setup – Varick Container # 9789 Waste

Photo 105 – Varick Long Haul Trailer #96

Photo 106 – Varick Long Haul Trailer #96 unloading at high plateau near south slope

Photo 107 – Waste Pile from Varick Long Haul Trailer #96

Photo 108 – Silonite Can Setup – Varick Long Haul Trailer #96

Photo 109 – Varick Long Haul Trailer #98

Photo 110 – Varick Long Haul Trailer #98 unloading at high plateau near south slope

## Site Photographs

Photo 111 – Waste Pile from Varick Long Haul Trailer #98

Photo 112 – Silonite Can Setup – Varick Long Haul Trailer #98

## Site Photographs

Photo 113 – MTS Hamilton (Day 1) Rail Container #1776 in the Staging Area

Photo 114 – MTS Hamilton (Day 1) Rail Container #1776 on Heating Pad

Photo 115 – MTS Hamilton (Day 1) Rail Container #1776 being loaded from Heating Pad onto Truck

Photo 116 – MTS Hamilton (Day 1) Rail Container #1776 being dumped in Active Area of Cell 12

Photo 117 – MTS Hamilton (Day 1) Rail Container #1776 Waste Pile

Photo 118 – Silonite Can Setup – MTS Hamilton (Day 1) Rail Container #1776

## Site Photographs

Photo 119 – MTS Southwest (Day 1) Rail Container #1936 in the Staging Area

Photo 120 – MTS Southwest (Day 1) Rail Container #1936 on Heating Pad

**Site Photographs**

Photo 121 – MTS Southwest (Day 1) Rail Container #1936 being dumped in Active Area of Cell 12

Photo 122 – MTS Southwest (Day 1) Rail Container #1936 Waste Pile

# Site Photographs

Photo 123 – Silonite Can Setup – MTS Southwest (Day 1) Rail Container #1936

Photo 124 – MTS Hamilton (Day 2) Rail Container #1698 in the staging area

Photo 125 – MTS Hamilton (Day 2) Rail Container #1698 on heating pad

## Site Photographs

Photo 126 – MTS Hamilton (Day 2) Rail Container #1698 being loaded from heating pad onto truck

Photo 127 – MTS Hamilton (Day 2) Rail Container #1698 being dumped in Active Area of Cell 12

Photo 128 – MTS Hamilton (Day 2) Rail Container #1698 Waste Pile

Photo 129 – Sampling Area Setup – MTS Hamilton (Day 2) Rail Container #1698

Photo 130 – MTS Southwest (Day 2) Rail Container #0120 in the Staging Area

Photo 131 – MTS Southwest (Day 2) Rail Container #0120 on Heating Pad

Photo 132 – MTS Southwest (Day 2) Rail Container #0120 being dumped in Active Area of Cell 12

Photo 133 – Temperature Probe Retrieved From MTS Southwest (Day 2) Rail Container #0120 Waste

Photo 134 – MTS Southwest (Day 2) Rail Container #0120 Waste Pile

Photo 135 – Sample Area Setup – MTS Southwest (Day 2) Rail Container #0120

Eliminate
Now

**MATERIAL SAFETY DATA SHEET**
According to Regulation (EC) 1907/2006 (REACH)

## I. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

**Product Identifier:** **Eliminate Now**

**Synonyms:**

**Details of the supplier of the datasheet:**

**Company Identification** **Eliminate Now**

**Company address** **1400 Broadway suite 2311,** USA

**Telephone Number:** **212-391-4444**

**Fax Number:** **212-391-4440**

**Email** sanivel@gmail.com

**Emergency Telephone Number**
212-391-4444

## 2. HAZARDS IDENTIFICATION

**Physical/Chemical hazards:** The data available does not support any physical or chemical hazard

**Human health hazards:** The data available does not support any adverse human health hazard

**vironmental hazards:** The data available does not support any environmental hazard

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance/preparation:** Liquid spore concentrate with surfactant properties

Micro-organisms EU classification I – non-pathogenic

| **Composition** | **Percentage** | **CAS Number** |
|---|---|---|
| Micro-organisms | <10% | n/a |
| Lutensol TO 89 | <1% | 24938-91-8b * |

* These are general CAS numbers. In case of emergency, please contact supplier

## 4. FIRST AID MEASURES

**Effects and Symptoms**

**Inhalation:** No effects or symptoms occur

**Ingestion:** May be irritating to respiration tract or throat

**Skin Contact:** No effects or symptoms occur

**Eye Contact:** May be irritating to eyes

**First Aid Measures**

**Inhalation:** Not applicable

**Ingestion:** Rinse out mouth with water. Do not induce vomiting. Seek medical attention if irritation persists

**Skin Contact:** Wash off with water.

**Eye Contact:** Wash out with plenty of water. Seek medical attention if irritation persists

## 5. FIRE FIGHTING MEASURES

**tinguishing Media:** The product is non combustible – any extinguishing media can be used to handle a fire nearby the product

**Special Fire Fighting Procedures:** None

**Unusual fire/explosion**

**hazards:** None known

**Hazardous thermal Decomposition products:** None known

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Protective equipment. Not normally required

**Environmental Precautions:** Prevent large spillages of undiluted product in surface- or groundwater.

**Methods for cleaning up:** Soak up spill with absorbent material. Wash away remainder with plenty of water

## 7. HANDLING AND STORAGE

**Handling:** No special measures required.

**Storage:** Store in a cool, dry place. Protect from freezing. Keep container closed when not in use.

**Packaging Materials**

**Suitable** Synthetic

**Not suitable** Metal

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures:** Not applicable

**Hygiene Measures** When using do not eat, drink or smoke. Wash hands after working with product.

**Occupational Exposure Limits:** No occupational exposure limits have been established

**Personal Protective Equipment**

**Respiratory system:** Not applicable

**Skin and Body:** General workwear only

**Eye Protection:** If required, wear safety goggles

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Physical State** | Liquid |
| **Colour** | White/very pale blue |
| **Fragrance** | Mint |
| **PH** | 6.5 – 7 |
| **Density** | Not applicable |
| **Solubility in water** | Completely soluble |
| **Viscosity** | <100mPas (T=20°C) |
| **Flash-point** | Not flammable |

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal temperature conditions.

**Materials to Avoid:** Strong bases, acids (oxidising agents)

**Hazardous Reactions:** Not known

**Hazardous Decomposition Products:** Not known

## 11. TOXICOLOGICAL INFORMATION

The data available suggests that this product is safe and will not normally lead to irritation(s).

**Inhalation:** Not applicable

**Ingestion:** Mild irritation possible

**Skin Contact:** Not irritating

**Eye Contact:** Mild irritation possible

## 12. ECOLOGICAL INFORMATION

**Mobility:** Soluble in water

**Persistence/degradability:** The resulting solution is readily biodegradable

**Bio-accumulative potential:** Bio-accumulation in aquatic organisms is not expected

**Tensioactives** Comply to the local regulations

## 13. DISPOSAL CONSIDERATIONS

Dispose of the preparation according to local and national regulations.

## 14. TRANSPORT INFORMATION

No special requirements for transportation

## 15. REGULATORY INFORMATION

**EU Regulations**

**EU Classification (1994/45/EG)** : This product does not have to be classified according to the EU regulations

## 16. OTHER INFORMATION

This information solely concerns the above mentioned product and does not necessarily apply when used in combination with other products or in any kind of process. This information has been drawn up with the utmost of care and to the best of our knowledge up to this moment. We can, however, not be held accountable for any damage, in any form whatsoever.
It remains the responsibility of the user to ensure himself that this information applies in case of specific use of the product.

**History:**

**Revision Date:** 8 April 2014

**Rev. No:** 4

The version-number is made up of four parts; part 1 is the product number (2060), part 2 is the year of issue of this document (2012), part 3 is the language (EN for English), part 4 is the version number: SAN_12_EN_04

The Next Generation of Odor Elimination

- A Sustainable & Environmental Solution for Waste Management -

# About EliminateNow

**An Environmentally-Friendly Waste Management Odor Eliminating System**

EliminateNow is a more sustainable and environmentally responsible alternative for waste management odor elimination. We safely remove the odors at the source while devouring the harmful bacteria from garbage, leachate, food and organic waste that makes for a safer and healthier odor free environment.

Using a **Green Seal Certified** product, EliminateNow destroys odors at the source, eliminating the need for misting and spraying toxic deodorizers into the air. We support companies who operate under LEEDS Guidelines and the US Green Building Council (http://www.usgbc.org/leed).

Our product is the ideal, natural odor remediation system for waste management companies who are looking for an odor eliminating solution that will NOT drive overhead, nor require the expense of additional labor or incorporate toxic chemicals into your facility.

Internationally recognized as an innovative leader in the non-chemical removal of organic bacterial odor, our safe and natural solution is a greener, cleaner way to immediately and effectively eradicate unhealthy odors around waste management facilities and landfills. We have partnered and established relationships with dozens of waste industry businesses throughout the Northeast including New York, New Jersey, Connecticut, Pennsylvania, and Ohio.

**Improved Sustainable Waste Management Strategies**

Failure to eliminate and manage odors is the single biggest cause of adverse publicity, regulatory pressures and facility closures in the waste management and organics recycling industry.

While in the past, toxic and chemical deodorizers have been considered acceptable and used in landfills and transfer stations to ***mask*** the smell of rotting trash, this is no longer the case. We have now entered a time of improved practices as the waste management industry calls for a more thoughtful and environmentally-friendly approach to eradicating waste odors.

Faced with shifts in environmental expectations, LEED certified program requirements and an increased need to offer alternative solutions to remediate offensive odors, we offer a solution that **will not drive your overhead** or **require the expense of additional labor.**

O
S&E

# Odor Science & Engineering, Inc.

## ODOR TRAINING CERTIFICATE - 2018

This is to certify that ***Bryan Szalda*** successfully completed an

***Olfactory Screening Session***
***and participated in an***
***Odor Monitoring and Complaint Response Training Program***

given by Odor Science & Engineering, Inc. on November 30th, 2018
for Waste Management of NY, LLC High Acres Landfill in Perinton, NY

*Attested:* ______________________
*Martha O'Brien*

O
S&E

# Odor Science & Engineering, Inc.

## ODOR TRAINING CERTIFICATE - 2018

This is to certify that ***Michael Casullo*** successfully completed an

***Olfactory Screening Session***
***and participated in an***
***Odor Monitoring and Complaint Response Training Program***

given by Odor Science & Engineering, Inc. on November 30th, 2018
for Waste Management of NY, LLC High Acres Landfill in Perinton, NY

*Attested:* ______________
*Martha O'Brien*

O
S&E

# Odor Science & Engineering, Inc.

## ODOR TRAINING CERTIFICATE - 2018

This is to certify that ***Richard Weis*** successfully completed an

***Olfactory Screening Session***
***and participated in an***
***Odor Monitoring and Complaint Response Training Program***

given by Odor Science & Engineering, Inc. on November 30th, 2018
for Waste Management of NY, LLC High Acres Landfill in Perinton, NY

*Attested:*
*Martha O'Brien*

O
S&E
www.odorscience.com

**Odor Science & Engineering, Inc.**
**105 Filley Street, Bloomfield, CT 06002**
**(860) 243-9380 Fax: (860) 243-9431**

June 11, 2018

Jeffrey Richardson
Sr. District Manager
Waste Management of NY, LLC
425 Perinton Parkway
Fairport, NY 14450

RE: 2018 Odor Training – High Acres Landfill
OS&E Project No. 2097-M-00

Dear Mr. Richardson:

This letter summarizes the results of the olfactory screening and odor training session conducted by Odor Science & Engineering, Inc. (OS&E) for Waste Management of NY, LLC (WM) on June 5th & 6th, 2018. The odor training was conducted for individuals who currently participate or may be become involved in routine landfill odor monitoring activities and odor complaint investigations.

**Odor Training**

A total of twelve (12) individuals participated in the odor training course presented by OS&E. The group consisted of 7 WM employees, 2 Towpath Investigative Services employees, 1 Barton & Loguidice employee and 2 representatives from the Town of Perinton. The training was conducted at the High Acres Landfill.

The odor training program consisted of a class room lecture followed by olfactory screening tests. Information presented by OS&E during the training session included the properties of odor, odor measurement methodology, meteorological factors affecting odor dispersion as well the procedures and forms used in odor monitoring and in odor complaint follow-up investigations. The training course outline is provided in Attachment A.

The participants were then screened for their olfactory acuity to ensure that they would be acceptable candidates to participate in odor monitoring and odor complaint response and investigation activities. The candidates were asked to adhere to the guidelines listed in Attachment B on the day of training so that their olfactory sensitivity would not be impaired and that odors were not brought into the screening evaluation area. The screening tests have documented each individual's sensitivity to landfill-related odors and to a series of test odorants.

The classroom instruction exercises have instructed them in the techniques and procedures to be used in conducting routine odor monitoring in areas around the landfill and investigating and confirming community odor complaints.

Each candidate was evaluated using OS&E's standard odor evaluation procedure which involves:

- Triangle test of aqueous solutions of standard odorants to determine that the subject is not anosmic (unable to smell). In this test the subject is presented with three (3) flasks, two of which contain only distilled water while the third contains a diluted aqueous solution of a standard screening odorant. With each presentation the subject must select the flask containing the odor standard. Screening was conducted using n-butanol, allyl mercaptan, trimethyl amine and isovaleric acid.

- Evaluation of odor samples on the forced-choice triangular dilution olfactometer to determine each subject's ability to detect odors likely to be investigated during odor complaint response activities. For screening purposes, OS&E collected odor samples from the active face and the gas collection system for representative "garbage" and "landfill gas" odor characters.

- 8-point butanol odor intensity scale (ASTM E544-10) training which includes becoming familiar with the odor of butanol and the perceived odor intensity at the eight bottles, along with sniffing procedures.

- Matching "unknown" aqueous butanol samples to the butanol intensity scale.

- Additionally, the dynamic dilution olfactometer was used to prepare various intensity levels of the landfill odor samples for training in odor intensity measurement using the butanol odor intensity scale.

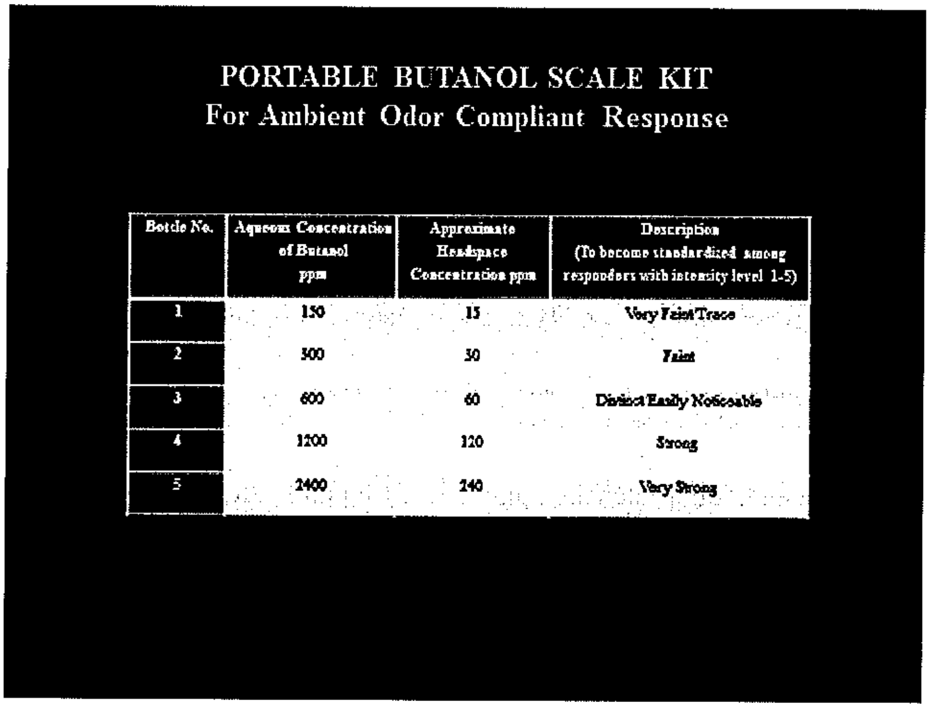
- The group also participated in odor character referencing activities using a selection of odor samples prepared from OS&E's chemical library of odorants to determine their ability to discriminate and describe different odor characters.

All candidates successfully passed the odor screening tests.

Field training was conducted each day during the afternoon. The objective of the field training was to demonstrate and train the group in actual quantification of ambient odors. The wind direction was northerly on both afternoons. In search of odors downwind from the active face, only very faint (intensity 0.5) "garbage" odor could be detected on West Canal Street. No odors were detectable in areas further downwind on East Park Drive, West Park drive, Macedon Parkway or Hwy 31. As a result, the field training was conducted on site at the landfill in areas where odors could be detected. The trainees were consistent in their measuring of odor intensities using levels 1-5 on the butanol intensity scale.

The list of all qualified odor monitors is shown in Table 1 and their odor training certificates are attached.

As part of the odor training, OS&E supplied WM/Towpath with 2 fresh Portable Butanol Intensity Field Kits to be used as part of the odor monitoring and complaint response program. The kits consist of standardized solutions of the first five (5) bottles of the 8-point scale housed in a cooler bag.



PORTABLE BUTANOL SCALE KIT
For Ambient Odor Compliant Response

| Bottle No. | Aqueous Concentration of Butanol ppm | Approximate Headspace Concentration ppm | Description (To become standardized among responders with intensity level 1-5) |
|---|---|---|---|
| 1 | 150 | 15 | Very Faint Trace |
| 2 | 300 | 30 | Faint |
| 3 | 600 | 60 | Distinct Easily Noticeable |
| 4 | 1200 | 120 | Strong |
| 5 | 2400 | 240 | Very Strong |

Use and maintenance of the butanol intensity kit are described in Attachment C. The kits should be left at room temperature (for daily use). OS&E will supply WM with stock solutions which should be kept refrigerated and used to replenish the field kits on a monthly basis.

It is important to note that the objectionability of an odor depends primarily on the following four factors:

- odor intensity
- odor character – degree of pleasantness
- duration of odor and
- frequency of odor occurrence

Odor complaint follow-up investigations should attempt to document all of these factors. This would provide the best indication of the tolerance of the surrounding community to landfill odors and provide a quantitative basis for planning odor remediation and for tracking progress in those efforts.

We appreciate the opportunity to be of service to WM on this project. Please feel free to call me if you have any comments or questions regarding the recent odor training or if we can be of any further assistance.

Sincerely,
**ODOR SCIENCE & ENGINEERING, INC.**

Martha O'Brien

Martha O'Brien
Principal

O
S&E
www.odorscience.com

**Odor Science & Engineering, Inc.**
105 Filley Street, Bloomfield, CT 06002
(860) 243-9380 Fax: (860) 243-9431

## TABLE 1.
## WASTE MANAGEMENT OF NY, LLC
## HIGH ACRES LANDFILL
## PERINTON, NY

## ODOR TRAINING PARTICIPANTS
## June 2018

| NAME | AFFILIATION |
|---|---|
| Tess Donovan | Waste Management |
| Marc Meyer | Waste Management |
| John Marvin | Waste Management |
| Jeff Richardson | Waste Management |
| Mark Matoushek | Waste Management |
| Tom Grossman | Waste Management |
| Martin Miller | Waste Management |
| John Colella | Towpath Investigative Services |
| Dave MacFall | Towpath Investigative Services |
| Don Gentilecore | Barton & Loguidice |
| Eric Williams | Town of Perinton |
| John Minichiello | Town of Perinton Conservation Board |

# ATTACHMENT A

## Odor Monitoring and Complaint Odor Investigation Techniques
## Course Outline

Introduction

1.0 The Properties of Odor

- 1.1 Odor Concentration
- 1.2 Odor Intensity
- 1.3 Odor Character
- 1.4 Hedonic Tone

2.0 Odor Measurement Methodology

- 2.1 Source Emission Sampling
- 2.2 Measurement of Odor Concentration by Dynamic Dilution Olfactometry
- 2.3 Measurement of Ambient Odor Concentrations by Scentometer & Nasal Ranger
- 2.4 Measurement of Odor Intensity

3.0 Meteorological Factors Affecting Odor Dispersion

- 3.1 Wind Speed
- 3.2 Wind Direction
- 3.3 Atmospheric Stability
- 3.4 Source Characteristics

4.0 Odor Monitoring/Complaint Response

- 4.1 Odor Monitoring Procedures and Forms
- 4.2 Odor Complaint Investigation Procedures and Forms

5.0 Olfactory Screening of Course Participants

6.0 Training on the use of the n-butanol Odor Intensity Scale

7.0 Field Training

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# ATTACHMENT B

## GUIDELINES FOR ODOR TRAINING PARTICIPANTS

On the day of an odor evaluation session:

1) DO NOT wash you hair with strong, perfumed shampoo

2) DO NOT wear perfume, scented powder, aftershave, cologne, or hairspray

3) DO NOT eat strong flavored foods, especially Mexican or southern European

4) DO NOT wear strong scented clothing (i.e. leather coat)

During the hour before and during an odor evaluation session:

1) DO NOT SMOKE

2) DO NOT drink coffee or strong tea

3) DO NOT drink strong soda (i.e. Coke)

4) Avoid eating anything for at least one-half hour before the evaluation

5) DO NOT chew gum or mints

# ATTACHMENT C

## PORTABLE BUTANOL SCALE KIT

Odor intensity will be determined using a reference sample method with n-butanol as the reference compound. The n-butanol odor intensity scale is based on n-butanol vapor as odorant at five concentrations. The concentration increases by a factor of two at each intensity step, starting with an aqueous concentration of 150 ppm at step 1 and ending 2,400 ppm at step 5.

| Bottle No. | Aqueous Concentration of Butanol ppm | Approximate Headspace Concentration ppm |
|---|---|---|
| 1 | 150 | 15 |
| 2 | 300 | 30 |
| 3 | 600 | 60 |
| 4 | 1200 | 120 |
| 5 | 2400 | 240 |

Stock solutions of standardized concentrations should be made fresh every three months. The **stock solutions** should be kept **refrigerated**. The solutions in the n-butanol field kit bottles should be replenished with fresh stock solution at least once per month. The **field kit bottles** should be maintained at **room temperature** at all times. Each field kit should be tagged and labeled with documentation of the most recent update.

When using the portable butanol scale, smell the ambient odor whose intensity you wish to measure. Then gently swirl the butanol scale Bottle 1. Open the Bottle and sniff the headspace. Continue to progress up the scale, using the same swirling technique before sniffing the headspace, until the odor intensity of the butanol matches the perceived odor intensity of the ambient odor. The ambient and butanol odors will have different odor characters, i.e. they will smell different. The ambient odor may also be unpleasant to you. You must ignore these differences and simply match the odor strength or intensity of the two odors.

You may judge that the intensity of the ambient odor is less than the intensity of the perceived butanol odor in Bottle 1. In that case you would record your intensity rating as Butanol 0.5 or, for an extremely faint odor just barely detectable to you, as 0.25 on the butanol scale. Similarly, if you think that the intensity of the ambient odor falls between two of the butanol standards record the odor intensity as half way between them. For example, if you believe the ambient odor intensity is stronger than the odor in Bottle 2, but less than that perceived in Bottle 3 you should record the intensity as 2.5. Obviously, if no ambient odor is detected you simply record no odor.

**WASTEQUIP**
***ACCURATE***

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**ACCURATE INDUSTRIES**
**- PATENT PENDING -**

**Accurate Industries**
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Erial, New Jersey 08081

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# INTERMODAL SPECIFICATION

**SPECIFICATION NO:** 100060 Page 1 of 6
**ISSUE DATE:** 4/23/09
**REVISION NO:** 2
**REVISION DATE:** 8/6/11
**APPROVED BY:** ANTHONY D. PETZITILLO, JR
**SIGNATURE:**

- **MODEL I-62/OT/AL**
- **INTERMODAL CONTAINER**
- **62 CUBIC YARD CAPACITY. 19'-10 1/2" L x 8'-6" W x 12'-0" H**
- **OPEN TOP CONTAINER W/ TOP HINGED DOOR AND STEEL LID**
- **DOOR CLOSURE – ADJUSTABLE LOCKING SYSTEM**
- **CERTIFIED FOR 5 HIGH STACKING AT 70,000#**

## SECTION I

1.1 **GENERAL REQUIREMENTS:** The following specifications describe a 20 foot long, 62 cubic yard Intermodal Environmental, watertight container to be used for rail, barge, truck transport of municipal solid waste.

Sufficient documentation must be produced for each container to satisfy the requirements of Wastequip Accurate Quality Assurance Program and this specification. The container systems shall be of the type as manufactured by Wastequip Accurate, Erial, New Jersey, or equal.

1.1.1 **QUALITY ASSURANCE:** The container manufacturer shall show evidence of a Quality Assurance Program. The container manufacturer must have fifteen (15) years of experience building containers of a similar size and design. No prototypes will be accepted.

1.1.2 **DESIGN:** The design is based upon solid waste container systems as manufactured by Wastequip Accurate, and the terminology used herein may include reference to that manufacturer's proprietary product. Such reference shall be construed as establishing the quality of materials and workmanship to be used under this section. The design shall be verified by an independent verification agency, such as The American Bureau of Shipping.

1.1.3 **MODEL:** The solid waste container systems shall be an Wastequip Accurate I-62/OT/AL production unit.

1.1.4 **PERFORMANCE:** The manufacturer must have field proven performance in design and manufacturing similar type solid waste containers. Manufactures must provide evidence through references, of 12' high containers manufactured for operations loading and transporting MSW. The previously manufactured Environmental containers used to meet this requirement shall have been designed specifically for MSW transport. References shall include, but not be limited to; the name of purchaser, contact information of purchaser, and the date containers were sold.

1.1.5 **PROTOTYPE TESTING:** The manufacturer must have the capabilities in house of performing the Prototype Tests. Prototype Testing must be supervised and certified by an independent agency, such as The American Bureau of Shipping (ABS). An ABS Prototype Test Certificate shall be provided to the owner.

1.1.6 **PRODUCTION INSPECTION:** Production processes are periodically inspected during manufacture by an independent verification agency, such as ABS, who shall issue a "Cargo Container Production Certificate" to the owner upon the completion of this job.

1.1.7 **PRODUCTION TESTING:** Production Testing shall be as described in Section 3.1 of this specification.

1.1.8 **AUDITS AND INSPECTIONS BY OWNER:** Owner has the right to audit quality systems, and perform periodic inspections during the manufacture of the containers, which may include witnessing of the QC/QA testing performed.

## SECTION II

### 2.1 DETAIL SPECIFICATIONS:

2.1.1 **CERTIFICATIONS:** Containers shall meet the current applicable requirements of the American Association of Railroads, AAR M930-98 / ABS Rules / CSC and be certified by an independent agency such as the American Bureau of Shipping.

2.1.2 **DIMENSIONS:** The container shall be 62 cubic yard net inside capacity. The outside dimensions shall meet the ABS tolerances on length, width, and diagonal measurements for a nominal 19'-10 ½" long x 8'-6" wide container. Height shall be 12'-0" maximum.

2.1.3 **CORNERS:** The containers shall be fitted with eight (8) ISO corner castings and shall be located to meet ABS standards. There shall be no protrusion of any kind, including hardware, doors, lids, etc., past the outer envelope of the corner castings.

2.1.4 **MATERIAL SPECIFICATIONS:** Documentation of materials will conform to "Material Identification" form provided by Accurate and approved by ABS. A) All structural steel tubing shall be ASTM A-500B minimum. B) Steel 7 Ga. and lighter shall be ASTM A606. C) 1/4" and heavier shall be ASTM A-36 or equivalent. D) Round bars shall be ASTM A-36, minimum. All detailed specifications are minimum only, heavier and/or stronger specifications are acceptable.

2.2 **FLOOR:**

2.2.1 Floor shall be fully welded steel, and shall have cross members on approximately 15" spacing. Side sills shall be single piece structural tubing prime material, no splits or joints. All floor joints shall be located over a cross member and spaced so a full penetration weld can be applied to joint and cross member and full seam welded to assure structural integrity and watertight capabilities.

2.2.2 Fork pockets shall be installed in floor to meet ABS design requirements; 81" centers, 14" wide minimum, 4 ½" high minimum.

2.2.3 Floor shall have an approximate 1 ½" high sump at the door end that will provide an approximate 125 gallon reservoir prior to the need of the gasket seal.

2.3 **SIDES:**

2.3.1 Sidewall design must have smooth interior walls manufactured from sheets. All side posts shall be formed members full welded automatically to side sheets. The interior is fully welded to provide watertight integrity. The top rail shall consist of prime structural tubing.

2.3.2 All four (4) corners shall have vertical structural welded tubing, between and supporting, the top and bottom corner castings. These tubes shall be designed structurally to meet the AAR M930-98 / ABS Rules / CSC requirements for stacking loaded containers with a gross weight of 70,000 pounds, during transportation.

2.3.3 The top of the container shall be reinforced on each end to prevent racking.

2.3.4 Vent: Requires no manual operation. Remains closed during transportation. Only opens when required at discharge.

## 2.4 DOOR:

2.4.1 **DOOR: AS AN IMPORTANT SAFETY ITEM THE OPERATOR MUST BE ABLE TO OPEN THE DOOR REMOTELY KEEPING ALL PERSONNEL CLEAR OF THE DOOR AND THE LOAD WHEN THE LOCK IS RELEASED.**

2.4.2 Door shall be one (1) piece and hinged from the top. Hinge pins shall be stainless steel. All hinges to be fit with grease zerks.

2.4.3 Liquids present in the loads to be hauled are considered to be a CONTAMINATED WASTE. Therefore, it is imperative to have a proven watertight seal system in addition to the CSC weatherproof seal. A proven design of an EPDM gasket sealed with a "knife edge" shall be provided between the door and doorframe to guarantee a watertight seal, so that no liquids from the waste material can leak out of the containers. Gasket must be made of durable material and easily replaceable. Manufacturer shall provide design details, sample and evidence of successful field usage prior to bid. No prototype designs are acceptable. Gasket and seal design must be approved by owner prior to bid. Gasket must be of "knife-edge" design to ensure a positive seal. No compression gasket will be accepted.

2.4.4 Door to be locked in place via the Wastequip Accurate Auto-Locking System. Consisting of a system that compresses the knife edge gasket, utilizing an under floor cam lock system with three grab hands to fully compress the knife edge into the gasket guaranteeing a fully watertight seal. There must be means to individually adjust the sealing characteristics at any point in the operation, whether in transport or storage. There must be no less than three (3) points of adjustment (each corner and the center) on the door providing the means to locally adjust the seal accounting for variations that may occur due to normal wear or damage. This system must have proven durability in previous container operations.

2.4.5 Door is to be locked into place via an automatic locking system integrated into the tipping truck or trailer. The door is to be locked and unlocked at the face of the landfill without the need for manual operation. Eliminating the use of standard load binders on the door, the system shall significantly reduce or eliminate the exposure of operators to the fatigue and risks involved with manually locking and unlocking container doors.

## 2.5 BULKHEAD:

2.5.1 Bulkhead shall be designed to meet all required AAR M930-98/ABS Rules/CSC end wall conditions including, but not limited to end wall strength, lashing and racking. The bulkhead sheets shall be steel. The bulkhead stiffeners shall be formed members fully welded to the bulkhead sheet.

## 2.6 LID & VENT:

2.6.1 Lid shall be a shoebox design, overlapping the top of the container on all four sides. Structural perimeters shall be full length pieces of ¼" rolled steel, no splits or joints. The lid must be fully welded and weatherproof and shall be sealed with a skinned open cell gasket.

2.6.2 The lid is held down with locking pins on the four (4) corners.

2.6.3 Lid shall provide the provision to be operated manually if required and shall provide means to be handled via chain spreader or forklift if requested.

## SECTION III

## 3.1 PRODUCTION TESTING:

3.1.1 Containers shall be certified by the American Bureau of Shipping (ABS) based on the design requirements as outlined by, ABS Rules for the certification of cargo containers. Testing based on ABS standards shall include but not be limited to:

- Water tightness
- Weather tightness
- Corner fitting lifting
- Fork-lift pocket lifting
- Roof loading
- Floor strength
- Floor deflection
- Walls, door, and Bulkhead loading
- Stacking Transverse Racking
- Longitudinal Racking
- Dimensions, including diagonals, within design tolerances

3.1.2 **INTERNAL WATER TEST:** The container shall be watertight welded and tested in accordance with procedures. A Water Test Report shall be provided for each container stating the internal water test procedure and signed by the Quality Control Inspector. Every container must be filled 24" with water and let stand for a minimum of thirty (30) minutes and inspected for watertight integrity. This process, if necessary, must be repeated until the container is inspected and has no leaks. The door gasket must be inspected thoroughly during this procedure. Every container must be fully welded on all joints and seams on the inside.

3.1.3 **VERTICAL LIFTING FROM THE TOP AT THREE (3) TIMES RATED CAPACITY:** Each and every container must be tested and certified by the manufacturer that top corner castings have been tested to three (3) times the rated capacity in accordance with procedures. A Pull Test Report will be provided.

## SECTION IV

### 4.1 PREPARATION, BLASTING & PAINTING:

4.1.1 **PREPARATION:** Container shall be scraped and ground to remove sharp edges. All exterior and interior surfaces shall be cleaned.

4.1.2 **SHOT BLASTING:** Container shall be shot blasted or sand blasted on four (4) exterior sides to SSPC-SP7 standards.

4.1.3 **PAINT:** Shall be a low VOC, High solids two (2) component polyeurathane coating.

4.1.4 **PAINT COLOR:** Customer to specify color.

4.1.5 **CAULKING:** Shall be gray silkaflex No. 221., or equal.

### 4.2 LABELING:

4.2.1 **NUMBERING SYSTEM:** Letters and numerical decals 6" high to meet ABS Requirements will be furnished and installed by the container manufacturer on all four (4) sides. Number sequence to be provided by owner.

4.2.2 **AAR PLACARD:** Will be furnished and installed by container manufacturer.

4.2.3 **CSC PLACARD:** With CSC approval number will be furnished and installed by container manufacturer.

4.2.4 **ABS DECAL:** Will be furnished and installed by container manufacturer.

4.2.5 **CUSTOMER DECALS:** Will be provided by customer and installed by manufacturer.

4.2.6 **PLACARDS:** No placard holders or paperwork holders or other mounting brackets shall be installed.

### 4.4 DOCUMENTATION TO BE PROVIDED TO OWNER WILL BE COPIES OF THE FOLLOWING:

4.4.1 Prototype and Production Certification Report to meet ABS rules for special service including “Prototype Test Certificate” and “Production Certificate”.

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**PROTECTED BY U.S. PATENT NOS.**
**7,240,936, 8,746,805, & Other Patents Pending**

**Wastequip Manufacturing Company**
1031 Hickstown Road
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Fax: 856-345-9188

# INTERMODAL SPECIFICATION

**SPECIFICATION NO:** 100066 Page 1 of 6
**ISSUE DATE:** 11/15/10
**REVISION NO:** 4
**REVISION DATE:** 6/27/18
**APPROVED BY:** ANTHONY D. PETZITILLO, JR
**SIGNATURE:**

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- **MODEL I-62/OT/AL**
- **ACCURATE INTERMODAL CONTAINER**
- **62 CUBIC YARD CAPACITY. 19'-10 1/2" L x 8'-6" W x 12'-0" H**
- **OPEN TOP CONTAINER W/ TOP HINGED DOOR AND STEEL LID**
- **WASTEQUIP PATENTED LID LOCKING SYSTEM**
- **DOOR CLOSURE – WASTEQUIP PATENTED AUTOLOCKING SYSTEM**
- **CERTIFIED FOR 5 HIGH STACKING AT 70,000#**

## SECTION I

1.1 **GENERAL REQUIREMENTS:** The following specifications describe a 20 foot long, 62 cubic yard Intermodal Environmental, watertight container to be used for rail, barge, truck transport of municipal solid waste.

Sufficient documentation must be produced for each container to satisfy the requirements of Wastequip Quality Assurance Program and this specification. The container systems shall be of the type as manufactured by Wastequip, Erial, New Jersey, or equal.

1.1.1 **QUALITY ASSURANCE:** The container manufacturer shall show evidence of a Quality Assurance Program. The container manufacturer must have fifteen (15) years of experience building containers of a similar size and design. No prototypes will be accepted.

1.1.2 **DESIGN:** The design is based upon solid waste container systems as manufactured by Wastequip, and the terminology used herein may include reference to that manufacturer's proprietary product. Such reference shall be constructed as establishing the quality of materials and workmanship to be used under this section. The design shall be verified by an independent verification agency, such as The American Bureau of Shipping.

1.1.3 **MODEL:** The solid waste container systems shall be a Wastequip I-62/OT/AL production unit.

1.1.4 **PERFORMANCE:** The manufacturer must have field proven performance in design and manufacturing similar type solid waste containers. Manufactures must provide evidence through references, of 12' high containers manufactured for operations loading and transporting MSW. The previously manufactured Environmental containers used to meet this requirement shall have been designed specifically for MSW transport. References shall include, but not be limited to; the name of purchaser, contact information of purchaser, and the date containers were sold.

1.1.5 **PROTOTYPE TESTING:** The manufacturer must have the capabilities in house of performing the Prototype Tests. Prototype Testing must be supervised and certified by an independent agency, such as The American Bureau of Shipping (ABS). An ABS Prototype Test Certificate shall be provided to the owner.

1.1.6 **PRODUCTION INSPECTION:** Production processes are periodically inspected during manufacture by an independent verification agency, such as ABS, who shall issue a "Cargo Container Production Certificate" to the owner upon the completion of this job.

1.1.7 **PRODUCTION TESTING:** Production Testing shall be as described in Section 3.1 of this specification.

1.1.8 **AUDITS AND INSPECTIONS BY OWNER:** Owner has the right to audit quality systems, and perform periodic inspections during the manufacture of the containers, which may include witnessing of the QC/QA testing performed.

## SECTION II

### 2.1 DETAIL SPECIFICATIONS:

2.1.1 **CERTIFICATIONS:** Containers shall meet the current applicable requirements of the American Association of Railroads, AAR M930-98 / ABS Rules / CSC and be certified by an independent agency such as the American Bureau of Shipping.

2.1.2 **DIMENSIONS:** The container shall be 62 cubic yard net inside capacity. The outside dimensions shall meet the ABS tolerances on length, width, and diagonal measurements for a nominal 19'-10 ½" long x 8'-6" wide container. Height shall be 12'-0" maximum.

2.1.3 **CORNERS:** The containers shall be fitted with eight (8) ISO corner castings and shall be located to meet ABS standards. There shall be no protrusion of any kind, including hardware, doors, lids, etc., past the outer envelope of the corner castings.

2.1.4 **MATERIAL SPECIFICATIONS:** Documentation of materials will conform to "Material Identification" form provided by Wastequip and approved by ABS. A) All structural steel tubing shall be ASTM A-500B minimum. B) Steel ¼" and lighter shall be ASTM A606. C) 1" and heavier shall be ASTM A-36 or equivalent. D) Round bars shall be ASTM A-36, minimum. All detailed specifications are minimum only, heavier and/or stronger specifications are acceptable.

## 2.2 FLOOR:

2.2.1 Floor shall be 7 Ga. steel, and shall have engineered 5 ½" formed 10 Ga. steel channel cross-members on approximately 16" spacing. Bottom side sills shall be a 4" x 8" structural tubing a minimum of 1/8" thick. All floor joints shall be located over a cross-member and spaced so a weld can be applied to joint and cross-member and full seam welded to assure structural integrity and watertight capabilities.

2.2.2 Fork pockets shall be installed in floor to meet ABS design requirements; 81" centers, 14" wide minimum, 4 ½" high minimum.

2.2.3 Floor shall have an approximate 1 ½" high sump at the door end that will provide an approximate 125 gallon reservoir prior to the need of the gasket seal.

## 2.3 SIDES:

2.3.1 Sides shall have a smooth inside and must be 12 Ga. Steel, minimum. Structural side supports shall be tapered to allow easy cleanup at 3 ¾" deep and 10 Ga. steel, minimum. All side supports shall be full welded to side sheets via automated welding processes. Bottom of sidewall and bottom of formed tubes are full welded to floor and bottom rail on outside and inside. Top horizontal structural welded tubing shall be 5" x 5" x 5/16" minimum, positioned at an angle to provide the required impact resistance and cleaning capabilities during the loading process. Sidewall shall be designed to withstand the stresses developed during the loading and discharge of the container.

2.3.2 All four (4) corners shall have vertical structural welded tubing, between and supporting, the top and bottom corner castings. These tubes shall be designed structurally to meet the AAR M930-98 / ABS Rules / CSC requirements for stacking loaded containers with a gross weight of 70,000 pounds, during transportation.

2.3.3 The top of the container shall be reinforced on each end to prevent racking.

2.3.4 Vent: Requires no manual operation. Remains closed during transportation. Only opens when required at discharge.

## 2.4 DOOR:

2.4.1 **DOOR: AS AN IMPORTANT SAFETY ITEM THE OPERATOR MUST BE ABLE TO OPEN THE DOOR REMOTELY KEEPING ALL PERSONNEL CLEAR OF THE DOOR AND THE LOAD WHEN THE LOCK IS RELEASED.**

2.4.2 Door shall be one (1) piece and hinged from the top. Hinge pins shall be stainless steel. All hinges to be fit with grease zerks.

2.4.3 Liquids present in the loads to be hauled are considered to be a CONTAMINATED WASTE. Therefore, it is imperative to have a proven watertight seal system in addition to the CSC weatherproof seal. A proven design of an EPDM gasket sealed with a "knife edge" shall be provided between the door and doorframe to guarantee a watertight seal, so that no liquids from the waste material can leak out of the containers. Gasket must be made of durable material and easily replaceable. Manufacturer shall provide design details, sample and evidence of successful field usage prior to bid. No prototype designs are acceptable. The gasket design and seal material must be approved prior to bid. Gasket must be of "knife edge" design to ensure a positive seal. No compression gasket will be accepted.

2.4.4 Door shall have two (2) horizontal and two (2) vertical ¼" steel plate formed channel frames, plus two (2) vertical members. Door shall be a minimum of 10 Ga. steel. Four (4) hinges shall be installed on top of door so the door opens at bottom. Interior and exterior of door shall be full welded.

2.4.5 Door to be locked in place via the Wastequip Auto-Locking System. Consisting of a system that compresses the knife edge gasket, utilizing an under floor cam lock system with three grab hands to fully compress the knife edge into the gasket guaranteeing a fully watertight seal. There must be means to individually adjust the sealing characteristics at any point in the operation, whether in transport or storage. There must be no less than three (3) points of adjustment (each corner and the center) on the door providing the means to locally adjust the seal accounting for variations that may occur due to normal wear or damage. This system must have proven durability in previous container operations.

2.4.6 Door is to be locked into place via an automatic locking system integrated into the tipping truck or trailer. The door is to be locked and unlocked at the face of the landfill without the need for manual operation. Eliminating the use of standard load binders on the door, the system shall significantly reduce or eliminate the exposure of operators to the fatigue and risks involved with manually locking and unlocking container doors

## 2.5 BULKHEAD:

2.5.1 Bulkhead shall be 11 Ga. sheet steel and shall have two (2) vertical members, a minimum of 3 ¾" deep. Top horizontal tube shall be 6" x 4" x 3/16" structural tube minimum. Bulkhead shall be full welded.

## 2.6 LID & VENT:

2.6.1 Lid shall be a shoebox design, overlapping the top of the container on all four sides. Structural perimeters shall be full length pieces of rolled steel, no splits or joints. The lid must be fully welded and weatherproof and shall be sealed with a skinned open cell gasket.

2.6.2 Lid shall be designed to work exclusively with the patented Accu-Lidder system as specified in the DSNY Section 14601 – Container Lidding System

2.6.3 Lid shall be held down, locked and unlocked at the (4) corners utilizing twist locks and castings as detailed in U.S. Patent No 7,240,936.

2.6.4 Lid shall provide the provision to be operated manually and shall provide means to be handled via chain spreader or forklift if requested.

## SECTION III

### 3.1 PRODUCTION TESTING:

3.1.1 Containers shall be certified by the American Bureau of Shipping (ABS) based on the design requirements as outlined by, ABS Rules for the certification of cargo containers. Testing based on ABS standards shall include but not be limited to:

- Water tightness
- Weather tightness
- Corner fitting lifting
- Fork-lift pocket lifting
- Roof loading
- Floor strength
- Floor deflection
- Walls, door, and Bulkhead loading
- Stacking Transverse Racking
- Longitudinal Racking
- Dimensions, including diagonals, within design tolerances

3.1.2 **INTERNAL WATER TEST:** The container shall be watertight welded and tested in accordance with procedures. A Water Test Report shall be provided for each container stating the internal water test procedure and signed by the Quality Control Inspector. Every container must be filled 24" with water and let stand for a minimum of thirty (30) minutes and inspected for watertight integrity. This process, if necessary, must be repeated until the container is inspected and has no leaks. The door gasket must be inspected thoroughly during this procedure. Every container must be fully welded on all joints and seams on the inside.

3.1.3 **VERTICAL LIFTING FROM THE TOP AT THREE (3) TIMES RATED CAPACITY:** Each and every container must be tested and certified by the manufacturer that top corner castings have been tested to three (3) times the rated capacity in accordance with procedures. A Pull Test Report will be provided.

## SECTION IV

### 4.1 PREPARATION, BLASTING & PAINTING:

4.1.1 **PREPARATION:** Container shall be scraped and ground to remove sharp edges. All exterior and interior surfaces shall be cleaned.

4.1.2 **SHOT BLASTING:** Container shall be shot blasted or sand blasted on four (4) exterior sides to SSPC-SP6 standards.

4.1.3 **PAINT:** Shall be a Valspar Marine Grade Coating System or equivalent with a 5 year warranty.

Exterior: Prime Coat – Duraspar 110 Low HAPS Primer Sealer (min 2.0 – 2.5 mils dft)
Top Coat – R Cure 800 Low VOC 2K Polyurethane (min 2.0 – 2.5 mils dft)

Interior: Aquaspar 100 Red Oxide Primer (min 2.0 – 2.5 mils dft)

Underside: Valspar Waterborne Underbody Coating (min 6.0 – 8.0 mils dft)

4.1.4 **PAINT COLOR:** Customer to specify color.

4.1.5 **CAULKING:** Shall be gray silkaflex No. 221., or equal.

## 4.2 LABELING:

4.2.1 **NUMBERING SYSTEM:** Letters and numerical decals 6" high to meet ABS Requirements will be furnished and installed by the container manufacturer on all four (4) sides. Number sequence to be provided by owner.

4.2.2 **AAR PLACARD:** Will be furnished and installed by container manufacturer.

4.2.3 **CSC PLACARD:** With CSC approval number will be furnished and installed by container manufacturer.

4.2.4 **ABS DECAL:** Will be furnished and installed by container manufacturer.

4.2.5 **CUSTOMER DECALS:** Will be provided by customer and installed by manufacturer.

4.2.6 **PLACARDS:** No placard holders or paperwork holders or other mounting brackets shall be installed.

## 4.4 DOCUMENTATION TO BE PROVIDED TO OWNER WILL BE COPIES OF THE FOLLOWING:

4.4.1 Prototype and Production Certification Report to meet ABS rules for special service including “Prototype Test Certificate”, “Production Certificate” and specification for containers.

Barton & Loguidice

| IN-HOUSE COORDINATION | |
|---|---|
| INITIALS | DATE |
| | |
| | |
| | |

# INSPECTOR'S REPORT

**PROJECT NAME:** *High Acres Waste Characterization & Odor Study*
**OWNER:** *Waste Management of New York, LLC*
**CONTRACTOR:** *GHD, B&L & Odor Science & Technologies*

| | |
|---|---|
| REPORT NO: | |
| PROJECT NO | 1242.015.018 |
| DATE: | 14-Dec-18 |

DAY OF THE WEEK

S M T W TH [✓ F] SA

| WORK FORCE: | | | | | |
|---|---|---|---|---|---|
| ***GHD*** | | ***B&L*** | | ***Odor Science*** | |
| Superintendent ( ) | | Superintendent ( ) | | Superintendent ( ) | |
| Foreman ( ) | | Foreman ( ) | | Foreman ( ) | |
| Operator/Laborer | | Operator/Laborer | | Operator/Laborer | |
| Laborer | | Laborer | | Laborer | |
| | | | | | |
| | | | | | |
| Field Technician | 1 | Construction Mgr | 1 | Field Technician | 1 |

| WEATHER | |
|---|---|
| AM | PM |
| overcast | overcast |
| **TEMPERATURE** | |
| AM | PM |
| 32 F | 46 F |

| EQUIPMENT USED: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bulldozer | | Dump Truck | | Drill Rig | | Pickup Truck | 2 |
| Excavator | | Water Truck | | Articulated Dump | | Work Trailer | |
| Loader | | Smooth Drum Roller | | Screen | | | |
| End Dump | | Padfoot Roller | | Skid steer | | | |

MAINTENANCE & PROTECTION OF TRAFFIC:

DESCRIPTION OF WORK ACCOMPLISHED:

7:00 - 7:40 am - performed a working face odor monitoring event during cover stripping activities. OST was located on Quaker Road/Perinton Parkway monitoring for offsite odors at this same time.
Observed waste odor ~0.5 - 1.0 n-Butanol scale during soil cover stripping, but nothing consistent or lasting.
9:00 am - on site at main office. Used a WM site truck for daily monitoring with Gary Grumley.
GHD field technician Brian Szalda and Odor Science and Technologies (OST) field technician Gary Grumley are onsite to perform air and waste sampling. OST did not sample as their lab in CT does not operate on weekends. OST remained on site to perform odor monitoring of sample loads.
GHD used an FID and a GEM to monitor the rail containers that arrived from the Review transfer station and were staged in the rail yard.
GHD took a suma canister sample of rail container #9937 as well as a grab sample for moisture content.
GHD did not take a suma canister sample of rail container #10481.
R.Weis of B&L took temperature readings, with a temperature gun provided by WM, of the waste from each container.
1:35 pm - with sampling done for the day, R.Weis left the site for the day.

Form 82 (5/00)

Barton & Loguidice

| IN-HOUSE COORDINATION | |
|---|---|
| INITIALS | DATE |
| | |
| | |
| | |

# INSPECTOR'S REPORT

| | | | |
|---|---|---|---|
| **PROJECT NAME:** | *High Acres Waste Characterization & Odor Study* | REPORT NO. | |
| **OWNER:** | *Waste Management of New York, LLC* | PROJECT NO. | *1242.015.018* |
| **CONTRACTOR:** | *GHD & B&L (with Odor Science & Technologies)* | DATE: | 11-Jan-19 |

DAY OF THE WEEK

S M T W TH [✓ F] SA

| WORK FORCE: | | | | | |
|---|---|---|---|---|---|
| *GHD* | | *B&L* | | | |
| Superintendent ( ) | | Superintendent ( ) | | | |
| Foreman ( ) | | Foreman ( ) | | | |
| Operator/Laborer | | Operator/Laborer | | | |
| Laborer | | Laborer | | | |
| | | | | | |
| | | | | | |
| Field Technician | 1 | Construction Mgr | 1 | | |

| WEATHER | |
|---|---|
| AM | PM |
| overcast | overcast |
| TEMPERATURE | |
| AM | PM |
| 11 F | 19 F |

| EQUIPMENT USED: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bulldozer | | Dump Truck | | Drill Rig | | Pickup Truck | 2 |
| Excavator | | Water Truck | | Articulated Dump | | Work Trailer | |
| Loader | | Smooth Drum Roller | | Screen | | | |
| End Dump | | Padfoot Roller | | Skid steer | | | |

MAINTENANCE & PROTECTION OF TRAFFIC:

DESCRIPTION OF WORK ACCOMPLISHED:

6:00 am - on site at main office preparing for onsite and offsite odor monitoring.

Performed an onsite/offsite/working face odor monitoring event based around the daily cover stripping activities first thing in the morning. WM crew had used onsite soil for daily cover on 01-10-19 pm.

Drove Rte 31F, Quaker Road/Perinton Parkway, Wayneport Road and the site access road smelling for any odors emanating from the landfill. No odors detected.

Set up on the working face downwind of the cover soil stripping activities. Initial odor of waste ~0.5 n-Butanol when WM crew stripped daily soil cover in preparation of waste placement. Wind direction was from the west/northwest approximately 11 mph.

Drove Rte 31F, Quaker Road/Perinton Parkway, Wayneport Road and the site access road again smelling for any odors emanating from the landfill. No odors detected.

8:55 am - back at main office to prepare for daily monitoring and sampling.

GHD field technician Mike Casullo is onsite to perform air and waste sampling.

GHD used an FID and a GEM to monitor the remaining rail container that arrived from the Varick transfer station.

Rail container #9789 was dumped on the working face. A WM excavator operator pushed the waste pile into a flatter pile for easier sampling and to locate the monitoring probe GHD had attached inside a 5' piece of PVC pipe painted orange and staged inside the container at the Varick transfer station on 01-03-19.

GHD took a suma canister sample as well as a grab sample for moisture content.

B&L took no samples as Odor Science & Technologies does not do lab analysis on weekends.

Took temperature readings, with a temperature gun provided by WM, of the waste just after offloading.

Upon completion of GHD sampling, left the site to a local gas station and fueled the site pickup truck.

1:30 pm - Left the site pickup truck at the main office lot and left the site.

DESCRIPTION OF WORK ACCOMPLISHED (CONTINUED):

DISCUSSIONS:

VISITORS:

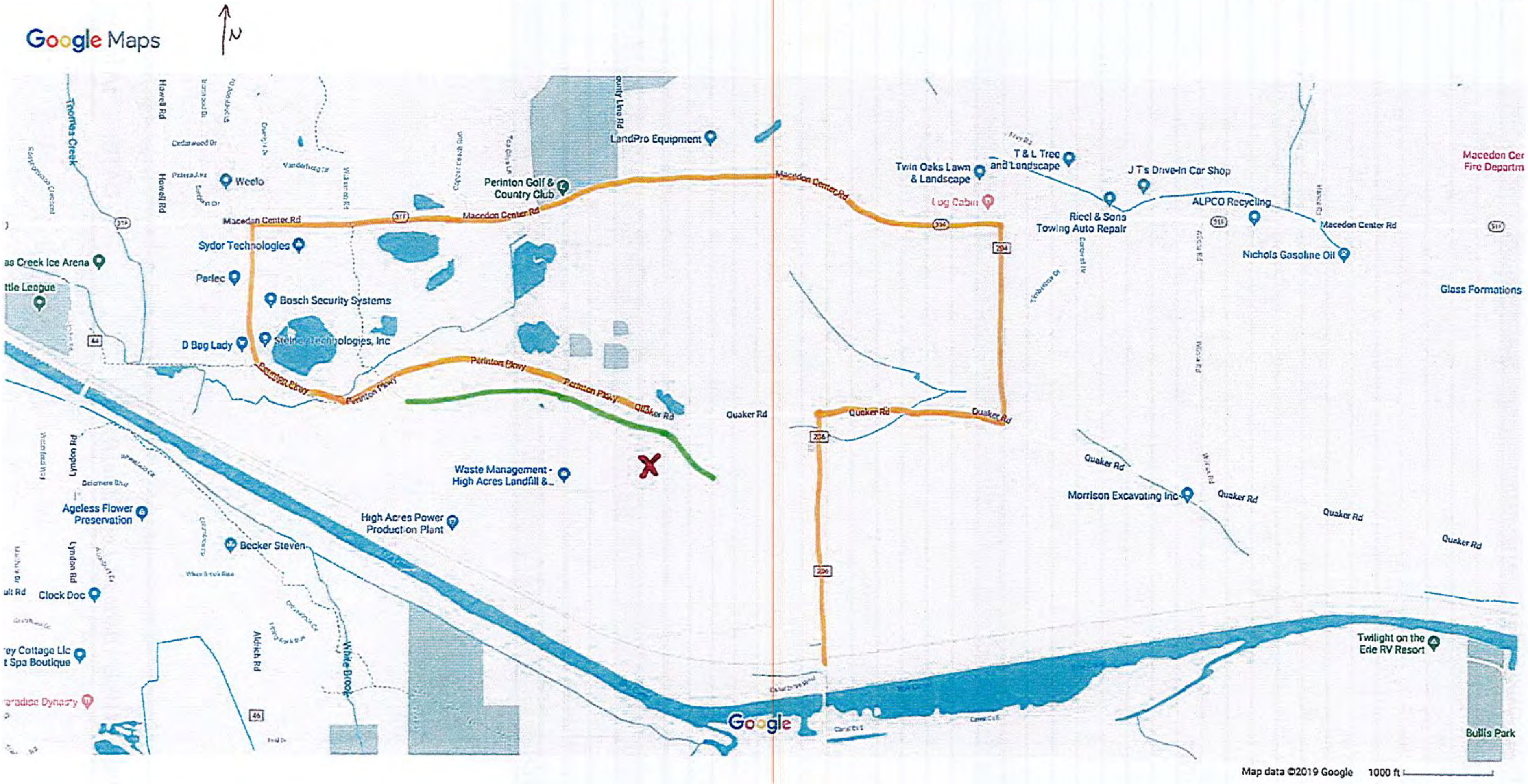
CALCULATIONS / SKETCHES:

**INSPECTOR:** *Richard Weis - Barton & Loguidice, D.P.C.* **DATE:** 1/11/2019

Form 82 (5/00)

01-11-19

Google Maps



WIND DIRECTION FROM W/NW ~ 11 mph.

✗ 01-11-19 APPROXIMATE WORKING FACE AREA
w/ ~ 0.5 n-BUTANOL WASTE ODOR.

🟧 01-11-19 OFFSITE ODOR
MONITORING - R.WEIS * NO ODORS DETECTED.

🟩 01-11-19 ON SITE ODOR
MONITORING - R.WEIS

Barton & Loguidice

| IN-HOUSE COORDINATION | |
|---|---|
| INITIALS | DATE |
| | |
| | |

# INSPECTOR'S REPORT

| | | | |
|---|---|---|---|
| **PROJECT NAME:** | ***High Acres Waste Characterization & Odor Study*** | REPORT NO: | |
| **OWNER:** | ***Waste Management of New York, LLC*** | PROJECT NO: | ***1242.015.018*** |
| **CONTRACTOR:** | ***B&L*** | DATE: | **16-Jan-19** |
| | | DAY OF THE WEEK | S M T [✓ W] TH F SA |

| WORK FORCE: | | | | | |
|---|---|---|---|---|---|
| ***B&L*** | | | | | |
| Superintendent ( ) | | Superintendent ( ) | | | |
| Foreman ( ) | | Foreman ( ) | | | |
| Operator/Laborer | | Operator/Laborer | | | |
| Laborer | | Laborer | | | |
| | | | | | |
| | | | | | |
| Construction Mgr | 1 | | | | |

| WEATHER | |
|---|---|
| AM | PM |
| overcast | - |
| **TEMPERATURE** | |
| AM | PM |
| 12 F | - F |

| EQUIPMENT USED: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bulldozer | | Dump Truck | | Drill Rig | | Pickup Truck | 1 |
| Excavator | | Water Truck | | Articulated Dump | | Work Trailer | |
| Loader | | Smooth Drum Roller | | Screen | | | |
| End Dump | | Padfoot Roller | | Skid steer | | | |

MAINTENANCE & PROTECTION OF TRAFFIC:

DESCRIPTION OF WORK ACCOMPLISHED:

5:45 am - On Rte 31F to start offsite odor monitoring.

Performed an onsite/offsite/working face odor monitoring event based around the daily cover stripping activities first thing in the morning. WM crew had used some EPI plastic film for daily cover on a section of the working face on 01-15-19. Used onsite soil to cover the remaining working face area.

Drove Rte 31F, Quaker Road/Perinton Parkway, Wayneport Road and the site access road smelling for any odors emanating from the landfill. No odors detected along Rte 31F or Wayneport Road. Detected a landfill gas odor ~0.5 n-Butanol on Quaker Road/Perinton Parkway across from riser house 10 (near the little league baseball fields). Detected a landfill gas odor ~0.5-1.0 n-Butanol near riser house 10 driving along the site access road. Detected trace odors of landfill gas near riser house 11 driving along the site access road.

Parked on the east end of the working face and detected trace odors of waste prior to stripping daily cover.

Met Brandon Meacham of WM who coordinated the removal of a small section of the EDI plastic film cover that had been placed on 01-15-19 pm. Waste placement was not going to be in the area with the plastic film cover, so that is why they removed only a small section for my odor monitoring. Visible signs of gas buildup under the plastic film cover in numerous locations. Detected a waste odor ~1.0 n-Butanol upon initial removal of an 8'x10' area of the plastic film cover. Odor lessened to ~0.5 n-Butanol after ~10-15 minutes. No detection of landfill gas odors during the monitoring on the working face.

Detected a landfill gas odor ~0.5 n-Butanol driving down the access road from the working face towards the new compressor station and around the corner towards riser house 11.

Detected a waste odor ~0.5 n-Butanol driving along the site access road from riser house 12 to the temporary flare location, downwind from the current waste placement operations.

No odors detected while driving along Quaker Road, Rte 31F or Wayneport Road.

**DESCRIPTION OF WORK ACCOMPLISHED (CONTINUED):**

Upon completion of the monitoring, left the site to a local gas station and fueled the site pickup truck.

9:00 am - Back at main office. Met with Tom Hasek & Jeff Richardson to discuss monitoring results and sampling events.

9:50 am - Left the site pickup truck at the main office lot and left the site.

**DISCUSSIONS:**

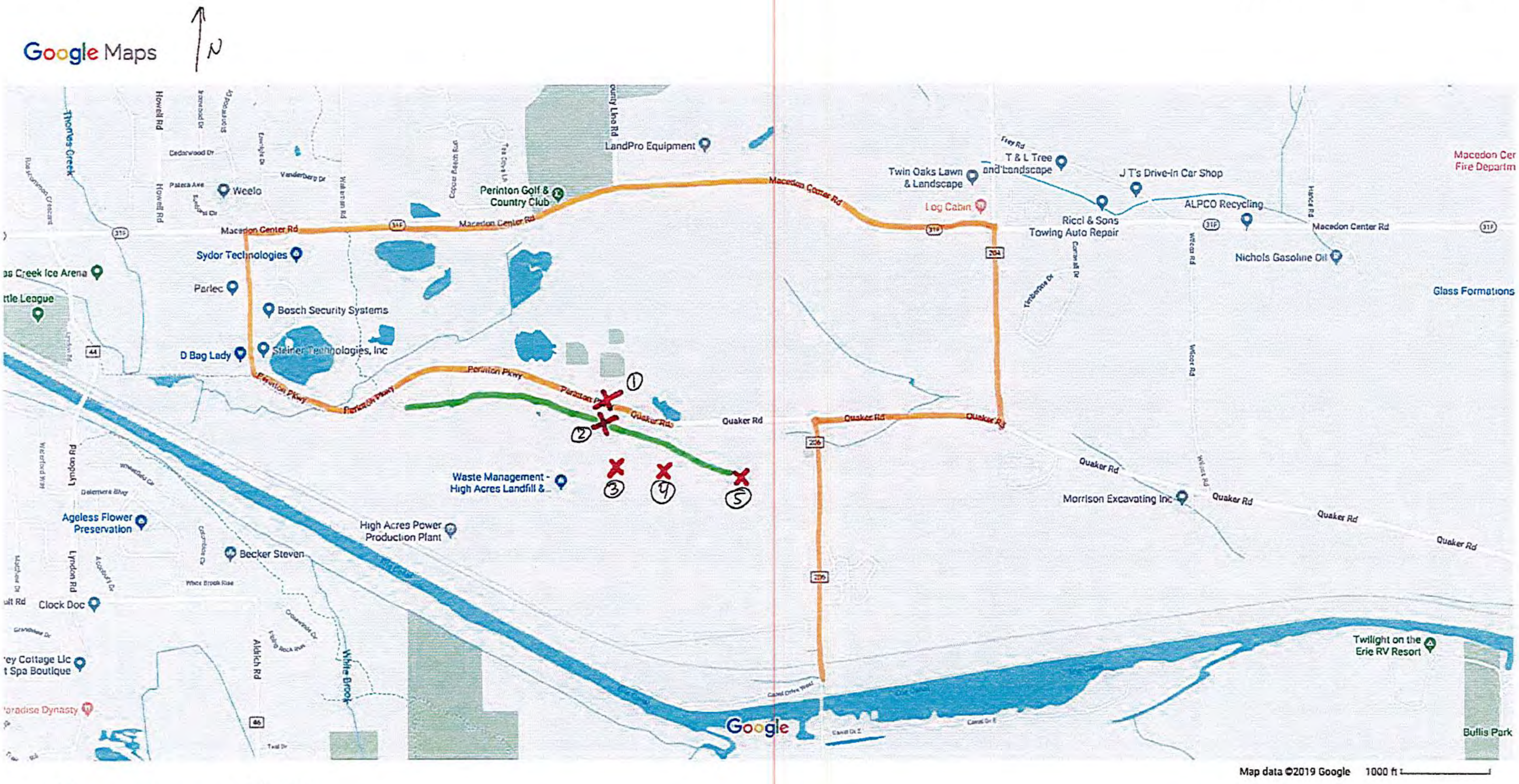
**VISITORS:**

**CALCULATIONS / SKETCHES:**

**INSPECTOR:** *Richard Weis - Barton & Loguidice, D.P.C.* **DATE:** 1/16/2019

Form 82 (5/00)

01-16-19



① 0.5 n-BUTANOL – LFG ODOR

② 0.5-1.0 n-BUTANOL – LFG ODOR

③ 0.5 n-BUTANOL – LFG ODOR

④ 1.0 n-BUTANOL – WASTE ODOR

⑤ 0.5 n-BUTANOL – WASTE ODOR

🟧 01-16-19 OFFSITE ODOR MONITORING
R. WETS (B+L)

🟩 01-16-19 ONSITE ODOR MONITORING
R. WETS (B+L)

Photo 1 - View in Morning Following Placement the Previous Day

Photo 2 - Close-up of EPI Cover Film

## EPI Cover

Photo 3 - During Deployment

Photo 4 - During Deployment

# ENVIRO™ COVER
# MATERIAL SAFETY DATA SHEET

## 1. PRODUCT IDENTIFICATION & COMPANY INFORMATION

| | |
|---|---|
| PRODUCT NAME: | ENVIRO™ COVER |
| CHEMICAL NAME: | Polyethylene Film |
| CHEMICAL FAMILY: | Polymer |
| PRODUCT USE: | Plastic Film with TDPA® |

EPI ENVIRONMENTAL PRODUCTS INC.
Unit 207, 102 Grover Street
Lynden, WA 98264, USA
Tel: +1 (604) 738-6281
Toll Free: +1(866) 738-6281
MSDS e-mail: msdsinfo@epi-global.com

## 2. HAZARDOUS IDENTIFICATION

HMIS Ratings: Health: 0; Fire: 1; Physical Hazard: 0Hazard Scale: 0= Minimal; 1= Slight; 2=Moderate; 3=Serious; 4=Severe

EMERGENCY OVERVIEW: Colored odorless film. Not considered hazardous. Can release irritating smoke if involved in a fire.

**POTENTIAL HEALTH HAZARDS:**

EYE CONTACT: Not hazardous in normal industrial use.
SKIN CONTACT: Not hazardous in normal industrial use.
INHALATION: Not a route of exposure
INGESTION: Not a route of exposure

## 3. COMPOSITION/ INFORMATION ON INGREDIENTS

| Ingredient name: | CAS# | Weight % |
|---|---|---|
| **Polyethylene (Non Hazardous)** | **9002-88-4** | **96-100%** |

## 4. FIRST AID MEASURES

EYE CONTACT: None needed
SKIN CONTACT: None needed
INHALATION: Not a route of exposure
INGESTION: Not a route of exposure
ADVICE TO PHYSICIAN: None

## 5. FIRE FIGHTING MEASURES

FLASH POINT: Not Applicable
FLAMMABLE LIMITS: LEL: Not Applicable; UEL: Not Applicable

AUTOIGNITION TEMPERATURE: Not Available

EXTINGUISHING MEDIA: Use water spray to cool fire exposed surfaces, foam, dry powder/chemicals or carbon dioxide.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Under fire conditions product will burn and emit irritating smoke and toxic gases.

FIREFIGHTING EQUIPMENT/ INSTRUCTIONS: Wear self-contained positive –pressure breathing apparatus and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

**In case of land spill or water spill:**

Always wear recommended personal protective equipment.

Recover spilled material and place in suitable containers for recycle or disposal. Consult your local or regional authorities. Meet any applicable regulations.

## 7. HANDLING AND STORAGE

Rolls of film can be handled/ moved with proper carpet pole by inserting into the business end of the roll or by slings.

Always wear recommended personal protective equipment.

Store in a cool, dry area and away from direct sunlight. Covered storage area is recommeneded to achieve a maximum storage life of the plastic film with TDPA®.

Keep in original packaging which includes a UV protective film until usage and away from hazardous chemicals.

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

**Engineering Controls**: Use local exhaust in confined spaces where material is heated.

**Personal Protective Equipment**: Not normally required. Use heat resistant gloves and safety glasses if material is heated to a melted state.

**Polyethylene Film is a Non- Hazardous material** – with no exposure limits.

## 9. PHYSICAL & CHEMICAL PROPERTIES

PHYSICAL STATE AND APPEARANCE: Solid colored plastic film
ODOR: None
SPECIFIC GRAVITY (Water=1.0): 0.91-1.05
FLASH POINT: Not Applicable
VAPOR PRESSURE: Not Applicable
SOLUBILITY IN WATER: Insoluble
MELTING POINT/RANGE: 105-135 Degrees C (221-275 Degrees F)
BOILING POINT: Not Applicable
EVAPORATION RATE: Not Applicable

## 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable
HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: Avoid prolonged heating material over 250 Degrees Celsius; thermal decomposition may occur
MATERIALS TO AVOID/CHEMICAL INCOMPATIBILITY: Strong oxidizing agents and acids.
HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products may include carbon dioxide, carbon monoxide, aldehydes, acrolein and other organic vapors.
OTHERS: Electrostatic accumulation may occur; use proper grounding

## 11. TOXICOLOGICAL INFORMATION

Material is considered non-toxic.

## 12. ECOLOGICAL INFORMATION

Material is considered non-toxic. After disposal in the environment, no harmful ingredients are left such as metabolites, undegraded components and inorganic components which exert a negative influence on plant growth, earthworms or freshwater organisms. The only by products are $CO_2$; water and biomass.

## 13. DISPOSAL CONSIDERATIONS

Disposal methods must comply with Federal, State/Provincial and local laws and regulations which may vary dependent upon location.

## 14. TRANSPORTATION INFORMATION

US DOT CLASSIFICATION: Not restricted
CANADIAN TDG CLASSIFICATION: Not restricted
INTERNATIONAL AIR TRANSPORT (ICAO and IATA): Not restricted
INETRANTIONAL MARITIME DANGEROUS GOODS (IMDG): Not restricted

## 15. REGULATORY INFORMATION

TSCA- TOXIC SUBSTANCES CONTROL ACT STATUS: Listed on TSCA Inventory list.
SARA TITEL III: Not Applicable
CERCLA Reportable quantities: Not Applicable
WHMIS CLASSIFICATION (CANADA): Not a controlled material

## 16. OTHER INFORMATION

ISSUE DATE: Feb 2, 2012
REVISED DATE: Sept 8th, 2014

**********************************************************************************************************

# Odor Control

Enviro™ Cover is an invaluable asset for controlling landfill odor at the working face.

Enviro™ Cover is an impermeable and non-removable geosynthetic polyethylene film. It provides a continuous barrier between the waste and the environment. It remains in place until the next day's waste is deposited on top. It does not require removal, which could result in a sudden release of odor into the environment. This technology provides an effective control over odors and greenhouse gas emissions from the working face of a landfill.

Since the Enviro™ Cover film is mechanically destroyed by subsequent placement of waste, it will not impede the desired movement of gas inside the landfill for collection.

**More information:**

*"While there is no one solution to controlling odors at landfills, there are steps to be taken. A non-reusable geosynthetic film for ADC is certainly worth vetting at your site if you find yourself receiving large*

*numbers of odor complaints."* Read more

*"It was a typical early morning at the landfill, hardly any breeze and warm. A low lying fog rolls across the ground, its heavy moisture absorbing water-soluble, odor-bearing compounds in the fugitive emissions and taking them into the air. The foul smells were all set to greet neighbors of the site as they awoke that morning to go about their day. It would be an unwelcome reminder to those neighbors that they lived next to a "garbage dump", not an engineered "sanitary landfill" as they were asked to believe."* A case study at River Birch Landfill, Avondale, LA about the best practice for landfill gas and odor control. Read more

## Find Us

**Email:** envirocover@epi-global.com

**Phone: +1 (604) 738-6281**
**Toll Free: +1 (866) 738-6281**
**Fax: +1 (604) 738-7839**

**EPI Environmental Products Inc.**
#801 – 1788 West Broadway
Vancouver, BC V6J 1Y1, Canada

1610 Grover Street, Ste B7
Lynden, WA 98264, USA

## About EPI

Enviro™ Cover System is a product of EPI Environmental Products Inc. For more information about EPI, visit our company website:

www.epi-global.com

# ENVIRO™ COVER SYSTEM

Search

Home Technology Products Performance Contact Us

## Providing a complete and continuous closure to the work face

No retrieval or removal is required before the landfill operation begins on the next day.

Read more

Enviro™ Cover System, developed and marketed by EPI Environmental Products Inc., is an efficient and cost effective Alternative Daily Cover (ADC) solution for municipal solid waste landfills.

The system consists of Enviro™ Cover film and Enviro™ Cover Deployer.

Enviro™ Cover film is a uniquely nonreusable polyethylene film engineered with good tear strength, puncture resistance and elongation characteristics so that it can stretch over uneven surfaces of the working face. Because of its impermeable nature, Enviro™ Cover film effectively controls odors emissions from the landfill, sheds rainwater away from the working face and minimizes water infiltration into the landfill. It meets the US Environmental Protection Agency requirement to control disease vectors, odors, fires, blowing litter and scavenging without presenting a threat to human health or the environment.

Enviro™ Cover does not require removal and provides continuous coverage until the landfill operation begins on the next day.

Enviro™ Cover Deployer is specialized patented and patent pending applicator equipment. It is designed for placing Enviro™ Cover film onto the working face to create a continuous impermeable barrier between the waste and the surrounding environment.

Enviro™ Cover System is a proven and reliable technology and is a globally recognized solution to maximize ADC performance.

## Find Us

**Email:** envirocover@epi-global.com

**Phone: +1 (604) 738-6281**
**Toll Free: +1 (866) 738-6281**
**Fax: +1 (604) 738-7839**

**EPI Environmental Products Inc.**
#801 – 1788 West Broadway
Vancouver, BC V6J 1Y1, Canada

1610 Grover Street, Ste B7
Lynden, WA 98264, USA

## About EPI

Enviro™ Cover System is a product of EPI Environmental Products Inc. For more information about EPI, visit our company website:

www.epi-global.com

ENVIRO™ COVER SYSTEM

http://www.envirocoversystem.com

# Enviro™ Cover Controls Odours in Landfills

It is a common requirement for landfills to control odours from municipal solid waste by covering deposited waste with an earthen or alternative daily cover (ADC) material.

Enviro™ Cover is a non-reusable polyethylene ADC, which is a technically "impermeable" material to gaseous movement because it has no interconnected pores. Gas molecules including water vapour, methane and other odourous gases move extremely slowly through Enviro™ Cover only as a vapor phase via molecular solubility and diffusion, in a process known as permeation. As a result, Enviro™ Cover effectively contains odours which are generated from the landfill working face.

## ASTM Test Method E96

At present, there is no widely accepted direct method to test the capability of an ADC material to control odours in the field. The American Society for Testing and Materials (ASTM) recommends in the ASTM Standard Guide D6523 (Ref. 1), Standard Guide for Evaluation and Selection of Alternative Daily Covers (ADCs) for Sanitary Landfills, "For slurries and geosynthetics, an odour control test should be conducted to assess performance. For these materials a permeation test, Test Method E96, is suggested, correlating the movement of water vapours through an ADC layer to the movement of odour layers through such layer. Water vapour loss through the ADC should be less than 3,000 g/m$^2$/day."

Two of the thinnest Enviro™ Cover grades, 1.5 mil daily Enviro™ Cover and 2.0 mil Progressive Daily Cover, were tested with ASTM Test Method E96 (Ref. 2) by an independent ISO 9002 certified laboratory (Ref. 3). The test results (Table 1) show that water vapour loss through the 1.5 mil Enviro™ Cover was 0.023 g/m$^2$/day, only 1/130,000th of the ASTM's recommended daily value. Enviro™ Cover has different grades ranging from 1.5 to 9.0 mil thickness. The thicker Enviro™ Cover films provide a longer pathway to water vapour loss and have a more superior odour control capability.

**Table 1 Water Vapour Transmission Test Result**

**(ASTM Test Method E96 tested by an independent ISO 9002 certified laboratory, Precision Geosynthetic Laboratories, PGL Job No. 010965)**

| Enviro™ Cover Grade | Water Vapour Transmission (g/m$^2$/day) |
|---|---|
| 1.5 mil Daily Enviro™ Cover | 0.023 |
| 2 mil Progressive Daily Cover | 0.011 |

*(Note: ASTM recommends that water vapour transmission through an ADC should be less than 3,000 g/m$^2$/day)*

## Comparison with Soil Cover

Using the water vapor transmission data of the 1.5 mil daily Enviro™ Cover and making assumptions about typical temperature, humidity and pressure, the permeability of water vapour through the 1.5 mil daily Enviro™ Cover is calculated in Appendix 1 to be roughly 6 x 10$^{-17}$ m/s. This is 1/167,000,000th of the typical permeability of well-compacted clay of 1 x 10$^{-8}$ m/s (Ref. 4). Therefore, Enviro™ Cover deployed over the active working face is far more effective than soil in controlling odours through the cover material.

## International Acceptance

In many cases, compliance with statutory odour control requirement, amongst other operating requirements, is tested by means of a demonstration or trial for each landfill site. When a demonstration/trial proves that an ADC complies with the requirements, the ADC is accepted. The most meaningful indication of an ADC's odour control capability is its worldwide acceptance and use.

In the United States of America, Enviro™ Cover has been evaluated independently in many states by EPA's requirements and has been approved in many states such as California, Oregon, South Carolina, North Carolina, Nebraska, Texas, New York, Minnesota, Utah, Illinois, Indiana, Arkansas, and Arizona. The number of states approving Enviro™ Cover is continuously increasing.

Enviro™ Cover has also been evaluated in many countries by their respective odour control standards. It has been approved for use in many countries such as Canada, Argentina, Australia, England, Erie, Finland, North Ireland, Wales and Scotland. From the extensive acceptance and use of Enviro™ Cover, it is evident that Enviro™ Cover meets the US and international standards in odour control.

## *Appendix 1: Permeability Water Vapour through 1.5 mil Daily Enviro Cover*

$P_s$ = pressure of saturated vapor at a given temperature
H = relative humidity - 60%
T = 23 °C

At T = 23 °C, $P_{s,}$ = 21.068 mm Hg

$P_s = 21.068 \text{ x } 133.3 = 2808$ Pa

The vapor pressure is $p = H \text{ x } P_s$.

$p = 0.6 \text{ x } 2808 = 1685$ Pa

Water Vapor Transmission WVT = 0.023 g/m$^2$.24h for 1.5 mil daily Enviro Cover (Table 1)

WVT = p x w (w is the permeance)

$$w = \frac{WVT}{p} = \frac{0.023 \text{ x } 10^{-3}}{8.64 \text{ x } 10^{4} \text{ x } 1685} = 1.58 \text{ x } 10^{-13} \text{ kg/m}^2\text{. Pa. s}$$

Permeability $k = w \text{ x } g \text{ x } t$ (where g = 9.81 m/s$^2$, t is the thickness = 1.5 mil = 38 x $10^{-6}$ m)

$k = 1.58 \text{ x} 10^{-13} \text{ x } 9.81 \text{ x } 38 \text{ x } 10^{-6}$

$k = 5.89 \text{ x } 10^{-17}$ m/s

---

Reference
1. The American Society for Testing and Materials, ASTM D6523-00, "Standard Guide for Evaluation and Selection of Alternative Daily Covers (ADCs) for Sanitary Landfills"
2. The American Society for Testing and Materials, ASTM Test Method E96-00, "Standard Test Methods for Water Vapor Transmission of Materials
3. "Precision Geosynthetic laboratories, Test Report PGL Job No. 0.0965, November 7, 2001
4. Mark Cadwallader, Cadwallader Technical Services, Conroe, Texas, "Gas & Odour Suppression: A Comparison of Polyethylene Film Alternative Cover (AC) and Daily Cover Soil"

CARGO DATA
Cold Chain Monitoring Made Simple

## LIGHTNING FAST! Instantly review temperature data upon arrival — right at the trailer door!

# CARGODATA LIGHTNING NFC

- NFC (Bluetooth-like wireless) technology eliminates the need for cords, readers, and printers.
- Perishable QA has never been easier or faster!
- Easy product quality documentation and pictures.
- No desktop computer required. Simply hold Lightning NFC back to back with you smart device for wireless download.

**iPhone and Android Compatible**

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## Lightning NFC

### Features:

- Join the growing number of Quality Receivers switching to the latest technology!
- Works with all NFC enabled Android phones and iPhone 7 and higher
- Tablets provided to chains and major receivers at NO COST when full program is adopted.
- Program includes generous rebate program to help reduce costs.
- Save time/labor with faster results, more transparency, less paperwork.

As soon as **Lightning NFC** is held back-to-back with the NFC smart device, the **FREE Lightning NFC App** will display the full temperature chart for the monitored period. The user can then add useful entries for PO number, commodity type, and arrival quality. Pictures can also be added to the record.

All temperature, shipping, quality data points, and images are automatically uploaded to **Cargo Data's** secure **UpLink** cloud server for permanent archiving and online access.

**Download the Free Lightning NFC App Here**

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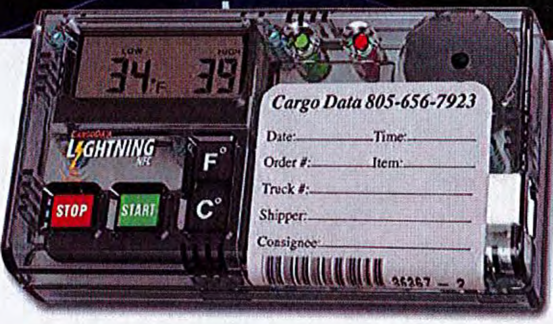
**www.lightningnfc.com | 800-338-8134**

# Lightning NFC

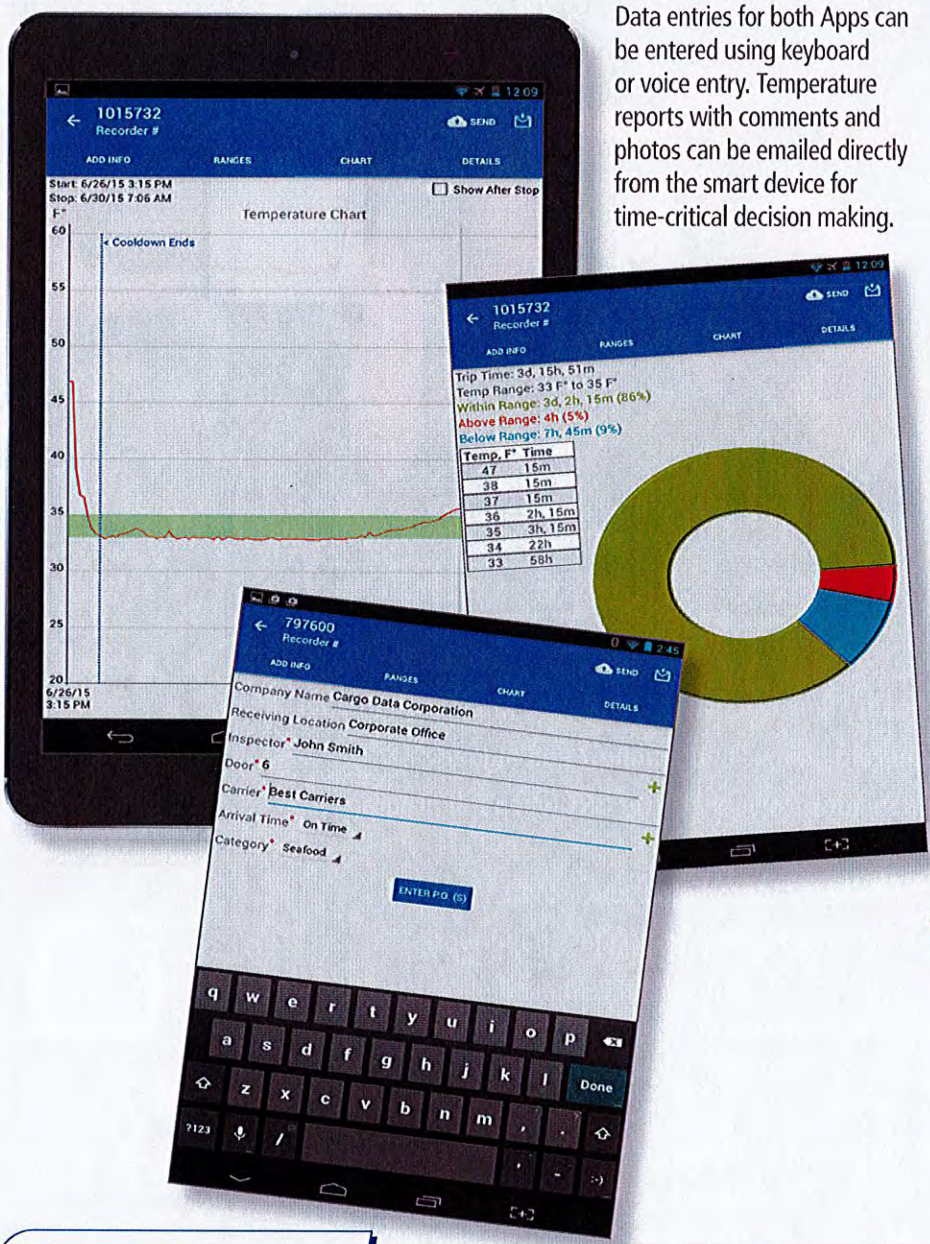
*Free Smart Device Apps*



## Two Options:

1) Use standard **FREE Lightning NFC App** to display full temperature chart and details, select range, add PO number, commodity description, comments, and photos to the record. Collected data available for FREE online review using instrument serial number.
2) Users who sign-up for the full program can use our enhanced **FREE Lightning QA App** which adds support for multiple POs/items per shipment, commodity specific quality documentation screens with drop-down database driven menus, and ability to log accept/reject determinations. Full online data access and custom reporting available on secure, password-protected website.

Data entries for both Apps can be entered using keyboard or voice entry. Temperature reports with comments and photos can be emailed directly from the smart device for time-critical decision making.



Trip Time: 3d, 15h, 51m
Temp Range: 33 F° to 35 F°
Within Range: 3d, 2h, 15m (86%)
Above Range: 4h (5%)
Below Range: 7h, 45m (9%)

| Temp, F° | Time |
|---|---|
| 47 | 15m |
| 38 | 15m |
| 37 | 15m |
| 36 | 2h, 15m |
| 35 | 3h, 15m |
| 34 | 22h |
| 33 | 58h |

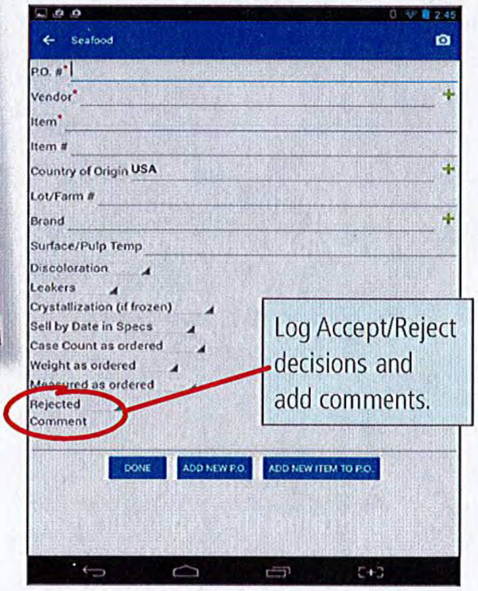
797600
Recorder #

Company Name Cargo Data Corporation
Receiving Location Corporate Office
Inspector* John Smith
Door* 6
Carrier* Best Carriers
Arrival Time* On Time
Category* Seafood

### Specifications :

- NFC transmission Range: Approx. 1 in
- Factory Calibrated, N.I.S.T. traceable
- On-Board LCD displays time and temperature data (Fahrenheit or Celsius)
- Monitors temperatures from -20°F to 120°F
- Range selections made within Lightning App
- Audible locating beeper (FREE option)
- Monitors up to 80 days
- Single-use instrument
- Size: 3 in x 1.75 in x .4 in
- Weight: 3 oz
- Manufactured in Certified ISO9002 CE facilities

All product features, specifications and appearances may vary due to technical advances.


Seafood

P.O. #*
Vendor*
Item*
Item #
Country of Origin USA
Lot/Farm #
Brand
Surface/Pulp Temp
Discoloration
Leakers
Crystallization (if frozen)
Sell by Date in Specs
Case Count as ordered
Weight as ordered
Measured as ordered
Rejected
Comment

Log Accept/Reject decisions and add comments.

Category specific attribute lists for Produce, Seafood, Meat, Deli/Dairy, Frozen and Floral.

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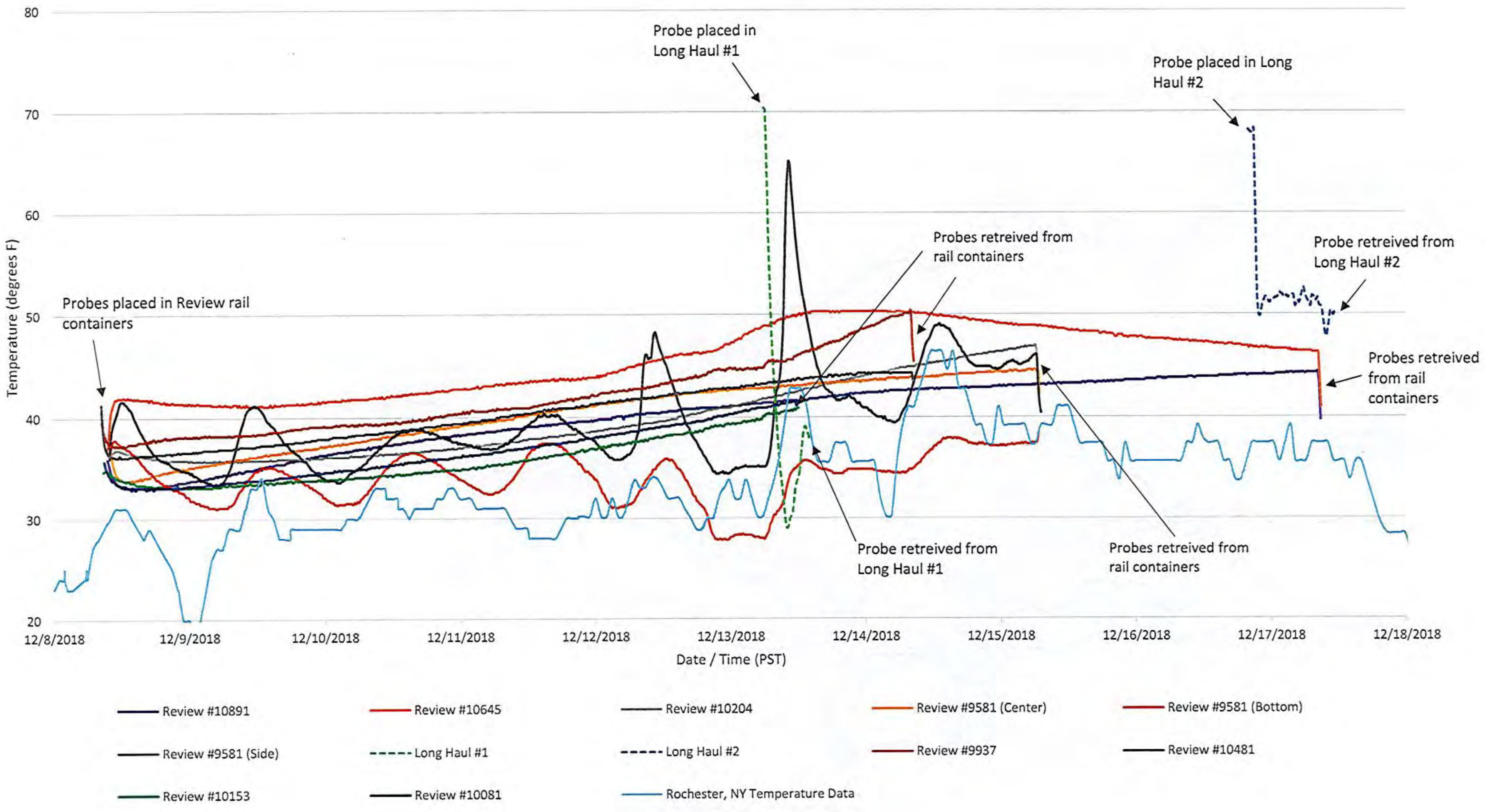
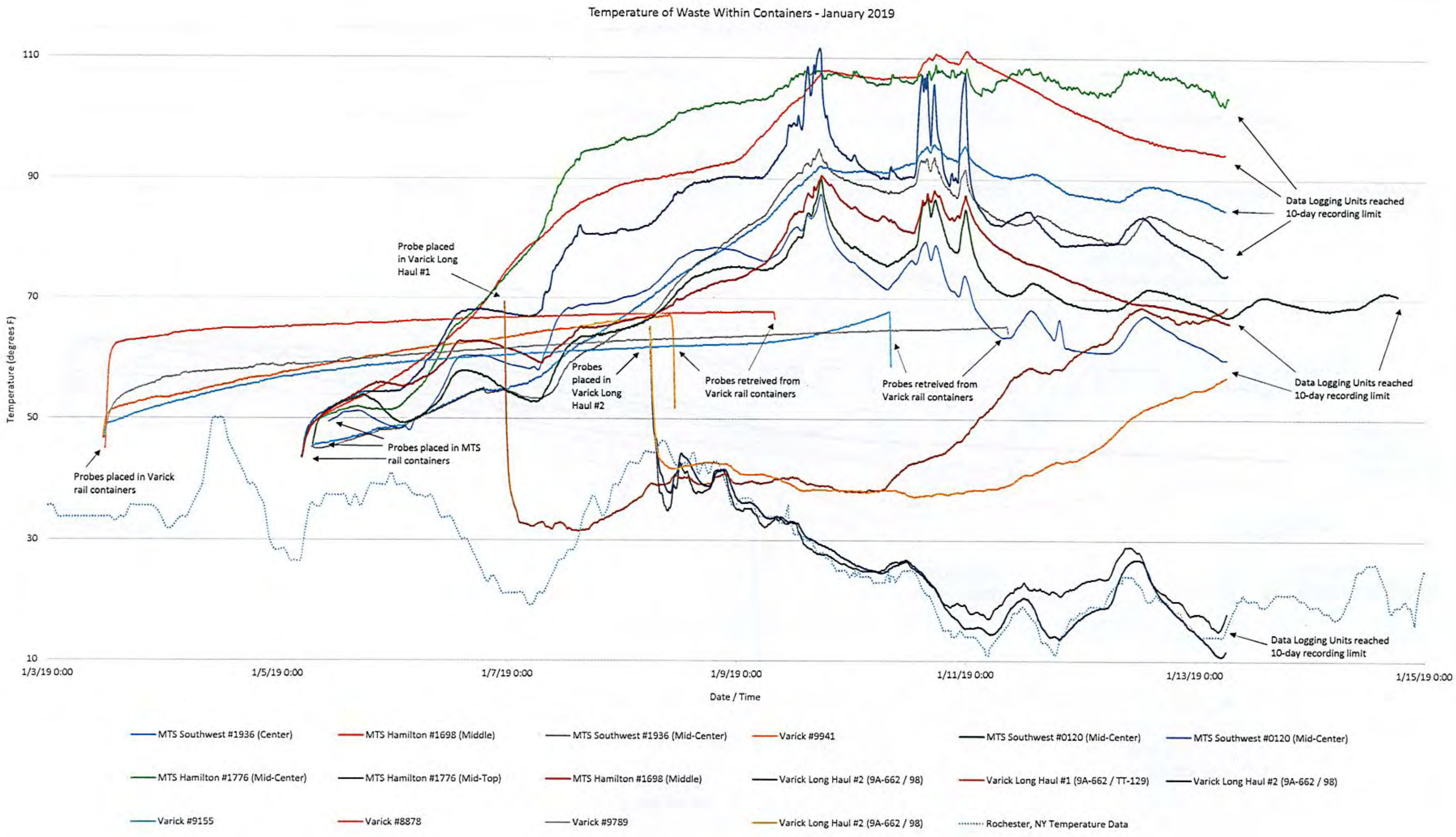
## Temperature of Waste Within Rail Containers - December 2018



1. All probes were placed within the center of the waste mass, with the exception of Review container #9581 (1 in center, 1 on side, 1 on bottom).
2. The probes were retrieved from the container at the point of time where each graph terminates.


Temperature of Waste Within Containers - January 2019

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 1 (DECEMBER 13, 2018)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

**Rail Car WMNY 9581**
Review Transfer Station

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.0 %
$CO_2$ = 1.2 %
$O_2$ = 20.2 %
Balance = 78.6 %
Pressure = 0.02 "$H_2O$

Probe Temp = 43.1 °F
Ambient Air Temp = 30.2 °F

FID Reading = Background

FID Reading = 8 ppm

**Rail Car WMNY 10204**
Review Transfer Station

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.3 %
$CO_2$ = 8.0 %
$O_2$ = 13.8 %
Balance = 78.0 %
Pressure = 0.02 "$H_2O$

Probe Temp = 42.1 °F
Ambient Air Temp = 30.2 °F

FID Reading = Background

FID Reading = 13 ppm

**Rail Car WMNY 10645**
Review Transfer Station

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.0 %
$CO_2$ = 0.3 %
$O_2$ = 20.8 %
Balance = 78.9 %
Pressure = 0.01 "$H_2O$

Probe Temp = 49.6 °F
Ambient Air Temp = 30.2 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 10891**
Review Transfer Station

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.1 %
$CO_2$ = 4.2 %
$O_2$ = 17.7 %
Balance = 78.1 %
Pressure = 0.02 "$H_2O$

Probe Temp = 41.5 °F
Ambient Air Temp = 30.2 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 10081**
Review Transfer Station

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.3 %
$CO_2$ = 7.0 %
$O_2$ = 14.6 %
Balance = 78.1 %
Pressure = 0.00 "$H_2O$

Probe Temp = 41.3 °F
Ambient Air Temp = 30.2 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 10153**
Review Transfer Station

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.5 %
$CO_2$ = 6.5 %
$O_2$ = 15.3 %
Balance = 77.6 %
Pressure = 0.00 "$H_2O$

Probe Temp = 40.5 °F
Ambient Air Temp = 30.2 °F

FID Reading = 4 - 5 ppm

FID Reading = Background

**Rail Car WMNY 10481**
Review Transfer Station

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.1 %
$CO_2$ = 3.7 %
$O_2$ = 18.4 %
Balance = 77.8 %
Pressure = 0.02 "$H_2O$

Probe Temp = 43.5 °F
Ambient Air Temp = 30.2 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 9937**
Review Transfer Station

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.5 %
$CO_2$ = 10.4 %
$O_2$ = 12.2 %
Balance = 77.0 %
Pressure = 0.02 "$H_2O$

Probe Temp = 45.4 °F
Ambient Air Temp = 30.2 °F

FID Reading = Background

FID Reading = 5 ppm

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 2 (DECEMBER 14, 2018)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

**Rail Car WMNY 9581**
**Review Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.0 %
$CO_2$ = 4.0 %
$O_2$ = 17.5 %
Balance = 78.5 %
Pressure = 0.03 "$H_2O$

Probe Temp = 43.8 °F
Ambient Air Temp = 39.2 °F

FID Reading = Background

FID Reading = 14 ppm

**Rail Car WMNY 10204**
**Review Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.4 %
$CO_2$ = 13.6 %
$O_2$ = 6.9 %
Balance = 79.2 %
Pressure = 0.02 "$H_2O$

Probe Temp = 45.0 °F
Ambient Air Temp = 39.2 °F

FID Reading = Background

FID Reading = 21 ppm

**Rail Car WMNY 10645**
**Review Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.0 %
$CO_2$ = 0.7 %
$O_2$ = 20.2 %
Balance = 79.1 %
Pressure = 0.02 "$H_2O$

Probe Temp = 50.1 °F
Ambient Air Temp = 39.2 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 10891**
**Review Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.0 %
$CO_2$ = 4.8 %
$O_2$ = 16.4 %
Balance = 78.8 %
Pressure = 0.03 "$H_2O$

Probe Temp = 42.7 °F
Ambient Air Temp = 39.2 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 10081**
**Review Transfer Station**

Rail Car Unloaded on
December 13, 2018

**Rail Car WMNY 10153**
**Review Transfer Station**

Rail Car Unloaded on
December 13, 2018

**Rail Car WMNY 10481**
**Review Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.1 %
$CO_2$ = 5.0 %
$O_2$ = 16.7 %
Balance = 78.8 %
Pressure = 0.01 "$H_2O$

Probe Temp = 43.5 °F
Ambient Air Temp = 39.2 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 9937**
**Review Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.8 %
$CO_2$ = 16.8 %
$O_2$ = 5.6 %
Balance = 76.8 %
Pressure = 0.04 "$H_2O$

Probe Temp = 45.4 °F
Ambient Air Temp = 39.2 °F

FID Reading = Background

FID Reading = 3 - 4 ppm

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 3 (DECEMBER 15, 2018)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

**Rail Car WMNY 9581**
Review Transfer Station

FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.2 %
$CO_2$ = 5.8 %
$O_2$ = 15.7 %
Balance = 78.3 %
Pressure = 0.02 "$H_2O$

Probe Temp = 42.3 °F
Ambient Air Temp = 37.4 °F

FID Reading = Background

FID Reading = 11 ppm

**Rail Car WMNY 10204**
Review Transfer Station

FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.2 %
$CO_2$ = 10.6 %
$O_2$ = 11.5 %
Balance = 77.7 %
Pressure = 0.02 "$H_2O$

Probe Temp = 43.4 °F
Ambient Air Temp = 37.4 °F

FID Reading = Background

FID Reading = 5 - 6 ppm

**Rail Car WMNY 10645**
Review Transfer Station

FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.0 %
$CO_2$ = 0.6 %
$O_2$ = 20.0 %
Balance = 79.4 %
Pressure = 0.02 "$H_2O$

Probe Temp = 48.8 °F
Ambient Air Temp = 37.4 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 10891**
Review Transfer Station

FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.1 %
$CO_2$ = 6.4 %
$O_2$ = 15.3 %
Balance = 78.3 %
Pressure = 0.02 "$H_2O$

Probe Temp = 43.2 °F
Ambient Air Temp = 37.4 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 10081**
Review Transfer Station

Rail Car Unloaded on
December 13, 2018

**Rail Car WMNY 10153**
Review Transfer Station

Rail Car Unloaded on
December 13, 2018

**Rail Car WMNY 10481**
Review Transfer Station

Rail Car Unloaded on
December 14, 2018

**Rail Car WMNY 9937**
Review Transfer Station

Rail Car Unloaded on
December 14, 2018

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 5 (DECEMBER 17, 2018)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

Rail Car WMNY 9581
Review Transfer Station

Rail Car Unloaded on
December 15, 2018

Rail Car WMNY 10204
Review Transfer Station

Rail Car Unloaded on
December 15, 2018

Rail Car WMNY 10645
Review Transfer Station

FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.0 %
$CO_2$ = 1.0 %
$O_2$ = 19.9 %
Balance = 79.1 %
Pressure = 0.03 "$H_2O$

Probe Temp = 40.9 °F
Ambient Air Temp = 35.6 °F

FID Reading = Background

FID Reading = Background

Rail Car WMNY 10891
Review Transfer Station

FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.0 %
$CO_2$ = 3.4 %
$O_2$ = 18.1 %
Balance = 78.4 %
Pressure = 0.03 "$H_2O$

Probe Temp = 39.7 °F
Ambient Air Temp = 35.6 °F

FID Reading = Background

FID Reading = Background

Rail Car WMNY 10081
Review Transfer Station

Rail Car Unloaded on
December 13, 2018

Rail Car WMNY 10153
Review Transfer Station

Rail Car Unloaded on
December 13, 2018

Rail Car WMNY 10481
Review Transfer Station

Rail Car Unloaded on
December 14, 2018

Rail Car WMNY 9937
Review Transfer Station

Rail Car Unloaded on
December 14, 2018

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 1 (January 8, 2019)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

Rail Car USWX 8992
Varick Transfer Station
FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.0 %
$CO_2$ = 0.5 %
$O_2$ = 21.9 %
Balance = 77.6 %
Pressure = 0.01 "$H_2O$

Probe Temp = n/a
Ambient Air Temp = 46.4 °F

FID Reading = 2.5 - 7.5 ppm
FID Reading = Background

Rail Car WMNY 11033
Varick Transfer Station
FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.0 %
$CO_2$ = 0.3 %
$O_2$ = 22.1 %
Balance = 77.6 %
Pressure = 0.01 "$H_2O$

Probe Temp = n/a
Ambient Air Temp = 46.4 °F

FID Reading = Background
FID Reading = Background

Rail Car USWX 8878
Varick Transfer Station
FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.9 %
$CO_2$ = 38.4 %
$O_2$ = 0.7 %
Balance = 60.0 %
Pressure = 0.01 "$H_2O$

Probe Temp = 67.6 °F
Ambient Air Temp = 46.4 °F

FID Reading = Background
FID Reading = Background

Rail Car WMNY 9789
Varick Transfer Station
FID Reading = Background

Landtec GEM Readings
$CH_4$ = 1.9 %
$CO_2$ = 66.9 %
$O_2$ = 0.2 %
Balance = 31.0 %
Pressure = 0.02 "$H_2O$

Probe Temp = 63.3 °F
Ambient Air Temp = 46.4 °F

FID Reading = Background
FID Reading = Background

Rail Car USWX 9155
Varick Transfer Station
FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.7 %
$CO_2$ = 33.2 %
$O_2$ = 2.6 %
Balance = 63.4 %
Pressure = 0.03 "$H_2O$

Probe Temp = 62.0 °F
Ambient Air Temp = 46.4 °F

FID Reading = Background
FID Reading = Background

Rail Car WMNY 9941
Varick Transfer Station
FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.5 %
$CO_2$ = 32.0 %
$O_2$ = 0.2 %
Balance = 67.3 %
Pressure = 0.01 "$H_2O$

Probe Temp = 67.1 °F
Ambient Air Temp = 46.4 °F

FID Reading = Background
FID Reading = Background

Rail Car WMNY 10192
Varick Transfer Station
FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.1 %
$CO_2$ = 3.5 %
$O_2$ = 18.9 %
Balance = 77.5 %
Pressure = 0.04 "$H_2O$

Probe Temp = n/a
Ambient Air Temp = 46.4 °F

FID Reading = Background
FID Reading = 2.5 - 6.3 ppm

Rail Car USWX 9596
Varick Transfer Station
FID Reading = Background

Landtec GEM Readings
$CH_4$ = 0.0 %
$CO_2$ = 0.9 %
$O_2$ = 21.6 %
Balance = 77.5 %
Pressure = 0.01 "$H_2O$

Probe Temp = n/a
Ambient Air Temp = 46.4 °F

FID Reading = Background
FID Reading = Background

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 2 (January 9, 2019)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

**Rail Car USWX 8992**
**Varick Transfer Station**

Rail Car was unloaded
and monitored on
Day 1, but was not part
of the Evaluation.

**Rail Car WMNY 11033**
**Varick Transfer Station**

Rail Car was unloaded
and monitored on
Day 1, but was not part
of the Evaluation.

**Rail Car USWX 8878**
**Varick Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.5 %
$CO_2$ = 17.2 %
$O_2$ = 15.6 %
Balance = 66.7 %
Pressure = 0.04 "$H_2O$

Probe Temp = 66.6 °F
Ambient Air Temp = 33.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 9789**
**Varick Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 1.9 %
$CO_2$ = 64.3 %
$O_2$ = 0.1 %
Balance = 33.8 %
Pressure = 0.04 "$H_2O$

Probe Temp = 64.1 °F
Ambient Air Temp = 33.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car USWX 9155**
**Varick Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.5 %
$CO_2$ = 23.1 %
$O_2$ = 9.7 %
Balance = 66.7 %
Pressure = 0.03 "$H_2O$

Probe Temp = 62.8 °F
Ambient Air Temp = 33.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 9941**
**Varick Transfer Station**

Rail Car Unloaded on
January 8, 2019

**Rail Car WMNY 10192**
**Varick Transfer Station**

Rail Car was unloaded
and monitored on
Day 1, but was not part
of the Evaluation.

**Rail Car USWX 9596**
**Varick Transfer Station**

Rail Car was unloaded
and monitored on
Day 1, but was not part
of the Evaluation.

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 3 (January 10, 2019)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

**Rail Car USWX 8992**
**Varick Transfer Station**

Rail Car was unloaded
and monitored on
Day 1, but was not part
of the Evaluation.

**Rail Car WMNY 11033**
**Varick Transfer Station**

Rail Car was unloaded
and monitored on
Day 1, but was not part
of the Evaluation.

**Rail Car USWX 8878**
**Varick Transfer Station**

Rail Car Unloaded on
January 9, 2019

**Rail Car WMNY 9789**
**Varick Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 1.6 %
$CO_2$ = 62.0 %
$O_2$ = 0.5 %
Balance = 36.0 %
Pressure = 0.00 "$H_2O$

Probe Temp = 64.8 °F
Ambient Air Temp = 24.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car USWX 9155**
**Varick Transfer Station**

FID Reading = Background

**Landtec GEM Readings**
$CH_4$ = 0.3 %
$CO_2$ = 14.9 %
$O_2$ = 12.1 %
Balance = 72.7 %
Pressure = 0.06 "$H_2O$

Probe Temp = 58.8 °F
Ambient Air Temp = 24.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 9941**
**Varick Transfer Station**

Rail Car Unloaded on
January 8, 2019

**Rail Car WMNY 10192**
**Varick Transfer Station**

Rail Car was unloaded
and monitored on
Day 1, but was not part
of the Evaluation.

**Rail Car USWX 9596**
**Varick Transfer Station**

Rail Car was unloaded
and monitored on
Day 1, but was not part
of the Evaluation.

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 4 (January 11, 2019)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

**Rail Car USWX 8992**
Varick Transfer Station

Rail Car was unloaded and monitored on Day 1, but was not part of the Evaluation.

**Rail Car WMNY 11033**
Varick Transfer Station

Rail Car was unloaded and monitored on Day 1, but was not part of the Evaluation.

**Rail Car USWX 8878**
Varick Transfer Station

Rail Car Unloaded on January 9, 2019

**Rail Car WMNY 9789**
Varick Transfer Station

FID Reading = Background

Landtec GEM Readings
$CH_4$ = 1.5 %
$CO_2$ = 55.6 %
$O_2$ = 1.7 %
Balance = 41.2 %
Pressure = 0.01 "$H_2O$

Probe Temp = 64.3 °F
Ambient Air Temp = 16.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car USWX 9155**
Varick Transfer Station

Rail Car Unloaded on January 10, 2019

**Rail Car WMNY 9941**
Varick Transfer Station

Rail Car Unloaded on January 8, 2019

**Rail Car WMNY 10192**
Varick Transfer Station

Rail Car was unloaded and monitored on Day 1, but was not part of the Evaluation.

**Rail Car USWX 9596**
Varick Transfer Station

Rail Car was unloaded and monitored on Day 1, but was not part of the Evaluation.

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 5 (January 14, 2019)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

**Rail Car WMNY 1776**

**MTS Southwest Transfer Station**

FID Reading = Background

**Landtec GEM Readings**

$CH_4$ = 8.8 %

$CO_2$ = 51.6 %

$O_2$ = 0.1 %

Balance = 39.3 %

Pressure = 0.00 "$H_2O$

Probe Temp = n/a [1]

Ambient Air Temp = 22.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 1936**

**MTS Hamilton Transfer Station**

FID Reading = Background

**Landtec GEM Readings**

$CH_4$ = 1.9 %

$CO_2$ = 48.5 %

$O_2$ = 0.2 %

Balance = 49.3 %

Pressure = 0.00 "$H_2O$

Probe Temp = n/a [1]

Ambient Air Temp = 22.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 1698**

**MTS Hamilton Transfer Station**

FID Reading = Background

**Landtec GEM Readings**

$CH_4$ = 4.4 %

$CO_2$ = 44.2 %

$O_2$ = 0.3 %

Balance = 51.1 %

Pressure = 0.00 "$H_2O$

Probe Temp = n/a [1]

Ambient Air Temp = 22.0 °F

FID Reading = Background

FID Reading = Background

**Rail Car WMNY 0120**

**MTS Southwest Transfer Station**

FID Reading = Background

**Landtec GEM Readings**

$CH_4$ = 0.3 %

$CO_2$ = 20.2 %

$O_2$ = 4.3 %

Balance = 75.1 %

Pressure = 0.00 "$H_2O$

Probe Temp = 68.8 °F

Ambient Air Temp = 22.0 °F

FID Reading = Background

FID Reading = Background

Note: 1) Data logger reached 10-day limit on 1/13/19, therefore no temperature data was available.

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# APPENDIX I
# RAIL CAR MONITORING RESULTS - DAY 6 (January 15, 2019)
# WASTE ODOR EVALUATION
# HIGH ACRES LANDFILL AND RECYCLING CENTER

**Rail Car WMNY 1776**
**MTS Southwest Transfer Station**

**Rail Car Unloaded on**
**January 14, 2019**

**Rail Car WMNY 1936**
**MTS Hamilton Transfer Station**

**Rail Car Unloaded on**
**January 14, 2019**

**Rail Car WMNY 1698**
**MTS Hamilton Transfer Station**

**FID Reading = Background**

**Landtec GEM Readings**
$CH_4$ = 4.0 %
$CO_2$ = 41.6 %
$O_2$ = 0.6 %
Balance = 53.7 %
Pressure = 0.00 "$H_2O$

Probe Temp = n/a [1]
Ambient Air Temp = 31.0 °F

**FID Reading = Background**

**FID Reading = Background**

**Rail Car WMNY 0120**
**MTS Southwest Transfer Station**

**FID Reading = Background**

**Landtec GEM Readings**
$CH_4$ = 0.3 %
$CO_2$ = 21.7 %
$O_2$ = 3.0 %
Balance = 75.0 %
Pressure = 0.00 "$H_2O$

Probe Temp = n/a [1]
Ambient Air Temp = 31.0 °F

**FID Reading = Background**

**FID Reading = 40 ppm**
**(Bottom Left)**

Note: 1) Data logger reached 10-day limit on 1/13/19, therefore no temperature data was available.

Note: Background concentration was assumed to be 0 - 2 parts per million (ppm)

# High Acres Landfill
# Analytical Data Summary

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Description: | | Local Rear Load (Truck 362664) | | | Compost Material (undisturbed) | | | Rail Container #1189 | | | Food Waste | | | Biosolids (Van Lare) | | | Compost Material (disturbed) | | | Local Front Load | | |
| | Sample Area: | | Cell 12 Active Area | | | Compost Area | | | Cell 12 Active Area | | | Compost Area | | | Cell 12 Active Area | | | Compost Area | | | Cell 12 Active Area | | |
| | Sample ID: | | WM-089290-121118-BPS-001 | | | WM-089290-121118-BPS-002 | | | WM-089290-121118-BPS-003 | | | WM-089290-121218-BPS-004 | | | WM-089290-121218-BPS-005 | | | WM-089290-121218-BPS-006 | | | WM-089290-121318-BPS-007 | | |
| | Sample Date / Time: | | 12/11/2018 11:30 - 14:20 | | | 12/11/2018 12:40 - 14:33 | | | 12/11/2018 13:42 - 15:25 | | | 12/12/2018 11:42 - 13:12 | | | 12/12/2018 12:54 - 14:50 | | | 12/12/2018 13:45 - 15:25 | | | 12/13/2018 10:24 - 12:04 | | |
| | Temperature Logger Serial #: | | NA | | | NA | | | NA | | | NA | | | NA | | | NA | | | NA | | |
| | Odor Intensity Reading: | | 0.5 - 1.0 | | | 1.0 - 1.5 | | | 1.0 - 1.5 | | | 2.0 - 2.5 | | | 3.5 - 4.0 | | | 2.0 - 2.5 | | | 2.0 | | |
| | Moisture Content (%): | | 25.8 | | | 60.6 | | | 30.5 | | | 65.7 | | | 71.6 | | | 65.2 | | | 53.1 | | |
| | Pile Temperature After Unloading (°F): | | 23 | | | 24 | | | 20 | | | 35 | | | 45 | | | 58 | | | 27 | | |
| CAS | Compound | Units | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | |
| 115-07-1 | Propene | μg/m$^3$ | | ND | | 0.66 | | | | ND | | 29 | | | 8.5 | | | 11 | | | | ND | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | μg/m$^3$ | 12 | | | 2 | | | 3.4 | | J | 1.9 | | J | 6.8 | | | 1.9 | | J | | ND | |
| 74-87-3 | Chloromethane | μg/m$^3$ | 1.3 | | J | 0.22 | | J | 2.5 | | J | 10 | | | 52 | | | 0.85 | | J | | ND | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-01-4 | Vinyl Chloride | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 106-99-0 | 1,3-Butadiene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 74-83-9 | Bromomethane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-00-3 | Chloroethane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | 79 | | | | ND | | 18 | | J |
| 64-17-5 | Ethanol | μg/m$^3$ | 17,000 | | D | 5.7 | | J | 75,000 | | D | 28,000 | | D | 5,100 | | D | 110 | | | 18,000 | | |
| 75-05-8 | Acetonitrile | μg/m$^3$ | 2 | | J | 0.37 | | J | | ND | | | ND | | 28 | | | 8.6 | | | | ND | |
| 107-02-8 | Acrolein | μg/m$^3$ | 2 | | J | | ND | | | ND | | 7.5 | | | 7.5 | | | | ND | | | ND | |
| 67-64-1 | Acetone | μg/m$^3$ | 1,500 | | | 10 | | | | ND | | 340 | | | 9,800 | | D | 490 | | | 370 | | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | μg/m$^3$ | 10 | | | 1 | | | 4.9 | | J | 0.99 | | J | 6.4 | | | 1.1 | | J | | ND | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | μg/m$^3$ | | ND | | 0.5 | | J | | ND | | | ND | | 200 | | | 550 | | | 430 | | |
| 107-13-1 | Acrylonitrile | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-35-4 | 1,1-Dichloroethene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-09-2 | Methylene Chloride | μg/m$^3$ | 56 | | | 0.26 | | J | 9,100 | | D | | ND | | 21 | | | | ND | | | ND | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | μg/m$^3$ | | ND | | 0.47 | | J | | ND | | | ND | | 0.64 | | J | | ND | | | ND | |
| 75-15-0 | Carbon Disulfide | μg/m$^3$ | 6.1 | | J | 1.1 | | J | 13 | | J | 18 | | | 14 | | | 3.5 | | J | | ND | |
| 156-60-5 | trans-1,2-Dichloroethene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-34-3 | 1,1-Dichloroethane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | 1.8 | | J | | ND | | | ND | |
| 1634-04-4 | Methyl tert-Butyl Ether | μg/m$^3$ | | ND | | | ND | | 12 | | J | | ND | | | ND | | | ND | | | ND | |
| 108-05-4 | Vinyl Acetate | μg/m$^3$ | 39 | | J | | ND | | | ND | | 130 | | | 60 | | | | ND | | | ND | |
| 78-93-3 | 2-Butanone (MEK) | μg/m$^3$ | 26 | | | 14 | | | 310 | | | 16 | | | 4,300 | | D | 150 | | | 95 | | |
| 156-59-2 | cis-1,2-Dichloroethene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 141-78-6 | Ethyl Acetate | μg/m$^3$ | 560 | | | 4.3 | | | 4,800 | | | 2,000 | | D | 150 | | | 8.2 | | | 670 | | |
| 110-54-3 | n-Hexane | μg/m$^3$ | 3.8 | | J | 0.52 | | J | 81 | | | | ND | | 6.8 | | | 1.1 | | J | 6.9 | | J |
| 67-66-3 | Chloroform | μg/m$^3$ | 0.92 | | J | | ND | | 26 | | | 4.3 | | | 130 | | | | ND | | 4.6 | | J |
| 109-99-9 | Tetrahydrofuran (THF) | μg/m$^3$ | | ND | | | ND | | 37 | | | | ND | | 6.2 | | | | ND | | | ND | |
| 107-06-2 | 1,2-Dichloroethane | μg/m$^3$ | | ND | | | ND | | 24 | | | | ND | | 1.4 | | J | | ND | | | ND | |
| 71-55-6 | 1,1,1-Trichloroethane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | 4.9 | | | | ND | | | ND | |
| 71-43-2 | Benzene | μg/m$^3$ | 1.9 | | J | 0.49 | | J | 3.2 | | J | 2 | | J | 1.3 | | J | 0.85 | | J | 7 | | J |
| 56-23-5 | Carbon Tetrachloride | μg/m$^3$ | | ND | | 0.35 | | J | 29 | | | | ND | | 3.7 | | | | ND | | | ND | |
| 110-82-7 | Cyclohexane | μg/m$^3$ | 2.7 | | J | | ND | | 84 | | | | ND | | 3.3 | | J | | ND | | | ND | |
| 78-87-5 | 1,2-Dichloropropane | μg/m$^3$ | 1 | | J | | ND | | | ND | | | ND | | 2.6 | | J | | ND | | | ND | |
| 75-27-4 | Bromodichloromethane | μg/m$^3$ | | ND | | | ND | | | ND | | 0.52 | | J | 0.95 | | J | | ND | | | ND | |
| 79-01-6 | Trichloroethene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | 3.4 | | | | ND | | | ND | |
| 123-91-1 | 1,4-Dioxane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 80-62-6 | Methyl Methacrylate | μg/m$^3$ | | ND | | | ND | | 8.1 | | J | | ND | | 2.8 | | J | | ND | | | ND | |
| 142-82-5 | n-Heptane | μg/m$^3$ | 7.4 | | | 0.45 | | J | 320 | | | 2.5 | | J | 14 | | | 1.7 | | J | 14 | | J |
| 10061-01-5 | cis-1,3-Dichloropropene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 108-10-1 | 4-Methyl-2-pentanone | μg/m$^3$ | 4.9 | | J | 0.13 | | J | 46 | | | | ND | | 6 | | | 3.1 | | J | 86 | | |
| 10061-02-6 | trans-1,3-Dichloropropene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 79-00-5 | 1,1,2-Trichloroethane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 108-88-3 | Toluene | μg/m$^3$ | 54 | | | 1.5 | | | 1,200 | | | 3.9 | | | 190 | | | 12 | | | 160 | | |
| 591-78-6 | 2-Hexanone | μg/m$^3$ | | ND | | 0.6 | | J | | ND | | 0.74 | | J | 3.5 | | | 9 | | | | ND | |
| 124-48-1 | Dibromochloromethane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 106-93-4 | 1,2-Dibromoethane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 123-86-4 | n-Butyl Acetate | μg/m$^3$ | 55 | | | | ND | | 93 | | | 60 | | | 19 | | | | ND | | 810 | | |
| 111-65-9 | n-Octane | μg/m$^3$ | 20 | | | 2.3 | | | 90 | | | 13 | | | 7.5 | | | 5.6 | | | 10 | | J |
| 127-18-4 | Tetrachloroethene | μg/m$^3$ | 30 | | | | ND | | 18 | | | | ND | | 6.3 | | | | ND | | | ND | |
| 108-90-7 | Chlorobenzene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 100-41-4 | Ethylbenzene | μg/m$^3$ | 34 | | | 0.13 | | J | 80 | | | | ND | | 5.1 | | | 0.52 | | J | 23,000 | | D |
| 179601-23-1 | m,p-Xylenes | μg/m$^3$ | 110 | | | 0.4 | | J | 200 | | | 1 | | J | 15 | | | | ND | | 62,000 | | D |
| 75-25-2 | Bromoform | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 100-42-5 | Styrene | μg/m$^3$ | 7.1 | | | | ND | | 80 | | | | ND | | 3.3 | | | 0.9 | | J | 13 | | J |
| 95-47-6 | o-Xylene | μg/m$^3$ | 26 | | | 0.13 | | J | 77 | | | | ND | | 4.7 | | | | ND | | 15,000 | | D |
| 111-84-2 | n-Nonane | μg/m$^3$ | 160 | | | 0.15 | | J | 170 | | | 2.2 | | J | 14 | | | | ND | | 18 | | J |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 98-82-8 | Cumene | μg/m$^3$ | 2.1 | | J | | ND | | 4.1 | | J | | ND | | | ND | | | ND | | 170 | | |
| 80-56-8 | alpha-Pinene | μg/m$^3$ | 930 | | | 2 | | | 300 | | | 28 | | | 23 | | | 17 | | | 340 | | |
| 103-65-1 | n-Propylbenzene | μg/m$^3$ | 2.2 | | J | | ND | | 4.7 | | J | | ND | | 1 | | J | | ND | | 74 | | |
| 622-96-8 | 4-Ethyltoluene | μg/m$^3$ | | ND | | | ND | | 4.7 | | J | | ND | | 1.3 | | J | | ND | | 41 | | |
| 108-67-8 | 1,3,5-Trimethylbenzene | μg/m$^3$ | 3.6 | | J | | ND | | 4.7 | | J | | ND | | 1.7 | | J | | ND | | 20 | | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | μg/m$^3$ | 9.3 | | | 0.1 | | J | 10 | | J | | ND | | 4 | | | | ND | | 25 | | J |
| 100-44-7 | Benzyl Chloride | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | 7.6 | | | | ND | | | ND | |
| 541-73-1 | 1,3-Dichlorobenzene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 106-46-7 | 1,4-Dichlorobenzene | μg/m$^3$ | | ND | | | ND | | 75 | | | | ND | | 2.5 | | J | | ND | | | ND | |
| 95-50-1 | 1,2-Dichlorobenzene | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 5989-27-5 | d-Limonene | μg/m$^3$ | 1,600 | | D | 11 | | | 2,700 | | D | 220 | | | 290 | | | 320 | | | 3,600 | | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | μg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |

# High Acres Landfill
## Analytical Data Summary

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Sample Description: | Local Rear Load (Truck 362664) | Compost Material (undisturbed) | Rail Container #1189 | Food Waste | Biosolids (Van Lare) | Compost Material (disturbed) | Local Front Load |
| | | Sample Area: | Cell 12 Active Area | Compost Area | Cell 12 Active Area | Compost Area | Cell 12 Active Area | Compost Area | Cell 12 Active Area |
| | | Sample ID: | WM-089290-121118-BPS-001 | WM-089290-121118-BPS-002 | WM-089290-121118-BPS-003 | WM-089290-121218-BPS-004 | WM-089290-121218-BPS-005 | WM-089290-121218-BPS-006 | WM-089290-121318-BPS-007 |
| | | Sample Date / Time: | 12/11/2018<br>11:30 - 14:20 | 12/11/2018<br>12:40 - 14:33 | 12/11/2018<br>13:42 - 15:25 | 12/12/2018<br>11:42 - 13:12 | 12/12/2018<br>12:54 - 14:50 | 12/12/2018<br>13:45 - 15:25 | 12/13/2018<br>10:24 - 12:04 |
| | | Temperature Logger Serial #: | NA | NA | NA | NA | NA | NA | NA |
| | | Odor Intensity Reading: | 0.5 - 1.0 | 1.0 - 1.5 | 1.0 - 1.5 | 2.0 - 2.5 | 3.5 - 4.0 | 2.0 - 2.5 | 2.0 |
| | | Moisture Content (%): | 25.8 | 60.6 | 30.5 | 65.7 | 71.6 | 65.2 | 53.1 |
| 120-82-1 | 1,2,4-Trichlorobenzene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND |
| 91-20-3 | Naphthalene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND |
| 87-68-3 | Hexachlorobutadiene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND |
| *Tentatively Identified Compounds* [1] | | | | | | | | | |
| CAS | Compound | Units | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result |
| | 1,1-Difluoroethane | $\mu g/m^3$ | 1,900 | - | 580 | - | 230 | - | 11,000 |
| | Propane | $\mu g/m^3$ | 1,400 | - | 1,800 | - | 530 | - | 1,600 |
| | Isobutane | $\mu g/m^3$ | 5,000 | - | 13,000 | - | 1,600 | - | 31,000 |
| | n-Butane | $\mu g/m^3$ | 2,500 | - | 5,900 | 11 | 1,100 | - | 22,000 |
| | unknown | $\mu g/m^3$ | 250 | - | - | 50 | 16 | 22 | 140 |
| | n-Pentane | $\mu g/m^3$ | 310 | - | 3,400 | 54 | 230 | - | 890 |
| | unknown | $\mu g/m^3$ | 86 | - | - | - | - | - | - |
| | Trimethylsilanol | $\mu g/m^3$ | 130 | 38 | - | - | - | - | - |
| | Isobutanol | $\mu g/m^3$ | 59 | - | 180 | 60 | - | - | - |
| | Hexamethyldisiloxane | $\mu g/m^3$ | 670 | - | 180 | - | - | - | - |
| | unknown hydrocarbon | $\mu g/m^3$ | 150 | - | 70 | - | - | - | - |
| | 1,2,4-Trimethylcyclohexane | $\mu g/m^3$ | 66 | - | - | - | - | - | - |
| | 1,3,5-Trimethyl-, (1.Alpha.,3.Alpha.,5.Beta.)Cyclohexane | $\mu g/m^3$ | 74 | - | - | - | - | - | - |
| | Camphene | $\mu g/m^3$ | 220 | - | - | - | - | - | - |
| | unknown hydrocarbon | $\mu g/m^3$ | 100 | - | - | - | - | - | - |
| | beta-Pinene | $\mu g/m^3$ | 210 | - | 180 | - | 19 | - | 380 |
| | n-Decane | $\mu g/m^3$ | 180 | - | 130 | - | 21 | - | - |
| | 4-Methyldecane | $\mu g/m^3$ | 100 | - | - | - | - | - | - |
| | .gamma.-Terpinene | $\mu g/m^3$ | 110 | - | 130 | - | - | - | 260 |
| | 2,2,5-Trimethylhexane | $\mu g/m^3$ | - | 3.4 | - | - | - | - | - |
| | 1-Octene | $\mu g/m^3$ | - | 5.5 | - | - | - | - | - |
| | 2,2,4-Trimethylheptane | $\mu g/m^3$ | - | 5 | - | - | - | - | - |
| | 3,3-Dimethyloctane | $\mu g/m^3$ | - | 2.7 | - | - | - | - | - |
| | 1-Decene | $\mu g/m^3$ | - | 3.7 | - | - | - | - | - |
| | o-Cymene | $\mu g/m^3$ | - | 2.7 | - | - | 18 | - | - |
| | 2-Methylbutane | $\mu g/m^3$ | - | - | 7,500 | - | - | - | 5,700 |
| | 2-Methylbutane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1-Propanol | $\mu g/m^3$ | - | - | - | 21 | 49 | 13 | - |
| | (R)-2-butanol | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1-Butanol | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 2-Butanol | $\mu g/m^3$ | - | - | - | - | 92 | - | - |
| | .beta.-Myrcene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | (+)-3-Carene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Methyl Acetate | $\mu g/m^3$ | - | - | - | 83 | - | - | - |
| | Dimethyl Ether | $\mu g/m^3$ | - | - | 650 | - | - | - | 150 |
| | Acetaldehyde | $\mu g/m^3$ | - | - | - | 350 | - | - | - |
| | 2-Methylpentane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 3-Methyl-1-butanol | $\mu g/m^3$ | - | - | - | 31 | - | - | - |
| | 3-Carene | $\mu g/m^3$ | - | - | - | 17 | - | - | - |
| | 4-Carene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 3-Methylhexane | $\mu g/m^3$ | - | - | 120 | - | 19 | - | - |
| | Dimethyl Sulfide | $\mu g/m^3$ | - | - | - | 250 | 96 | - | - |
| | 2-Pentanone | $\mu g/m^3$ | - | - | - | 46 | 37 | - | - |
| | 2-Methylhexane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Dimethyl disulfide | $\mu g/m^3$ | - | - | - | 26 | - | - | - |
| | .beta.-Phellandrene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Norflurane | $\mu g/m^3$ | - | - | 170 | - | 71 | - | 790 |
| | 2,2,4-Trimethylpentane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Dimethylcyclohexane Isomer | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 4-Chlorobenzotrifluoride | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Trimethylcyclohexane Isomer | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 3-Methyloctane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Propylcyclohexane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 3-Methylnonane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1-Ethyl-2-Methylbenzene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1,2,3-Trimethylbenzene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1,1-Dichloro-1-fluoroethane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 2,6-Dimethyloctane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | p-Cymene + C11H24 Compound | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | unknown siloxane | $\mu g/m^3$ | - | - | - | - | 13 | - | 280 |
| | Neopentane | $\mu g/m^3$ | - | - | 66 | - | 17 | - | 460 |
| | Fluorodichloromethane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | C9H18 Compound | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | C9H18 Compound | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | n-Butylcyclohexane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | n-Undecane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1,1-Dimethylethyl Esteracetic Acid | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Methylcyclohexane | $\mu g/m^3$ | - | - | 190 | - | - | - | - |

# High Acres Landfill
## Analytical Data Summary

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sample Description: | | Local Rear Load (Truck 362664) | Compost Material (undisturbed) | Rail Container #1189 | Food Waste | Biosolids (Van Lare) | Compost Material (disturbed) | Local Front Load |
| | Sample Area: | | Cell 12 Active Area | Compost Area | Cell 12 Active Area | Compost Area | Cell 12 Active Area | Compost Area | Cell 12 Active Area |
| | Sample ID: | | WM-089290-121118-BPS-001 | WM-089290-121118-BPS-002 | WM-089290-121118-BPS-003 | WM-089290-121218-BPS-004 | WM-089290-121218-BPS-005 | WM-089290-121218-BPS-006 | WM-089290-121318-BPS-007 |
| | Sample Date / Time: | | 12/11/2018 11:30 - 14:20 | 12/11/2018 12:40 - 14:33 | 12/11/2018 13:42 - 15:25 | 12/12/2018 11:42 - 13:12 | 12/12/2018 12:54 - 14:50 | 12/12/2018 13:45 - 15:25 | 12/13/2018 10:24 - 12:04 |
| | Temperature Logger Serial #: | | NA | NA | NA | NA | NA | NA | NA |
| | Odor Intensity Reading: | | 0.5 - 1.0 | 1.0 - 1.5 | 1.0 - 1.5 | 2.0 - 2.5 | 3.5 - 4.0 | 2.0 - 2.5 | 2.0 |
| | Moisture Content (%): | | 25.8 | 60.6 | 30.5 | 65.7 | 71.6 | 65.2 | 53.1 |
| | 2,5-Dimethylhexane | µg/m³ | - | - | - | - | - | - | - |
| | 2,4-Dimethylhexane | µg/m³ | - | - | - | - | - | - | - |
| | 2-Methylheptane | µg/m³ | - | - | - | - | - | - | - |
| | 3-Methylheptane | µg/m³ | - | - | - | - | - | - | - |
| | 1,3-Dimethylcyclohexane | µg/m³ | - | - | - | - | - | - | - |
| | 2,2,4,6,6-Pentamethylheptane | µg/m³ | - | - | - | - | - | - | - |
| | Pentafluoroethane | µg/m³ | - | - | 90 | - | - | - | - |
| | 1,3-Pentadiene | µg/m³ | - | - | 90 | 15 | - | - | - |
| | 2,2,3,3-Tetramethylbutane | µg/m³ | - | - | 130 | - | - | - | - |
| | 2-Methylpropanal | µg/m³ | - | - | - | 42 | - | - | - |
| | 3-Methylbutanal | µg/m³ | - | - | - | 24 | - | - | - |
| | 2-Methylbutanal | µg/m³ | - | - | - | 17 | - | - | - |
| | n-Butyl Acetate | µg/m³ | - | - | - | 24 | - | - | - |
| | Acetate-2-pentanol | µg/m³ | - | - | - | 46 | - | - | - |
| | 2-Methylpropyl Esterbutanoic Acid | µg/m³ | - | - | - | 15 | - | - | - |
| | 3-Methyl-, Acetate-1-butanol | µg/m³ | - | - | - | 52 | - | - | - |
| | Chloroethane | µg/m³ | - | - | - | - | 20 | - | - |
| | n-Propyl chloride | µg/m³ | - | - | - | - | 36 | - | - |
| | 2,3-Butanedione | µg/m³ | - | - | - | - | 31 | - | - |
| | 2,3-Dimethylpentane | µg/m³ | - | - | - | - | - | - | - |
| CAS | Compound | Units | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result |
| 7783-06-4 | Hydrogen Sulfide | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 463-58-1 | Carbonyl Sulfide | µg/m³ | 17 | ND | 50 | 90 | 69 | 17 | ND |
| 74-93-1 | Methyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 75-08-1 | Ethyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 75-18-3 | Dimethyl Sulfide | µg/m³ | 13 J | ND | 90 | 370 | 95 | ND | 20 |
| 75-15-0 | Carbon Disulfide | µg/m³ | 13 | ND | 14 | 19 | 14 | ND | ND |
| 75-33-2 | Isopropyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 75-66-1 | tert-Butyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 107-03-9 | n-Propyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 624-89-5 | Ethyl Methyl Sulfide | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 110-02-1 | Thiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 513-44-0 | Isobutyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 352-93-2 | Diethyl Sulfide | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 109-79-5 | n-Butyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 624-92-0 | Dimethyl Disulfide | µg/m³ | ND | ND | 69 | 57 | ND | ND | ND |
| 616-44-4 | 3-Methylthiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 110-01-0 | Tetrahydrothiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 638-02-8 | 2,5-Dimethylthiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 872-55-9 | 2-Ethylthiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 110-81-6 | Diethyl Disulfide | µg/m³ | ND | ND | ND | ND | ND | ND | ND |

Notes:

| | |
|---|---|
| 1 | Only Tentatively Identified Compounds listed in the associated laboratory reports are shown. |
| µg/m³ | Micrograms per cubic meter (parts per billion) |
| MRL | Method Reporting Limit |
| MDL | Method Detection Limit |
| ND | Not detected at a concentration at or above the laboratory's MRL (TO-15) or MDL (ASTM 5504). Refer to the associated laboratory reports for these limits. |
| NI | Not identified |
| NA | Not applicable |
| D | The reported result is from a dilution. |
| J | The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL. |

# High Acres Landfill
## Analytical Data Summary

| CAS | Compound | Units | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sample Description: | | Review Container In-situ Day #1 | December Long Haul Truck | Review Container In-situ Day #2 | Review Container In-situ Day #3 | Review Container In-situ Day #5 | Varick Container In-situ Day #1 | Varick Container In-situ Day #2 |
| | Sample Area: | | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area |
| | Sample ID: | | WM-089290-121318-BPS-008 | WM-089290-121318-BPS-009 | WM-089290-121418-BPS-010 | WM-089290-121518-BPS-011 | WM-089290-121718-BPS-012 | WM-089290-010819-MAC-013 | WM-089290-010919-MAC-014 |
| | Sample Date / Time: | | 12/13/2018 15:25 - 16:40 | 12/13/2018 17:30 - 18:54 | 12/14/2018 11:27 - 12:57 | 12/15/2018 10:00 - 11:30 | 12/17/2018 11:44 - 13:14 | 1/08/2019 13:48 - 15:20 | 1/09/2019 11:18 - 12:50 |
| | Temperature Logger Serial #: | | 1965285 | 1965294 | 1965283 | 1965290, 1965291, 1965293 | 1965288 | 1965299 | 1974336 |
| | Odor Intensity Reading: | | 1.5 - 2.0 | 1.0 - 1.5 | 1.5 - 2.0 | 1.0 | 1.0 | 0.5 - 1.0 | 0.5 - 1.0 |
| | Moisture Content (%): | | 34.7 | 29.0 | 51.9 | 48.5 | 53.7 | 67.7 | 57.2 |
| | Pile Temperature After Unloading (°F): | | 22 | 25 | 53 | 43 | — | 50 | 50 |
| CAS | Compound | Units | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result |
| 115-07-1 | Propene | µg/m$^3$ | ND | ND | ND | ND | ND | 19 J | 3.2 J |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | µg/m$^3$ | 3 J | 3.2 J | ND | ND | 2.3 J | ND | 3.4 J |
| 74-87-3 | Chloromethane | µg/m$^3$ | 1.3 J | ND | ND | ND | ND | ND | ND |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 75-01-4 | Vinyl Chloride | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 106-99-0 | 1,3-Butadiene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 74-83-9 | Bromomethane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 75-00-3 | Chloroethane | µg/m$^3$ | ND | ND | ND | ND | 12 | ND | ND |
| 64-17-5 | Ethanol | µg/m$^3$ | 14,000 D | 19,000 D | 82,000 D | 95,000 D | 25,000 D | 290,000 B, D | 100,000 D |
| 75-05-8 | Acetonitrile | µg/m$^3$ | 6.3 J | ND | ND | ND | ND | ND | ND |
| 107-02-8 | Acrolein | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 67-64-1 | Acetone | µg/m$^3$ | 3,400 | 2,100 | 23,000 | 9,200 | 280 | 1,500 | 1,000 |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | µg/m$^3$ | 42 | 18 | 86 | ND | ND | ND | 31 |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | µg/m$^3$ | 1,700 | 550 | 3,400 | 13,000 | 720 | 1,700 | 870 |
| 107-13-1 | Acrylonitrile | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 75-35-4 | 1,1-Dichloroethene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 75-09-2 | Methylene Chloride | µg/m$^3$ | 110 | 140 | 16 J | 140 | ND | ND | ND |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 75-15-0 | Carbon Disulfide | µg/m$^3$ | 5.7 J | 5.5 J | 16 J | ND | 4.4 J | 44 J | 11 J |
| 156-60-5 | trans-1,2-Dichloroethene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 75-34-3 | 1,1-Dichloroethane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 1634-04-4 | Methyl tert-Butyl Ether | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 108-05-4 | Vinyl Acetate | µg/m$^3$ | ND | 330 | 230 J | ND | 65 J | 170 J | ND |
| 78-93-3 | 2-Butanone (MEK) | µg/m$^3$ | 580 | 140 | 6,000 | 1,700 | 130 | 5,300 | 1,700 |
| 156-59-2 | cis-1,2-Dichloroethene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 141-78-6 | Ethyl Acetate | µg/m$^3$ | 500 | 1,100 | 7,100 | 4,700 | 380 | 13,000 | 4,000 |
| 110-54-3 | n-Hexane | µg/m$^3$ | 8.7 | ND | 37 J | ND | ND | ND | 4.3 J |
| 67-66-3 | Chloroform | µg/m$^3$ | 2.1 J | 2.2 J | 31 J | ND | ND | ND | 2.8 J |
| 109-99-9 | Tetrahydrofuran (THF) | µg/m$^3$ | 9.5 | ND | ND | ND | 12 | ND | 320 |
| 107-06-2 | 1,2-Dichloroethane | µg/m$^3$ | 4.7 J | 3.7 J | 51 | ND | ND | ND | ND |
| 71-55-6 | 1,1,1-Trichloroethane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 71-43-2 | Benzene | µg/m$^3$ | 2.8 J | 5.7 J | ND | ND | ND | ND | ND |
| 56-23-5 | Carbon Tetrachloride | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 110-82-7 | Cyclohexane | µg/m$^3$ | 24 | 8.4 J | 270 | 46 J | 5.8 J | ND | 3.2 J |
| 78-87-5 | 1,2-Dichloropropane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 75-27-4 | Bromodichloromethane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 79-01-6 | Trichloroethene | µg/m$^3$ | ND | 1.8 J | ND | ND | ND | ND | ND |
| 123-91-1 | 1,4-Dioxane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 80-62-6 | Methyl Methacrylate | µg/m$^3$ | 8.9 J | ND | ND | ND | ND | ND | ND |
| 142-82-5 | n-Heptane | µg/m$^3$ | 510 | 46 | 1,800 | 250 | 12 | 81 | 12 |
| 10061-01-5 | cis-1,3-Dichloropropene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 108-10-1 | 4-Methyl-2-pentanone | µg/m$^3$ | 230 | 3.6 J | ND | ND | ND | ND | ND |
| 10061-02-6 | trans-1,3-Dichloropropene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 79-00-5 | 1,1,2-Trichloroethane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 108-88-3 | Toluene | µg/m$^3$ | 720 | 120 | 490 | 460 | 87 | 110 | 24 |
| 591-78-6 | 2-Hexanone | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 124-48-1 | Dibromochloromethane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 106-93-4 | 1,2-Dibromoethane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 123-86-4 | n-Butyl Acetate | µg/m$^3$ | 19 | 24 | ND | 26 J | 5.3 J | 35 J | 5.7 J |
| 111-65-9 | n-Octane | µg/m$^3$ | 86 | 46 | 1,300 | 82 J | 10 J | 110 | 21 |
| 127-18-4 | Tetrachloroethene | µg/m$^3$ | 3.6 J | 4.7 J | 6.8 J | ND | ND | ND | 1.8 J |
| 108-90-7 | Chlorobenzene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 100-41-4 | Ethylbenzene | µg/m$^3$ | 39 | 63 | 67 | 49 J | 16 | 120 | 20 |
| 179601-23-1 | m,p-Xylenes | µg/m$^3$ | 120 | 210 | 200 | 150 J | 51 | 380 | 23 |
| 75-25-2 | Bromoform | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 100-42-5 | Styrene | µg/m$^3$ | 25 | 13 | 47 | 80 J | 12 | 74 | 52 |
| 95-47-6 | o-Xylene | µg/m$^3$ | 46 | 66 | 49 | 57 J | 18 | 110 | 9.9 J |
| 111-84-2 | n-Nonane | µg/m$^3$ | 230 | 250 | 510 | 520 | 84 | 230 | 31 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 98-82-8 | Cumene | µg/m$^3$ | 9.7 | 6.4 J | ND | ND | 2.3 J | ND | 2 J |
| 80-56-8 | alpha-Pinene | µg/m$^3$ | 180 | 150 | 280 | 350 | 200 | 690 | 240 |
| 103-65-1 | n-Propylbenzene | µg/m$^3$ | 25 | 14 | ND | ND | 4.5 J | ND | 2.3 J |
| 622-96-8 | 4-Ethyltoluene | µg/m$^3$ | 32 | 18 | ND | 25 J | 8.3 J | ND | ND |
| 108-67-8 | 1,3,5-Trimethylbenzene | µg/m$^3$ | 44 | 20 | 8.6 J | 20 J | 5.8 J | ND | 2.7 J |
| 95-63-6 | 1,2,4-Trimethylbenzene | µg/m$^3$ | 130 | 61 | 20 J | 54 J | 16 | ND | 5.6 J |
| 100-44-7 | Benzyl Chloride | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 541-73-1 | 1,3-Dichlorobenzene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 106-46-7 | 1,4-Dichlorobenzene | µg/m$^3$ | 2.9 J | 8.3 J | ND | 48 J | ND | 23 J | 3.1 J |
| 95-50-1 | 1,2-Dichlorobenzene | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |
| 5989-27-5 | d-Limonene | µg/m$^3$ | 2,200 D | 2,100 | 5,000 | 10,000 | 910 | 7,800 | 2,200 D |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | µg/m$^3$ | ND | ND | ND | ND | ND | ND | ND |

# High Acres Landfill
# Analytical Data Summary

| | Sample Description: | | Review Container In-situ Day #1 | December Long Haul Truck | Review Container In-situ Day #2 | Review Container In-situ Day #3 | Review Container In-situ Day #5 | Varick Container In-situ Day #1 | Varick Container In-situ Day #2 |
|---|---|---|---|---|---|---|---|---|---|
| | Sample Area: | | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area |
| | Sample ID: | | WM-089290-121318-BPS-008 | WM-089290-121318-BPS-009 | WM-089290-121418-BPS-010 | WM-089290-121518-BPS-011 | WM-089290-121718-BPS-012 | WM-089290-010819-MAC-013 | WM-089290-010919-MAC-014 |
| | Sample Date / Time: | | 12/13/2018<br>15:25 - 16:40 | 12/13/2018<br>17:30 - 18:54 | 12/14/2018<br>11:27 - 12:57 | 12/15/2018<br>10:00 - 11:30 | 12/17/2018<br>11:44 - 13:14 | 1/08/2019<br>13:48 - 15:20 | 1/09/2019<br>11:18 - 12:50 |
| | Temperature Logger Serial #: | | 1965285 | 1965294 | 1965283 | 1965290, 1965291, 1965293 | 1965288 | 1965299 | 1974336 |
| | Odor Intensity Reading: | | 1.5 - 2.0 | 1.0 - 1.5 | 1.5 - 2.0 | 1.0 | 1.0 | 0.5 - 1.0 | 0.5 - 1.0 |
| | Moisture Content (%): | | 34.7 | 29.0 | 51.9 | 48.5 | 53.7 | 67.7 | 57.2 |
| 120-82-1 | 1,2,4-Trichlorobenzene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND |
| 91-20-3 | Naphthalene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND |
| 87-68-3 | Hexachlorobutadiene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND |
| *Tentatively Identfied Compounds* [1] | | | | | | | | | |
| CAS | Compound | Units | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result |
| | 1,1-Difluoroethane | $\mu g/m^3$ | 500 | 260 | - | - | - | - | 120 |
| | Propane | $\mu g/m^3$ | 440 | 210 | - | - | - | - | 46 |
| | Isobutane | $\mu g/m^3$ | 3,800 | 6,600 | 6,500 | 6,100 | 200 | 5,800 | 750 |
| | n-Butane | $\mu g/m^3$ | 2,700 | 3,100 | 1,700 | 2,900 | 120 | 980 | 250 |
| | unknown | $\mu g/m^3$ | 390 | 86 | - | - | 46 | - | - |
| | n-Pentane | $\mu g/m^3$ | 4,400 | 2,300 | 2,900 | 2,900 | 250 | 2,000 | 260 |
| | unknown | $\mu g/m^3$ | 56 | - | - | - | - | - | - |
| | Trimethylsilanol | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Isobutanol | $\mu g/m^3$ | - | - | 350 | - | - | 460 | 230 |
| | Hexamethyldisiloxane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | unknown hydrocarbon | $\mu g/m^3$ | 32 | 230 | 450 | - | - | - | - |
| | 1,2,4-Trimethylcyclohexane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1,3,5-Trimethyl-, (1.Alpha.,3.Alpha.,5.Beta.)Cyclohexane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Camphene | $\mu g/m^3$ | - | - | - | - | 97 | 280 | 90 |
| | unknown hydrocarbon | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | beta-Pinene | $\mu g/m^3$ | 170 | 360 | 490 | 570 | 120 | 430 | 220 |
| | n-Decane | $\mu g/m^3$ | 310 | 370 | - | - | 78 | - | - |
| | 4-Methyldecane | $\mu g/m^3$ | 220 | 210 | - | - | - | - | - |
| | .gamma.-Terpinene | $\mu g/m^3$ | - | 260 | - | - | 44 | 320 | 120 |
| | 2,2,5-Trimethylhexane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1-Octene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 2,2,4-Trimethylheptane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 3,3-Dimethyloctane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1-Decene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | o-Cymene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 2-Methylbutane | $\mu g/m^3$ | - | 6,500 | - | 7,000 | 510 | - | - |
| | 2-Methylbutane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1-Propanol | $\mu g/m^3$ | - | - | - | - | 60 | - | 260 |
| | (R)-2-butanol | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1-Butanol | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 2-Butanol | $\mu g/m^3$ | - | - | 1,800 | - | 230 | 1,200 | 900 |
| | .beta.-Myrcene | $\mu g/m^3$ | - | 88 | - | - | - | - | 68 |
| | (+)-3-Carene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Methyl Acetate | $\mu g/m^3$ | - | - | - | - | - | 800 | 200 |
| | Dimethyl Ether | $\mu g/m^3$ | 1,700 | - | 500 | - | 65 | - | 67 |
| | Acetaldehyde | $\mu g/m^3$ | - | - | - | - | - | - | 1,500 |
| | 2-Methylpentane | $\mu g/m^3$ | 130 | - | - | - | - | - | 85 |
| | 3-Methyl-1-butanol | $\mu g/m^3$ | - | - | - | - | - | - | 100 |
| | 3-Carene | $\mu g/m^3$ | - | 82 | - | - | - | - | 140 |
| | 4-Carene | $\mu g/m^3$ | - | - | - | - | - | - | 58 |
| | 3-Methylhexane | $\mu g/m^3$ | 340 | - | 550 | - | - | - | - |
| | Dimethyl Sulfide | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 2-Pentanone | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 2-Methylhexane | $\mu g/m^3$ | 220 | - | 500 | - | - | - | - |
| | Dimethyl disulfide | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | .beta.-Phellandrene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Norflurane | $\mu g/m^3$ | 59 | - | - | - | - | - | - |
| | 2,2,4-Trimethylpentane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Dimethylcyclohexane Isomer | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 4-Chlorobenzotrifluoride | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Trimethylcyclohexane Isomer | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 3-Methyloctane | $\mu g/m^3$ | - | - | 300 | - | - | - | - |
| | Propylcyclohexane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 3-Methylnonane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1-Ethyl-2-Methylbenzene | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 1,2,3-Trimethylbenzene | $\mu g/m^3$ | - | 220 | - | - | - | - | - |
| | 1,1-Dichloro-1-fluoroethane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | 2,6-Dimethyloctane | $\mu g/m^3$ | - | 130 | - | - | - | - | - |
| | p-Cymene + C11H24 Compound | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | unknown siloxane | $\mu g/m^3$ | 160 | 94 | 360 | - | - | - | - |
| | Neopentane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | Fluorodichloromethane | $\mu g/m^3$ | - | - | - | - | - | - | - |
| | C9H18 Compound | $\mu g/m^3$ | - | 91 | - | - | - | - | - |
| | C9H18 Compound | $\mu g/m^3$ | - | 91 | - | - | - | - | - |
| | n-Butylcyclohexane | $\mu g/m^3$ | - | 94 | - | - | - | - | - |
| | n-Undecane | $\mu g/m^3$ | 210 | 92 | - | - | - | - | - |
| | 1,1-Dimethylethyl Esteracetic Acid | $\mu g/m^3$ | - | - | 550 | - | - | - | - |
| | Methylcyclohexane | $\mu g/m^3$ | 200 | - | 3,500 | - | - | - | - |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sample Description: | | Review Container In-situ Day #1 | December Long Haul Truck | Review Container In-situ Day #2 | Review Container In-situ Day #3 | Review Container In-situ Day #5 | Varick Container In-situ Day #1 | Varick Container In-situ Day #2 |
| | Sample Area: | | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area |
| | Sample ID: | | WM-089290-121318-BPS-008 | WM-089290-121318-BPS-009 | WM-089290-121418-BPS-010 | WM-089290-121518-BPS-011 | WM-089290-121718-BPS-012 | WM-089290-010819-MAC-013 | WM-089290-010919-MAC-014 |
| | Sample Date / Time: | | 12/13/2018<br>15:25 - 16:40 | 12/13/2018<br>17:30 - 18:54 | 12/14/2018<br>11:27 - 12:57 | 12/15/2018<br>10:00 - 11:30 | 12/17/2018<br>11:44 - 13:14 | 1/08/2019<br>13:48 - 15:20 | 1/09/2019<br>11:18 - 12:50 |
| | Temperature Logger Serial #: | | 1965285 | 1965294 | 1965283 | 1965290, 1965291, 1965293 | 1965288 | 1965299 | 1974336 |
| | Odor Intensity Reading: | | 1.5 - 2.0 | 1.0 - 1.5 | 1.5 - 2.0 | 1.0 | 1.0 | 0.5 - 1.0 | 0.5 - 1.0 |
| | Moisture Content (%): | | 34.7 | 29.0 | 51.9 | 48.5 | 53.7 | 67.7 | 57.2 |
| | 2,5-Dimethylhexane | µg/m³ | - | - | 380 | - | - | - | - |
| | 2,4-Dimethylhexane | µg/m³ | - | - | 510 | - | - | - | - |
| | 2-Methylheptane | µg/m³ | - | - | 870 | - | - | - | - |
| | 3-Methylheptane | µg/m³ | - | - | 820 | - | - | - | - |
| | 1,3-Dimethylcyclohexane | µg/m³ | - | - | 650 | - | - | - | - |
| | 2,2,4,6,6-Pentamethylheptane | µg/m³ | - | - | 350 | - | - | - | - |
| | Pentafluoroethane | µg/m³ | - | - | - | - | - | - | - |
| | 1,3-Pentadiene | µg/m³ | - | - | - | - | - | - | - |
| | 2,2,3,3-Tetramethylbutane | µg/m³ | - | - | - | - | - | - | - |
| | 2-Methylpropanal | µg/m³ | - | - | - | - | - | - | - |
| | 3-Methylbutanal | µg/m³ | - | - | - | - | - | - | - |
| | 2-Methylbutanal | µg/m³ | - | - | - | - | - | - | - |
| | n-Butyl Acetate | µg/m³ | - | - | - | - | - | - | - |
| | Acetate-2-pentanol | µg/m³ | - | - | - | - | - | - | - |
| | 2-Methylpropyl Esterbutanoic Acid | µg/m³ | - | - | - | - | - | - | - |
| | 3-Methyl-, Acetate-1-butanol | µg/m³ | - | - | - | - | - | - | - |
| | Chloroethane | µg/m³ | - | - | - | - | - | - | - |
| | n-Propyl chloride | µg/m³ | - | - | - | - | - | - | - |
| | 2,3-Butanedione | µg/m³ | - | - | - | - | - | - | - |
| | 2,3-Dimethylpentane | µg/m³ | 77 | - | - | - | - | - | - |
| CAS | Compound | Units | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result |
| 7783-06-4 | Hydrogen Sulfide | µg/m³ | ND | ND | ND | ND | ND | 16 | 23 |
| 463-58-1 | Carbonyl Sulfide | µg/m³ | 21 | 17 | 39 | 61 | ND | 130 | ND |
| 74-93-1 | Methyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 75-08-1 | Ethyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 75-18-3 | Dimethyl Sulfide | µg/m³ | 31 | 23 | 140 | 72 | ND | 110 | 14 J |
| 75-15-0 | Carbon Disulfide | µg/m³ | ND | ND | 24 | 19 | ND | 130 | 14 |
| 75-33-2 | Isopropyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 75-66-1 | tert-Butyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 107-03-9 | n-Propyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 624-89-5 | Ethyl Methyl Sulfide | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 110-02-1 | Thiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 513-44-0 | Isobutyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 352-93-2 | Diethyl Sulfide | µg/m³ | ND | ND | 45 | ND | ND | ND | ND |
| 109-79-5 | n-Butyl Mercaptan | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 624-92-0 | Dimethyl Disulfide | µg/m³ | ND | 27 | 250 | 190 | ND | 130 | 21 |
| 616-44-4 | 3-Methylthiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 110-01-0 | Tetrahydrothiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 638-02-8 | 2,5-Dimethylthiophene | µg/m³ | ND | ND | ND | ND | ND | 27 J | ND |
| 872-55-9 | 2-Ethylthiophene | µg/m³ | ND | ND | ND | ND | ND | ND | ND |
| 110-81-6 | Diethyl Disulfide | µg/m³ | ND | ND | ND | ND | ND | 18 | ND |

Notes:

| | |
|---|---|
| 1 | Only Tentatively Identified Compounds listed in the associated laborato |
| µg/m³ | Micrograms per cubic meter (parts per billion) |
| MRL | Method Reporting Limit |
| MDL | Method Detection Limit |
| ND | Not detected at a concentration at or above the laboratory's MRL (TO-15 |
| NI | Not identified |
| NA | Not applicable |
| D | The reported result is from a dilution. |
| J | The result is an estimated concentration that is less than the MRL but gre |

# High Acres Landfill
## Analytical Data Summary

| | | Sample Description: | Varick Container In-situ Day #3 | | | Varick Container In-situ Day #4 | | | January Long Haul #1 | | | January Long Haul #2 | | | MTS Hamilton In-situ Day 1 | | | MTS Southwest In-situ Day 1 | | | MTS Hamilton In-situ Day 2 | | | MTS Southwest In-situ Day 2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Area: | Cell 12 Active Area | | | Cell 12 Active Area | | | Cell 12 Active Area | | | Cell 12 Active Area | | | Cell 12 Active Area | | | Cell 12 Active Area | | | Cell 12 Active Area | | | Cell 12 Active Area | | |
| | | Sample ID: | WM-089290-011019-MAC-015 | | | WM-089290-011119-MAC-016 | | | WM-089290-011419-MAC-017 | | | WM-089290-011419-MAC-018 | | | WM-089290-011419-MAC-019 | | | WM-089290-011419-MAC-020 | | | WM-089290-011519-MAC-021 | | | WM-089290-011519-MAC-022 | | |
| | | Sample Date / Time: | 1/10/2019<br>11:35 - 13:10 | | | 1/11/2019<br>12:08 - 13:45 | | | 1/14/2019<br>10:01 - 11:45 | | | 1/14/2019<br>11:04 - 12:30 | | | 1/14/2019<br>15:27 - 16:45 | | | 1/14/2019<br>15:37 - 16:46 | | | 1/15/2019<br>11:31 - 13:08 | | | 1/15/2019<br>11:38 - 13:10 | | |
| | | Temperature Logger Serial #: | 1974335 | | | 1974337 | | | 1974333 | | | 1974332, 1974334, 1974338 | | | 1974329, 1974330 | | | 1965296, 1965298 | | | 1965297, 1974331 | | | 1974326, 1974328 | | |
| | | Odor Intensity Reading: | 0.5 - 1.0 | | | 0.5 - 1.0 | | | 0.5 - 1.0 | | | 0.5 | | | 0.5 - 1.0 | | | 0.5 | | | 0.5 | | | 0.5 - 1.0 | | |
| | | Moisture Content (%): | 58.1 | | | 62.5 | | | 50.2 | | | 35.9 | | | 47.3 | | | 49.4 | | | 58.6 | | | 42.9 | | |
| | | Pile Temperature After Unloading (°F): | 23 | | | 45 | | | 66 | | | 60 | | | 59 | | | 48 | | | 61 | | | 77 | | |
| CAS | Compound | Units | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | | Method TO-15 Result | | |
| 115-07-1 | Propene | µg/m$^3$ | 16 | | J | 0.93 | | J | 53 | | | 8.8 | | J | 39 | | J | 46 | | | 5.4 | | J | 11 | | J |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | µg/m$^3$ | | ND | | 2.2 | | J | | ND | | 750 | | | 77 | | | 260 | | | 2.8 | | J | | ND | |
| 74-87-3 | Chloromethane | µg/m$^3$ | | ND | | 0.8 | | J | 7.3 | | J | 3.2 | | J | 8.9 | | J | 7.7 | | J | | ND | | | ND | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-01-4 | Vinyl Chloride | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 106-99-0 | 1,3-Butadiene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 74-83-9 | Bromomethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-00-3 | Chloroethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 64-17-5 | Ethanol | µg/m$^3$ | 120,000 | | B, D | 15,000 | | D | 64,000 | | D | 7,600 | | | 200,000 | | D | 120,000 | | D | 25,000 | | B, D | 150,000 | | B, D |
| 75-05-8 | Acetonitrile | µg/m$^3$ | | ND | | | ND | | 15 | | J | | ND | | 14 | | J | 9.3 | | J | | ND | | | ND | |
| 107-02-8 | Acrolein | µg/m$^3$ | | ND | | | ND | | 15 | | J | 5.8 | | J | 16 | | J | | ND | | 5.4 | | J | | ND | |
| 67-64-1 | Acetone | µg/m$^3$ | 10,000 | | | 130 | | | 4,800 | | | 7,600 | | | 5,400 | | | 1,000 | | | | ND | | 1,500 | | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | µg/m$^3$ | | ND | | 4.1 | | | 16 | | J | 650 | | | 260 | | | 11,000 | | D | 2.7 | | J | | ND | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | µg/m$^3$ | 4,800 | | | 69 | | | 790 | | | 110 | | | 4,100 | | | 1,300 | | | 990 | | | 4,100 | | |
| 107-13-1 | Acrylonitrile | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-35-4 | 1,1-Dichloroethene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-09-2 | Methylene Chloride | µg/m$^3$ | | ND | | | ND | | | ND | | 1,800 | | | 86 | | | 61 | | | 13 | | | | ND | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | µg/m$^3$ | | ND | | 0.47 | | J | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-15-0 | Carbon Disulfide | µg/m$^3$ | 28 | | J | 1.4 | | J | 660 | | | 13 | | J | 37 | | J | 68 | | J | 10 | | J | 13 | | J |
| 156-60-5 | trans-1,2-Dichloroethene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-34-3 | 1,1-Dichloroethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 1634-04-4 | Methyl tert-Butyl Ether | µg/m$^3$ | | ND | | | ND | | | ND | | 16 | | | | ND | | | ND | | | ND | | | ND | |
| 108-05-4 | Vinyl Acetate | µg/m$^3$ | 110 | | J | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 78-93-3 | 2-Butanone (MEK) | µg/m$^3$ | 2,000 | | | 43 | | | 12,000 | | D | 380 | | | 1,200 | | | 1,700 | | | 270 | | | 860 | | |
| 156-59-2 | cis-1,2-Dichloroethene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 141-78-6 | Ethyl Acetate | µg/m$^3$ | 8,200 | | | 400 | | | 9,600 | | | 1,200 | | | 6,200 | | | 5,100 | | | 570 | | | 2,400 | | |
| 110-54-3 | n-Hexane | µg/m$^3$ | | ND | | 0.99 | | J | 49 | | | 17 | | | 130 | | | 34 | | J | 6.3 | | J | 9.7 | | J |
| 67-66-3 | Chloroform | µg/m$^3$ | 8.4 | | J | | ND | | 17 | | J | 11 | | J | 18 | | J | 87 | | | 1.6 | | J | | ND | |
| 109-99-9 | Tetrahydrofuran (THF) | µg/m$^3$ | | ND | | 6.4 | | | | ND | | 15 | | | 9 | | J | | ND | | 8.9 | | J | | ND | |
| 107-06-2 | 1,2-Dichloroethane | µg/m$^3$ | | ND | | | ND | | 7.1 | | J | | ND | | 8.9 | | J | 16 | | J | | ND | | | ND | |
| 71-55-6 | 1,1,1-Trichloroethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | 31 | | J |
| 71-43-2 | Benzene | µg/m$^3$ | | ND | | 0.55 | | J | 8 | | J | 4.7 | | J | 8.6 | | J | 7.7 | | J | | ND | | | ND | |
| 56-23-5 | Carbon Tetrachloride | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | 9.6 | | J | | ND | | | ND | |
| 110-82-7 | Cyclohexane | µg/m$^3$ | | ND | | 1.2 | | J | 140 | | | 5.9 | | J | 30 | | J | 20 | | J | | ND | | 13 | | J |
| 78-87-5 | 1,2-Dichloropropane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 75-27-4 | Bromodichloromethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 79-01-6 | Trichloroethene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 123-91-1 | 1,4-Dioxane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 80-62-6 | Methyl Methacrylate | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | 770 | | | | ND | | 7.5 | | J | 19 | | J |
| 142-82-5 | n-Heptane | µg/m$^3$ | 20 | | J | 15 | | | 93 | | | 36 | | | 200 | | | 66 | | | 19 | | | 23 | | J |
| 10061-01-5 | cis-1,3-Dichloropropene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 108-10-1 | 4-Methyl-2-pentanone | µg/m$^3$ | | ND | | | ND | | 11 | | J | 750 | | | 44 | | | | ND | | 4.4 | | J | | ND | |
| 10061-02-6 | trans-1,3-Dichloropropene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 79-00-5 | 1,1,2-Trichloroethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 108-88-3 | Toluene | µg/m$^3$ | 720 | | | 6 | | | 79 | | | 370 | | | 220 | | | 370 | | | 30 | | | 240 | | |
| 591-78-6 | 2-Hexanone | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 124-48-1 | Dibromochloromethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 106-93-4 | 1,2-Dibromoethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 123-86-4 | n-Butyl Acetate | µg/m$^3$ | 94 | | | 0.64 | | J | 9.6 | | J | 730 | | | 47 | | | 15 | | J | 14 | | | | ND | |
| 111-65-9 | n-Octane | µg/m$^3$ | 71 | | | 2.5 | | J | 85 | | | 110 | | | 130 | | | 92 | | | 14 | | J | 37 | | J |
| 127-18-4 | Tetrachloroethene | µg/m$^3$ | | ND | | | ND | | 6.1 | | J | | ND | | | ND | | 18 | | J | 2 | | | | ND | |
| 108-90-7 | Chlorobenzene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 100-41-4 | Ethylbenzene | µg/m$^3$ | 29 | | J | 5.5 | | | 110 | | | 600 | | | 100 | | | 26 | | J | 26 | | | 39 | | J |
| 179601-23-1 | m,p-Xylenes | µg/m$^3$ | 60 | | J | 36 | | | 24 | | J | 2,300 | | | 330 | | | 47 | | J | 32 | | | 86 | | J |
| 75-25-2 | Bromoform | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 100-42-5 | Styrene | µg/m$^3$ | 58 | | | 2.9 | | J | 400 | | | 18 | | | 66 | | | 56 | | | 20 | | | 56 | | |
| 95-47-6 | o-Xylene | µg/m$^3$ | 23 | | J | 19 | | | 15 | | J | 820 | | | 120 | | | 20 | | J | 12 | | | 34 | | J |
| 111-84-2 | n-Nonane | µg/m$^3$ | 82 | | | 3.7 | | | 16 | | J | 310 | | | 360 | | | 310 | | | 15 | | | 43 | | J |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | J | | ND | |
| 98-82-8 | Cumene | µg/m$^3$ | | ND | | | ND | | 9.5 | | J | 23 | | | 8.4 | | J | 6.5 | | J | 1.9 | | | | ND | |
| 80-56-8 | alpha-Pinene | µg/m$^3$ | 690 | | | 19 | | | 590 | | | 190 | | | 460 | | | 940 | | | 82 | | J | 1,800 | | |
| 103-65-1 | n-Propylbenzene | µg/m$^3$ | | ND | | | ND | | 5.9 | | J | 51 | | | 19 | | J | | ND | | 4.2 | | J | | ND | |
| 622-96-8 | 4-Ethyltoluene | µg/m$^3$ | | ND | | 0.55 | | J | | ND | | 69 | | | 26 | | J | | ND | | 7.1 | | J | 38 | | J |
| 108-67-8 | 1,3,5-Trimethylbenzene | µg/m$^3$ | | ND | | 0.56 | | J | | ND | | 84 | | | 24 | | J | 6.1 | | J | 6.6 | | | | ND | |
| 95-63-6 | 1,2,4-Trimethylbenzene | µg/m$^3$ | 17 | | J | 1.2 | | J | 5.3 | | J | 160 | | | 59 | | | 18 | | J | 24 | | | 11 | | J |
| 100-44-7 | Benzyl Chloride | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 541-73-1 | 1,3-Dichlorobenzene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 106-46-7 | 1,4-Dichlorobenzene | µg/m$^3$ | 28 | | J | | ND | | 61 | | | 26 | | | 24 | | J | 6.7 | | J | 14 | | | | ND | |
| 95-50-1 | 1,2-Dichlorobenzene | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |
| 5989-27-5 | d-Limonene | µg/m$^3$ | 5,200 | | | 240 | | | 7,800 | | D | 2,500 | | | 2,900 | | | 3,600 | | | 710 | | | 5,300 | | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | µg/m$^3$ | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | | | ND | |

# High Acres Landfill
## Analytical Data Summary

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Description: | | Varick Container In-situ Day #3 | Varick Container In-situ Day #4 | January Long Haul #1 | January Long Haul #2 | MTS Hamilton In-situ Day 1 | MTS Southwest In-situ Day 1 | MTS Hamilton In-situ Day 2 | MTS Southwest In-situ Day 2 |
| | Sample Area: | | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area |
| | Sample ID: | | WM-089290-011019-MAC-015 | WM-089290-011119-MAC-016 | WM-089290-011419-MAC-017 | WM-089290-011419-MAC-018 | WM-089290-011419-MAC-019 | WM-089290-011419-MAC-020 | WM-089290-011519-MAC-021 | WM-089290-011519-MAC-022 |
| | Sample Date / Time: | | 1/10/2019 11:35 - 13:10 | 1/11/2019 12:08 - 13:45 | 1/14/2019 10:01 - 11:45 | 1/14/2019 11:04 - 12:30 | 1/14/2019 15:27 - 16:45 | 1/14/2019 15:37 - 16:46 | 1/15/2019 11:31 - 13:08 | 1/15/2019 11:38 - 13:10 |
| | Temperature Logger Serial #: | | 1974335 | 1974337 | 1974333 | 1974332, 1974334, 1974338 | 1974329, 1974330 | 1965296, 1965298 | 1965297, 1974331 | 1974326, 1974328 |
| | Odor Intensity Reading: | | 0.5 - 1.0 | 0.5 - 1.0 | 0.5 - 1.0 | 0.5 | 0.5 - 1.0 | 0.5 | 0.5 | 0.5 - 1.0 |
| | Moisture Content (%): | | 58.1 | 62.5 | 50.2 | 35.9 | 47.3 | 49.4 | 58.6 | 42.9 |
| 120-82-1 | 1,2,4-Trichlorobenzene | μg/m$^3$ | ND | ND | ND | ND | ND | ND | ND J | ND |
| 91-20-3 | Naphthalene | μg/m$^3$ | ND | ND | ND | ND | ND | ND | 10 | ND |
| 87-68-3 | Hexachlorobutadiene | μg/m$^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| *Tentatively Identfied Compounds* [1] | | | | | | | | | | |
| CAS | Compound | Units | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result | Method TO-15 Result |
| | 1,1-Difluoroethane | μg/m$^3$ | - | - | 150 | - | 830 | 1,000 | - | - |
| | Propane | μg/m$^3$ | - | - | - | 2,600 | 860 | - | 120 | - |
| | Isobutane | μg/m$^3$ | 1,500 | 170 | 13,000 | 3,900 | 20,000 | 23,000 | 1,200 | 1,500 |
| | n-Butane | μg/m$^3$ | 750 | 64 | 2,600 | 8,000 | 14,000 | 19,000 | 570 | 620 |
| | unknown | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | n-Pentane | μg/m$^3$ | 1,200 | 63 | 4,800 | 870 | 8,700 | 12,000 | 280 | 540 |
| | unknown | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | Trimethylsilanol | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | Isobutanol | μg/m$^3$ | 200 | 12 | 410 | - | - | - | - | - |
| | Hexamethyldisiloxane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | unknown hydrocarbon | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 1,2,4-Trimethylcyclohexane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 1,3,5-Trimethyl-, (1.Alpha.,3.Alpha.,5.Beta.)Cyclohexane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | Camphene | μg/m$^3$ | 390 | - | 190 | - | - | 590 | - | 900 |
| | unknown hydrocarbon | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | beta-Pinene | μg/m$^3$ | 520 | 19 | 1,100 | 340 | 990 | 870 | 71 | 470 |
| | n-Decane | μg/m$^3$ | - | - | - | 210 | - | 270 | - | - |
| | 4-Methyldecane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | .gamma.-Terpinene | μg/m$^3$ | 200 | - | 340 | 84 | 310 | - | - | - |
| | 2,2,5-Trimethylhexane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 1-Octene | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 2,2,4-Trimethylheptane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 3,3-Dimethyloctane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 1-Decene | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | o-Cymene | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 2-Methylbutane | μg/m$^3$ | - | - | 16,000 | - | 28,000 | 400 | 950 | - |
| | 2-Methylbutane | μg/m$^3$ | - | - | - | - | - | 28,000 | - | - |
| | 1-Propanol | μg/m$^3$ | 230 | 22 | 200 | - | 670 | - | 200 | 340 |
| | (R)-2-butanol | μg/m$^3$ | - | - | - | - | - | - | 750 | - |
| | 1-Butanol | μg/m$^3$ | - | - | - | - | - | - | 190 | - |
| | 2-Butanol | μg/m$^3$ | 640 | 47 | 1,900 | - | 2,600 | - | - | 1,200 |
| | .beta.-Myrcene | μg/m$^3$ | - | - | 280 | 110 | - | 170 | - | 170 |
| | (+)-3-Carene | μg/m$^3$ | - | - | - | - | - | - | - | 1,100 |
| | Methyl Acetate | μg/m$^3$ | 560 | 17 | 1,300 | - | 650 | - | - | - |
| | Dimethyl Ether | μg/m$^3$ | 190 | - | - | - | - | - | - | - |
| | Acetaldehyde | μg/m$^3$ | 1,900 | - | - | - | - | - | - | - |
| | 2-Methylpentane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 3-Methyl-1-butanol | μg/m$^3$ | - | - | 220 | - | - | - | - | - |
| | 3-Carene | μg/m$^3$ | 640 | - | 310 | 91 | - | 420 | - | - |
| | 4-Carene | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 3-Methylhexane | μg/m$^3$ | - | 13 | - | - | - | - | - | - |
| | Dimethyl Sulfide | μg/m$^3$ | - | - | 250 | - | - | 140 | - | - |
| | 2-Pentanone | μg/m$^3$ | - | - | 150 | - | - | - | - | - |
| | 2-Methylhexane | μg/m$^3$ | - | - | 170 | - | - | - | - | - |
| | Dimethyl disulfide | μg/m$^3$ | - | - | 1,900 | 100 | - | 210 | - | - |
| | .beta.-Phellandrene | μg/m$^3$ | - | - | 150 | - | - | - | - | - |
| | Norflurane | μg/m$^3$ | - | - | - | 1,800 | 180 | 440 | - | - |
| | 2,2,4-Trimethylpentane | μg/m$^3$ | - | - | - | 220 | - | - | - | - |
| | Dimethylcyclohexane Isomer | μg/m$^3$ | - | - | - | 100 | - | - | - | - |
| | 4-Chlorobenzotrifluoride | μg/m$^3$ | - | - | - | 380 | - | - | - | - |
| | Trimethylcyclohexane Isomer | μg/m$^3$ | - | - | - | 110 | - | - | - | - |
| | 3-Methyloctane | μg/m$^3$ | - | - | - | 110 | - | - | - | - |
| | Propylcyclohexane | μg/m$^3$ | - | - | - | 81 | 270 | 140 | - | - |
| | 3-Methylnonane | μg/m$^3$ | - | - | - | 92 | - | - | - | - |
| | 1-Ethyl-2-Methylbenzene | μg/m$^3$ | - | - | - | 120 | - | - | - | - |
| | 1,2,3-Trimethylbenzene | μg/m$^3$ | - | - | - | 150 | - | - | - | - |
| | 1,1-Dichloro-1-fluoroethane | μg/m$^3$ | - | - | - | - | 160 | - | - | - |
| | 2,6-Dimethyloctane | μg/m$^3$ | - | - | - | - | 240 | 180 | - | - |
| | p-Cymene + C11H24 Compound | μg/m$^3$ | - | - | - | - | 250 | 140 | - | - |
| | unknown siloxane | μg/m$^3$ | - | - | - | - | 210 | - | - | - |
| | Neopentane | μg/m$^3$ | - | - | - | - | - | 310 | - | - |
| | Fluorodichloromethane | μg/m$^3$ | - | - | - | - | - | 120 | - | - |
| | C9H18 Compound | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | C9H18 Compound | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | n-Butylcyclohexane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | n-Undecane | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | 1,1-Dimethylethyl Esteracetic Acid | μg/m$^3$ | - | - | - | - | - | - | - | - |
| | Methylcyclohexane | μg/m$^3$ | - | - | - | - | - | - | - | - |

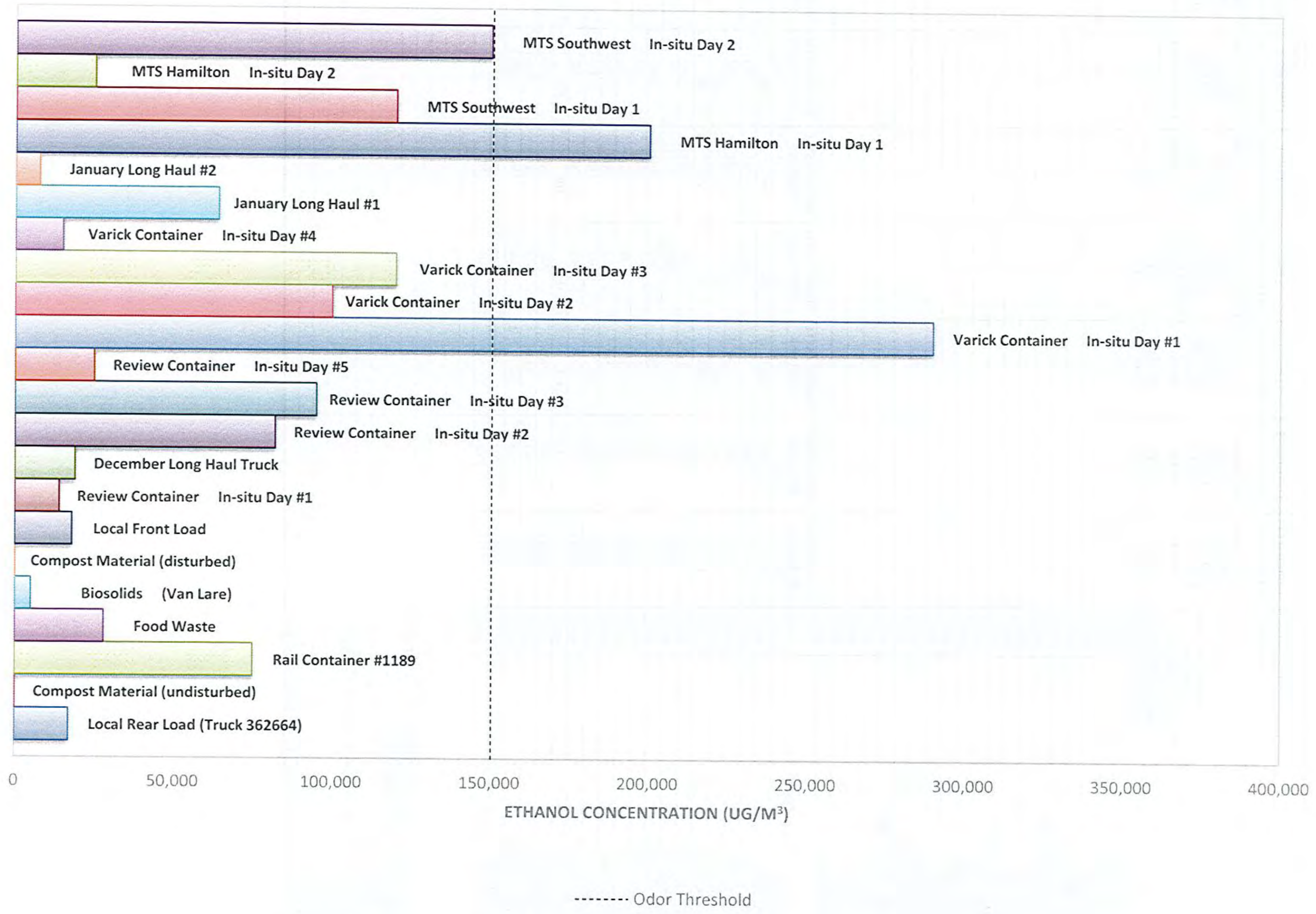
# High Acres Landfill
## Analytical Data Summary

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Description: | | Varick Container In-situ Day #3 | Varick Container In-situ Day #4 | January Long Haul #1 | January Long Haul #2 | MTS Hamilton In-situ Day 1 | MTS Southwest In-situ Day 1 | MTS Hamilton In-situ Day 2 | MTS Southwest In-situ Day 2 |
| | Sample Area: | | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area | Cell 12 Active Area |
| | Sample ID: | | WM-089290-011019-MAC-015 | WM-089290-011119-MAC-016 | WM-089290-011419-MAC-017 | WM-089290-011419-MAC-018 | WM-089290-011419-MAC-019 | WM-089290-011419-MAC-020 | WM-089290-011519-MAC-021 | WM-089290-011519-MAC-022 |
| | Sample Date / Time: | | 1/10/2019 11:35 - 13:10 | 1/11/2019 12:08 - 13:45 | 1/14/2019 10:01 - 11:45 | 1/14/2019 11:04 - 12:30 | 1/14/2019 15:27 - 16:45 | 1/14/2019 15:37 - 16:46 | 1/15/2019 11:31 - 13:08 | 1/15/2019 11:38 - 13:10 |
| | Temperature Logger Serial #: | | 1974335 | 1974337 | 1974333 | 1974332, 1974334, 1974338 | 1974329, 1974330 | 1965296, 1965298 | 1965297, 1974331 | 1974326, 1974328 |
| | Odor Intensity Reading: | | 0.5 - 1.0 | 0.5 - 1.0 | 0.5 - 1.0 | 0.5 | 0.5 - 1.0 | 0.5 | 0.5 | 0.5 - 1.0 |
| | Moisture Content (%): | | 58.1 | 62.5 | 50.2 | 35.9 | 47.3 | 49.4 | 58.6 | 42.9 |
| | 2,5-Dimethylhexane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2,4-Dimethylhexane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2-Methylheptane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 3-Methylheptane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 1,3-Dimethylcyclohexane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2,2,4,6,6-Pentamethylheptane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | Pentafluoroethane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 1,3-Pentadiene | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2,2,3,3-Tetramethylbutane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2-Methylpropanal | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 3-Methylbutanal | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2-Methylbutanal | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | n-Butyl Acetate | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | Acetate-2-pentanol | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2-Methylpropyl Esterbutanoic Acid | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 3-Methyl-, Acetate-1-butanol | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | Chloroethane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | n-Propyl chloride | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2,3-Butanedione | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| | 2,3-Dimethylpentane | $\mu g/m^3$ | - | - | - | - | - | - | - | - |
| CAS | Compound | Units | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result | Method ASTM 5504 Result |
| 7783-06-4 | Hydrogen Sulfide | $\mu g/m^3$ | 21 | 20 | ND | 5.8 J | ND | ND | 21 | 4.3 J |
| 463-58-1 | Carbonyl Sulfide | $\mu g/m^3$ | 40 | ND | 250 | 29 | 69 | 120 | 14 J | 16 |
| 74-93-1 | Methyl Mercaptan | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | 11 J | ND |
| 75-08-1 | Ethyl Mercaptan | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 75-18-3 | Dimethyl Sulfide | $\mu g/m^3$ | 55 | ND | 310 | 58 | 92 | 180 | ND | 34 |
| 75-15-0 | Carbon Disulfide | $\mu g/m^3$ | 43 | ND | 940 | 17 | 47 | 98 | 11 | 22 |
| 75-33-2 | Isopropyl Mercaptan | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 75-66-1 | tert-Butyl Mercaptan | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 107-03-9 | n-Propyl Mercaptan | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 624-89-5 | Ethyl Methyl Sulfide | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 110-02-1 | Thiophene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 513-44-0 | Isobutyl Mercaptan | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 352-93-2 | Diethyl Sulfide | $\mu g/m^3$ | ND | ND | 77 | ND | ND | ND | ND | ND |
| 109-79-5 | n-Butyl Mercaptan | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 624-92-0 | Dimethyl Disulfide | $\mu g/m^3$ | 72 | ND | 3,300 | 180 | 210 | 380 | 8.5 J | 59 |
| 616-44-4 | 3-Methylthiophene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 110-01-0 | Tetrahydrothiophene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 638-02-8 | 2,5-Dimethylthiophene | $\mu g/m^3$ | ND | ND | 26 J | ND | ND | ND | ND | ND |
| 872-55-9 | 2-Ethylthiophene | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |
| 110-81-6 | Diethyl Disulfide | $\mu g/m^3$ | ND | ND | ND | ND | ND | ND | ND | ND |

Notes:

| | |
|---|---|
| 1 | Only Tentatively Identified Compounds listed in the associated laborato |
| $\mu g/m^3$ | Micrograms per cubic meter (parts per billion) |
| MRL | Method Reporting Limit |
| MDL | Method Detection Limit |
| ND | Not detected at a concentration at or above the laboratory's MRL (TO-15 |
| NI | Not identified |
| NA | Not applicable |
| D | The reported result is from a dilution. |
| J | The result is an estimated concentration that is less than the MRL but gre |

Figure 1 - Analytical Results: Ethanol



# Figure 2 - Analytical Results: D-Limonene

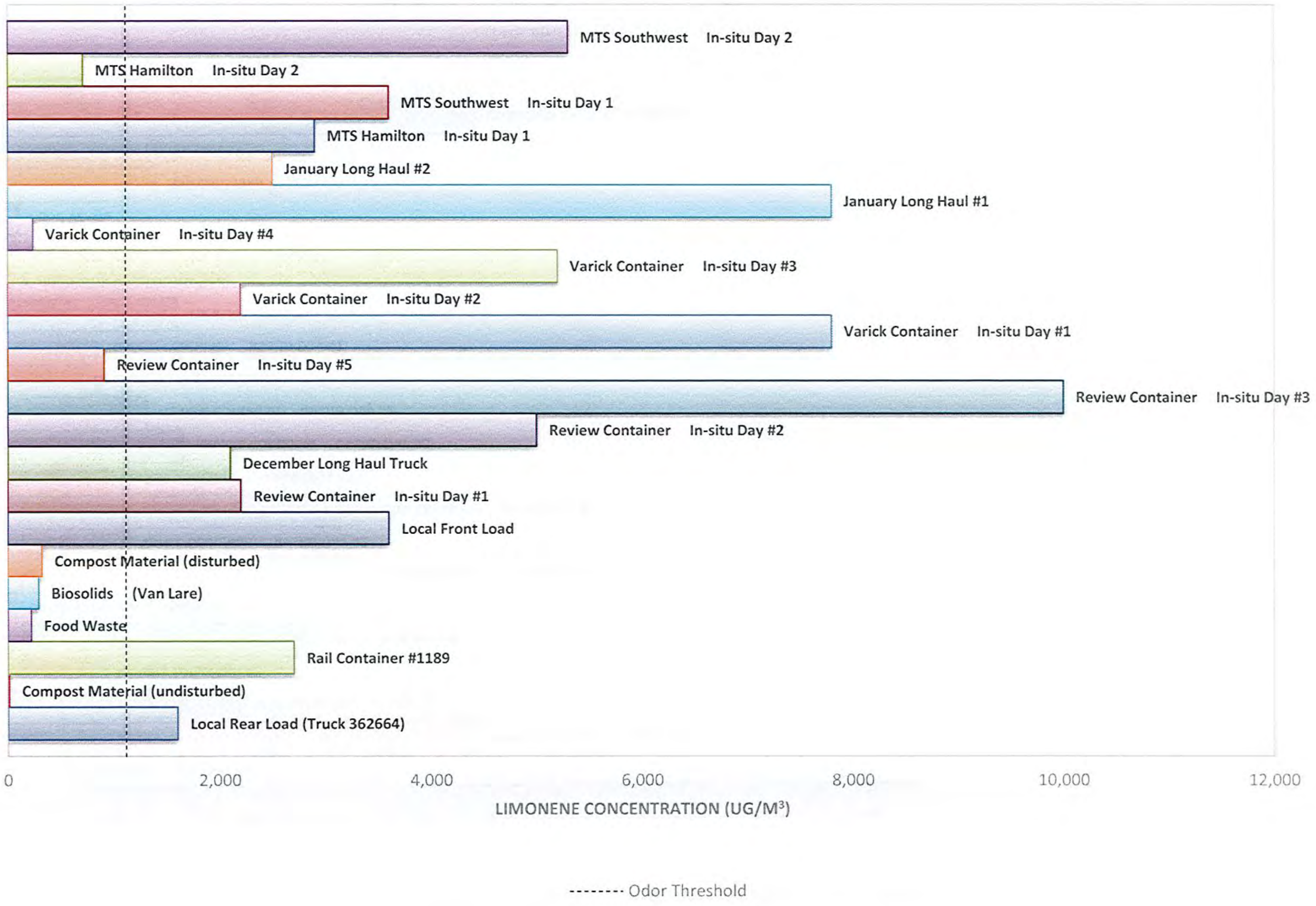
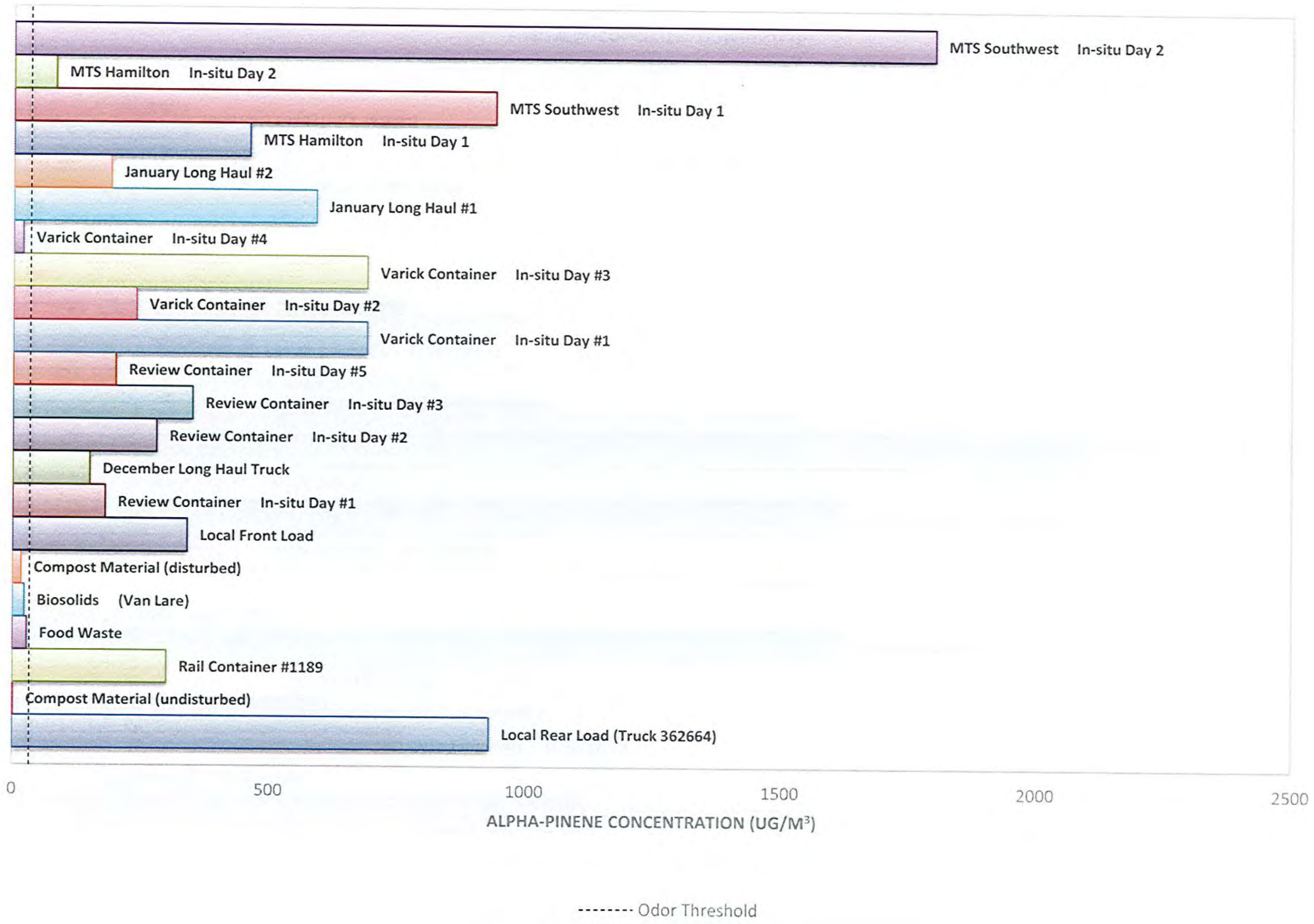
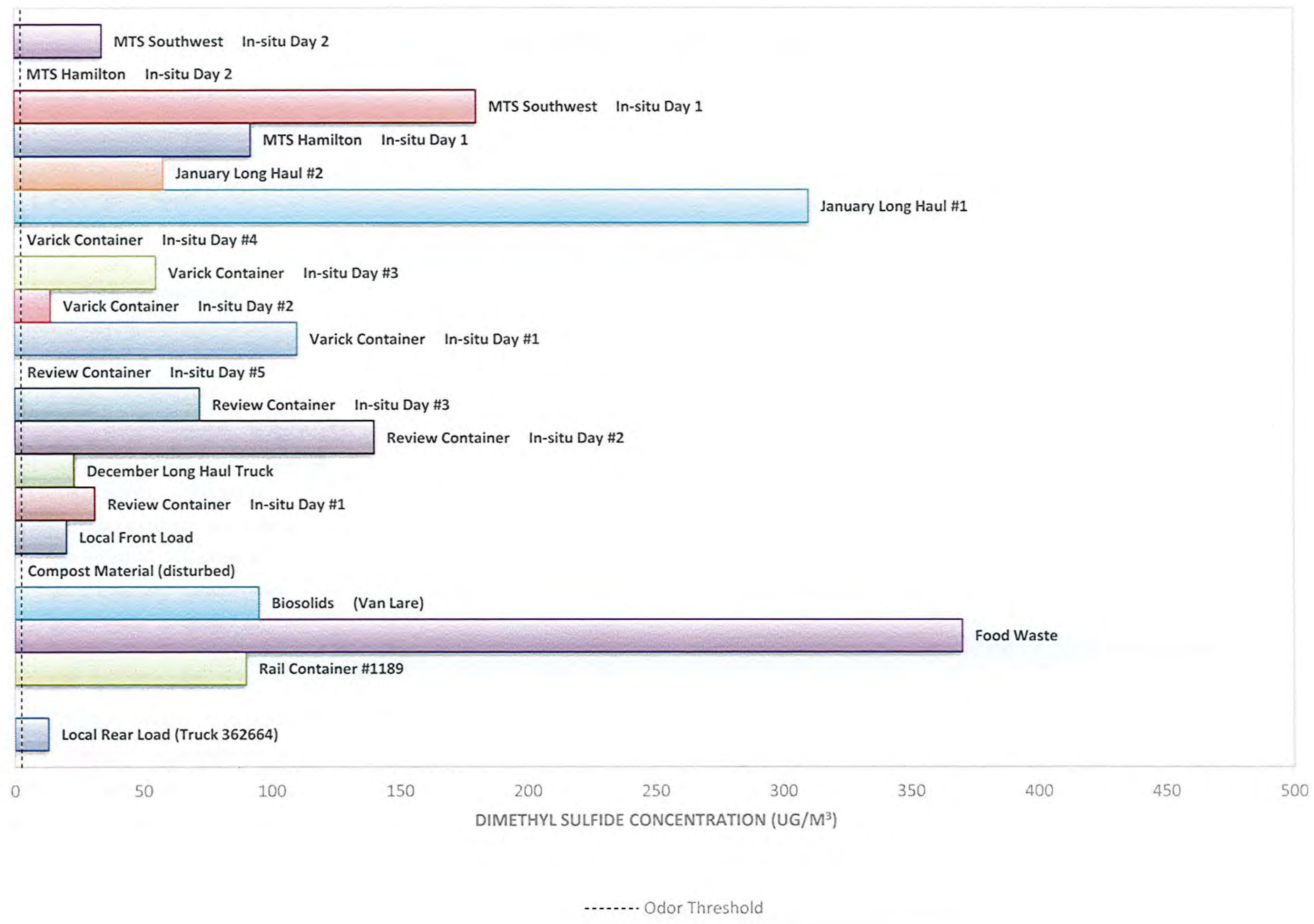


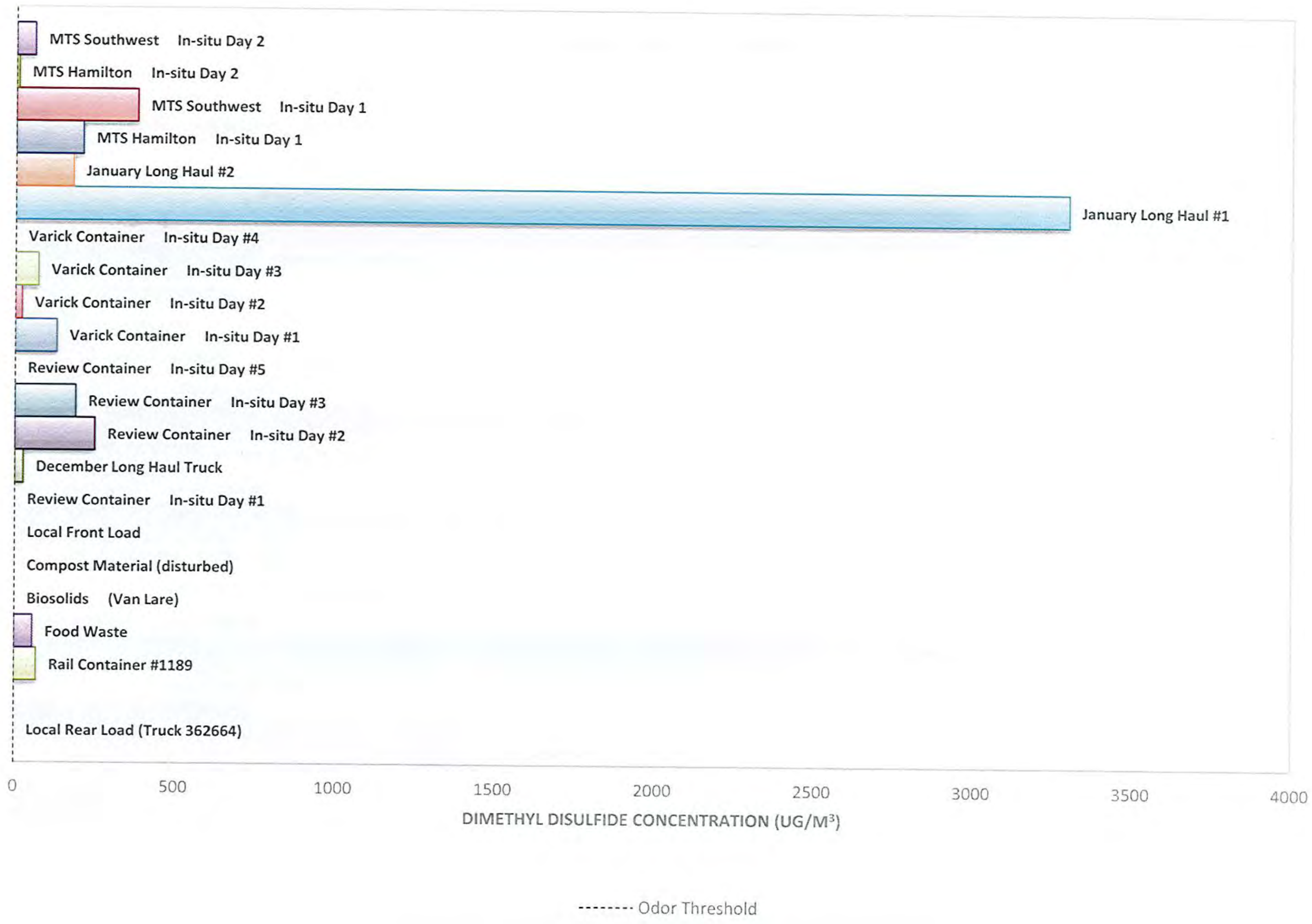
Figure 3 - Analytical Results: Alpha-pinene



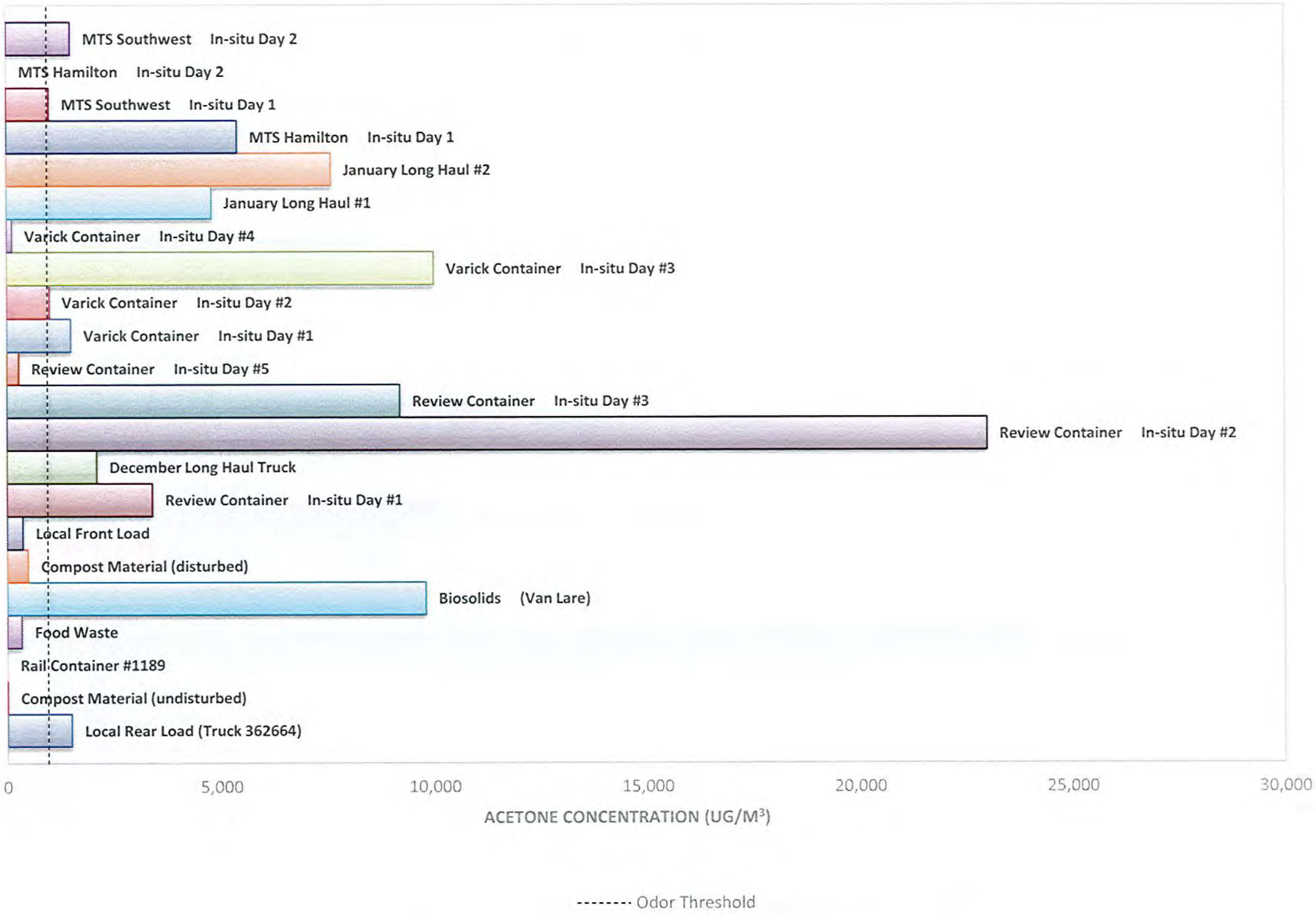
# Figure 4 - Analytical Results: Dimethyl Sulfide



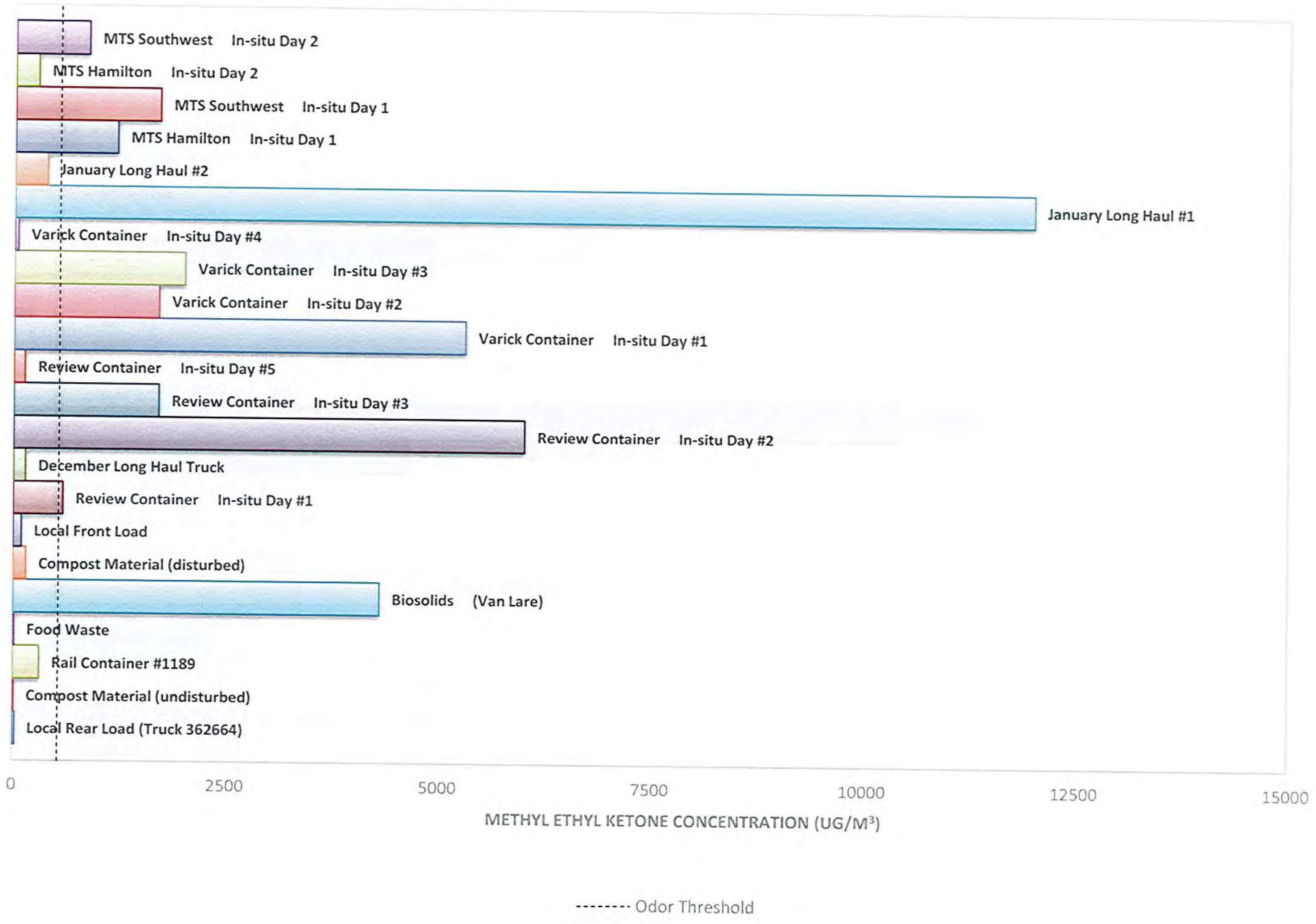
# Figure 5 - Analytical Results: Dimethyl Disulfide



# Figure 6 - Analytical Results: Acetone



# Figure 7 - Analytical Results: Methyl Ethyl Ketone



# Figure 8 - Analytical Results: Ethyl Acetate

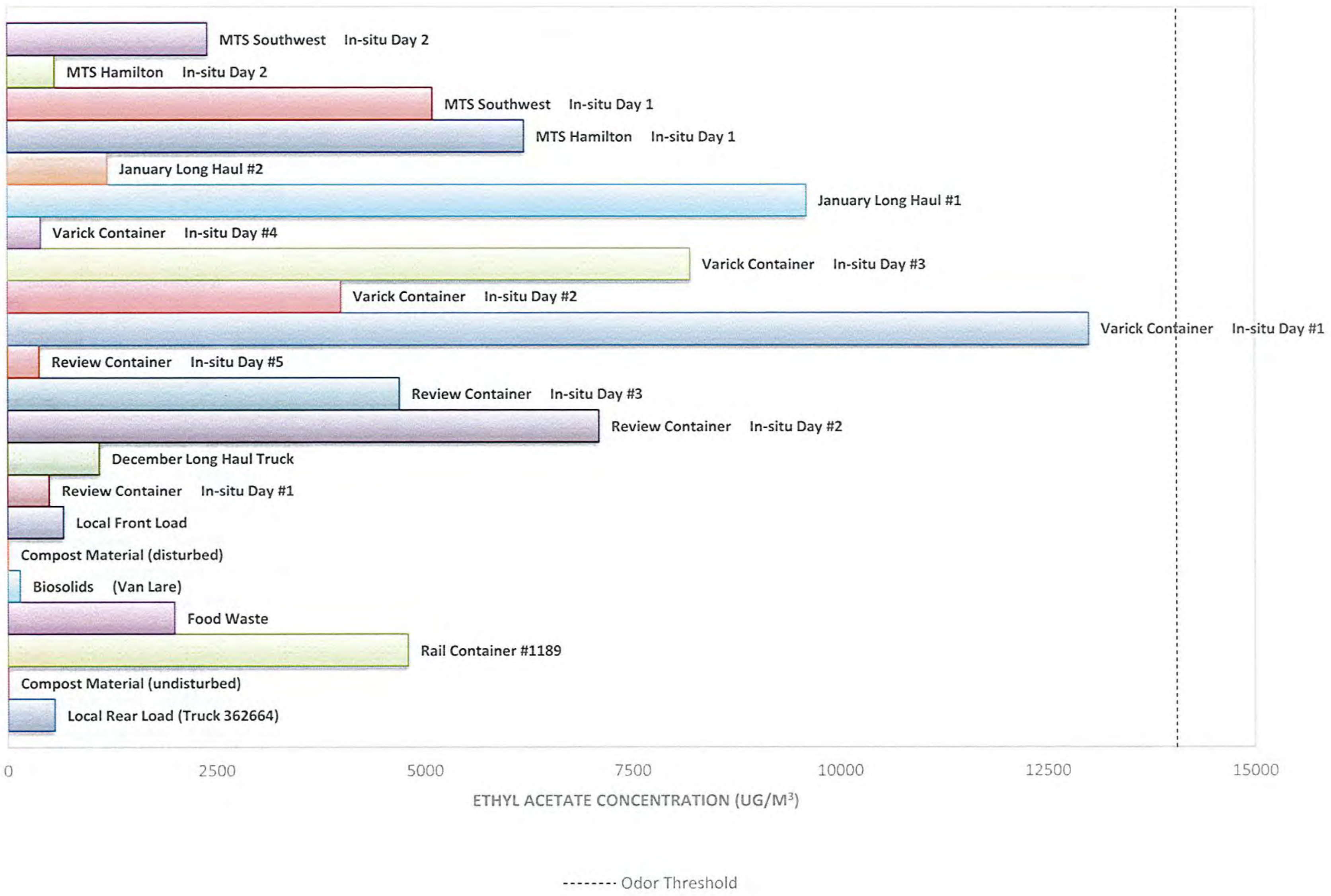
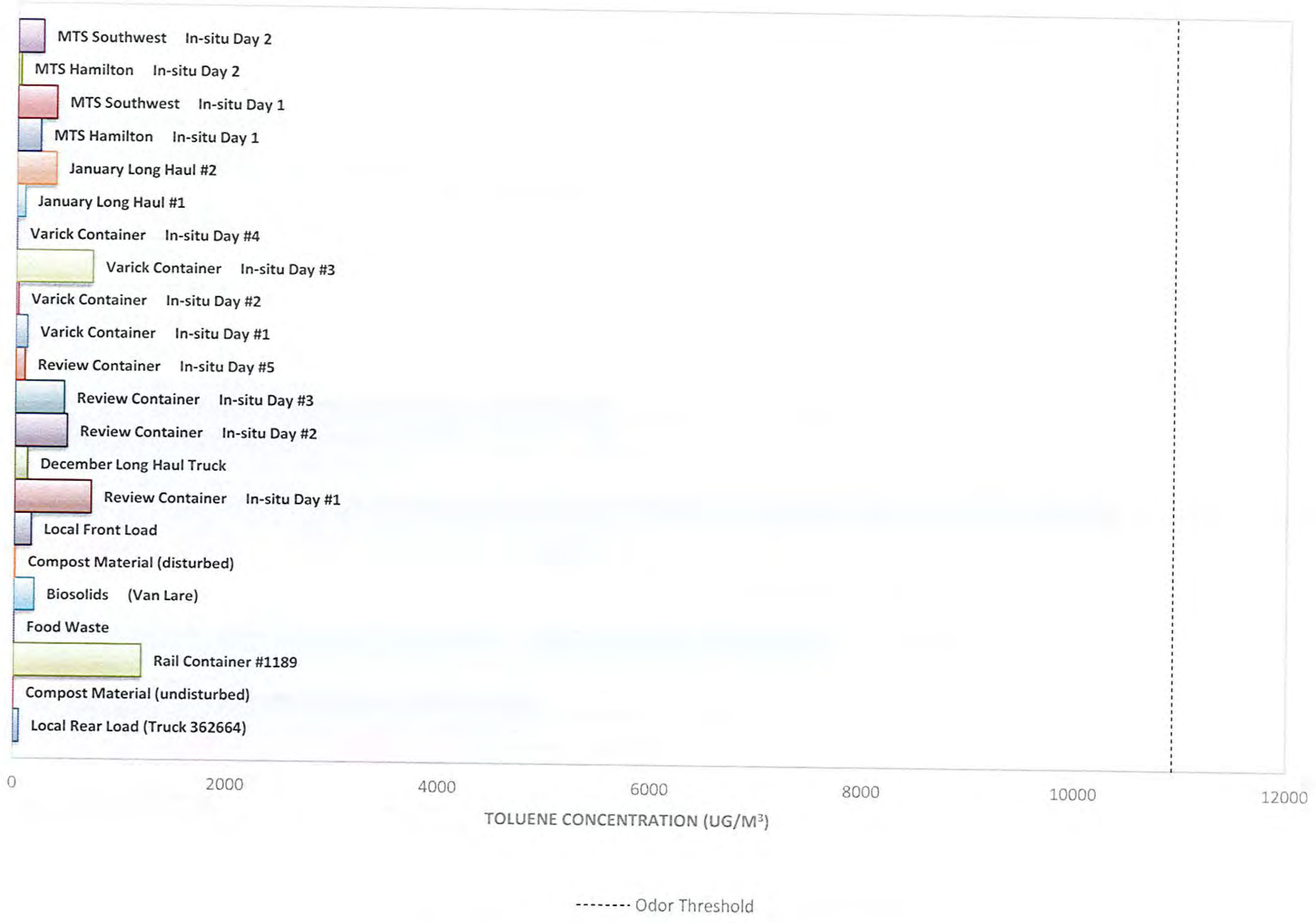


Figure 9 - Analytical Results: Toluene



## Figure 10 - Analytical Results: Ethylbenzene

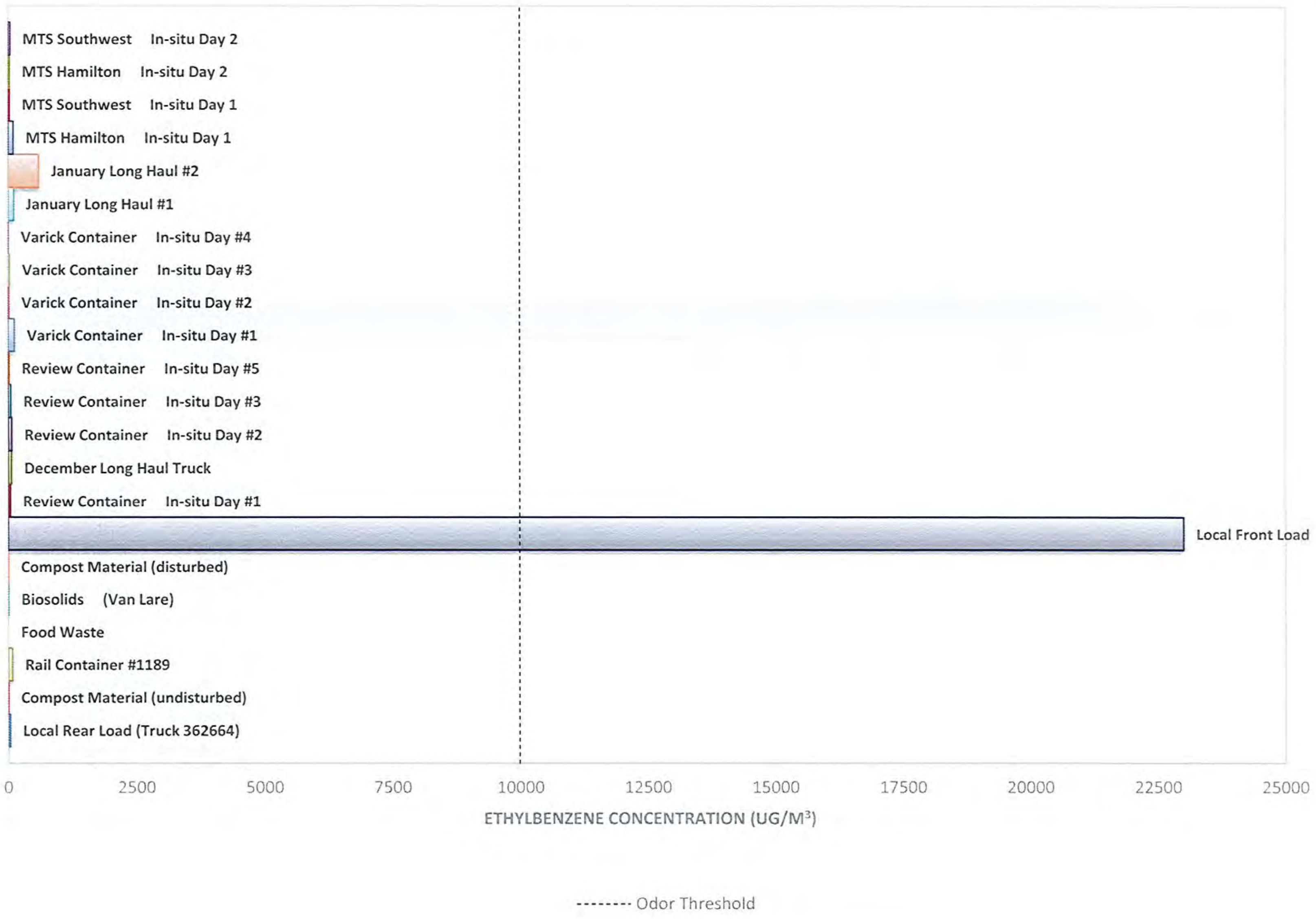
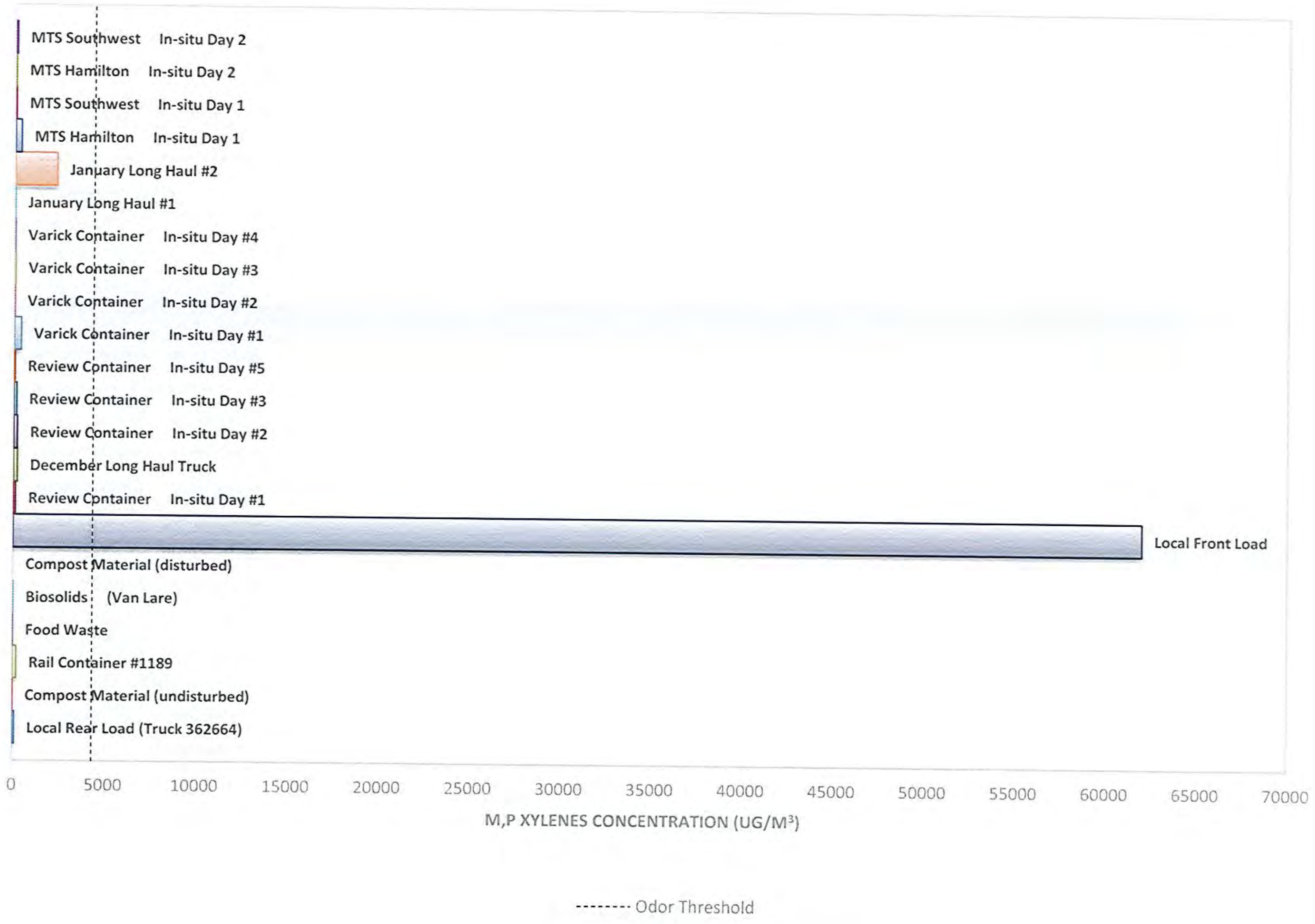
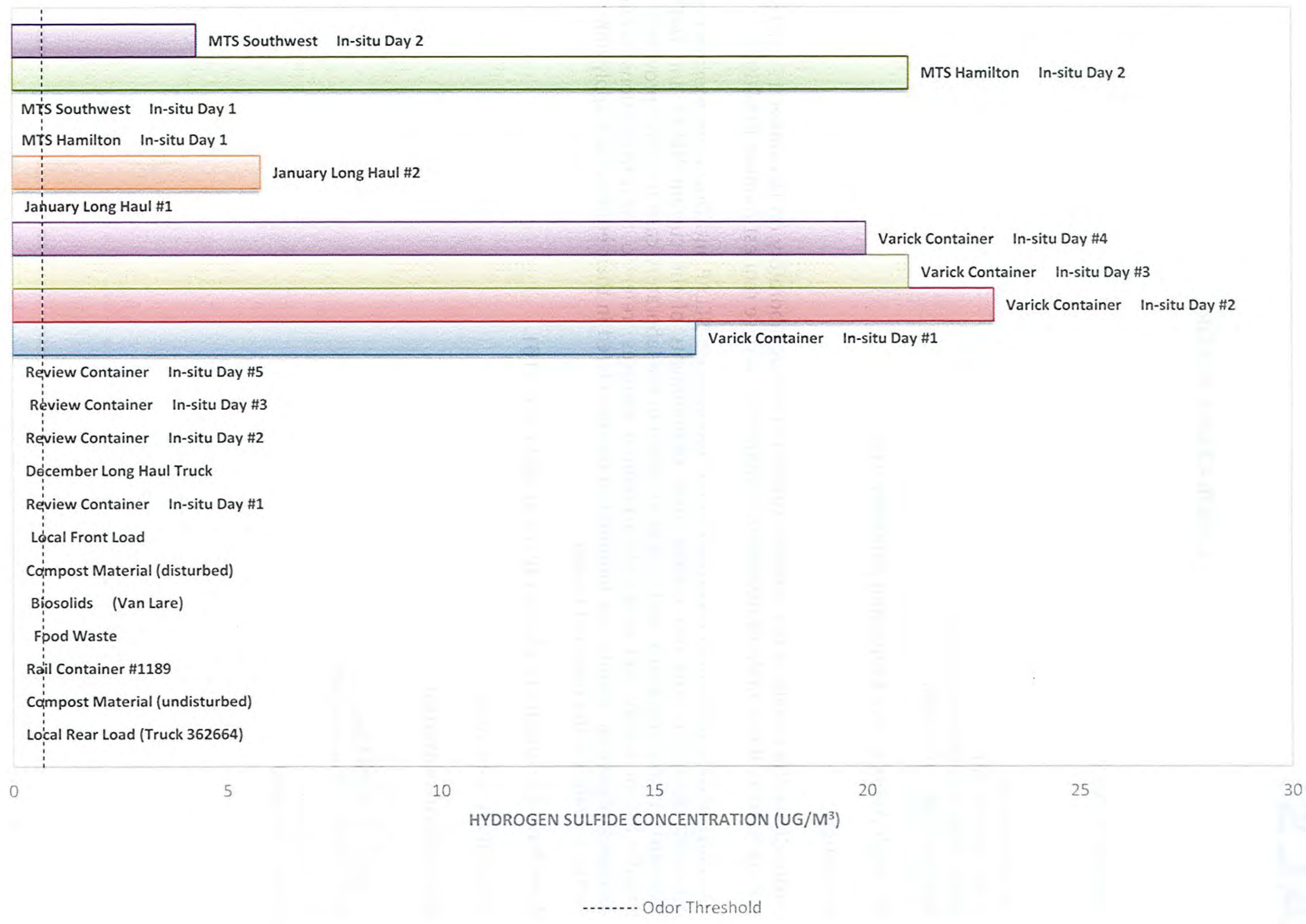


Figure 11 - Analytical Results: M, P Xylenes



# Figure 12 - Analytical Results: Hydrogen Sulfide



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# LABORATORY REPORT

January 9, 2019

Susan Scrocchi
GHD Services Inc.
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, NY 14304

**RE: High Acres Waste Evaluation / 089290-1817**

Dear Susan:

Enclosed are the results of the samples submitted to our laboratory on December 17, 2018. For your reference, these analyses have been assigned our service request number P1806928.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**ALS | Environmental**

Sue Anderson
*By Sue Anderson at 4:27 pm, Jan 09, 2019*

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: GHD Services Inc.
Project: High Acres Waste Evaluation / 089290-1817

Service Request No: P1806928
New York Lab ID: 11221

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## CASE NARRATIVE

The samples were received intact under chain of custody on December 17, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

### Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per ASTM D 5504-12 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP accreditation.

### Volatile Organic Compound Analysis

The samples were also analyzed for volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
**T:** +1 805 526 7161
**www.alsglobal.com**

ALS Environmental - Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEC | http://dec.alaska.gov/eh/lab.aspx | 17-019 |
| Arizona DHS | http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home | AZ0694 |
| Florida DOH (NELAP) | http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html | E871020 |
| Louisiana DEQ (NELAP) | http://www.deq.louisiana.gov/page/la-lab-accreditation | 05071 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml | 2018027 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 1521096 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/enforcement/oqa.html | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-005 |
| Pennsylvania DEP | http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx | 68-03307 (Registration) |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html | T104704413-18-9 |
| Utah DOH (NELAP) | http://health.utah.gov/lab/lab_cert_env | CA016272018-9 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

# ALS ENVIRONMENTAL

## DETAIL SUMMARY REPORT

Client: GHD Services Inc.
Project ID: High Acres Waste Evaluation / 089290-1817

Service Request: P1806928

Date Received: 12/17/2018
Time Received: 08:30

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | Container ID | Pi1 (psig) | Pf1 (psig) | ASTM D 5504-12 - Sulfur Can | TO-15 - VOC Cans |
|---|---|---|---|---|---|---|---|---|---|
| WM-089290-121118-BPS-001 | P1806928-001 | Air | 12/11/2018 | 14:20 | SSC00498 | 1.07 | 3.57 | X | X |
| WM-089290-121118-BPS-002 | P1806928-002 | Air | 12/11/2018 | 14:33 | SSC00304 | 0.76 | 3.66 | X | X |
| WM-089290-121118-BPS-003 | P1806928-003 | Air | 12/11/2018 | 15:25 | SSC00316 | 0.55 | 3.58 | X | X |
| WM-089290-121218-BPS-004 | P1806928-004 | Air | 12/12/2018 | 13:12 | SSC00354 | 0.61 | 4.05 | X | X |
| WM-089290-121218-BPS-005 | P1806928-005 | Air | 12/12/2018 | 14:50 | SSC00302 | 0.65 | 3.49 | X | X |
| WM-089290-121218-BPS-006 | P1806928-006 | Air | 12/12/2018 | 15:25 | SSC00070 | 0.21 | 3.65 | X | X |
| WM-089290-121318-BPS-007 | P1806928-007 | Air | 12/13/2018 | 12:04 | SSC00293 | 0.35 | 3.62 | X | X |
| WM-089290-121318-BPS-008 | P1806928-008 | Air | 12/13/2018 | 16:40 | SSC00016 | -0.96 | 3.59 | X | X |

# Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) [✓ 10-Day-Standard]

ALS Project No. P1806928

Company Name & Address (Reporting Information)
GHD
2055 Niagara Falls Blvd.
Niagara Falls, NY 14304

Project Manager: Bryan P. Szalda

Phone: 716-297-6150

Fax: 716-297-2265

Email Address for Result Reporting: Bryan. Szalda @ghd.com

Project Name: High Acres Waste Evaluation

Project Number: 089290 - 1817

P.O. # / Billing Information:

Sampler (Print & Sign): Bryan P. Szalda Bryan P Szalda

ALS Contact: Sue Anderson

| Client Sample ID | Laboratory ID Number | Date Collected | Time Collected | Canister ID (Bar code # - AC, SC, etc.) | Flow Controller ID (Bar code # - FC #) | Canister Start Pressure "Hg | Canister End Pressure "Hg/psig | Sample Volume | Analysis Method: TO-15 including TICs | Analysis Method: ASTM-5504 sulfurs | Comments e.g. Actual Preservative or specific instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WM-089290-121118-BPS-001 | 1 | 12/11/18 | 11:30-14:20 | SSC00498 | SOA00247 | -29.86 | -0.15 | 6L | X | X | 7-day hold |
| WM-089290-121118-BPS-002 | 2 | 12/11/18 | 12:40-14:33 | SSC00304 | SOA00257 | -30.14 | -0.73 | 6L | X | X | 7-day hold |
| WM-089290-121118-BPS-003 | 3 | 12/11/18 | 13:42-15:25 | SSC00316 | SOA00346 | -30.11 | -1.21 | 6L | X | X | 7-day hold |
| WM-089290-121218-BPS-004 | 4 | 12/12/18 | 11:14-13:12 | SSC00354 | SOA00342 | -30.05 | -0.87 | 6L | X | X | 7-day hold |
| WM-089290-121218-BPS-005 | 5 | 12/12/18 | 12:54-14:50 | SSC00302 | SOA00244 | -30.07 | -1.04 | 6L | X | X | 7-day hold |
| WM-089290-121218-BPS-006 | 6 | 12/12/18 | 13:45-15:25 | SSC00070 | SOA00337 | -30.22 | -1.29 | 6L | X | X | 7-day hold |
| WM-089290-121318-BPS-007 | 7 | 12/13/18 | 10:24-12:04 | SSC00293 | SOA00262 | -30.22 | -1.10 | 6L | X | X | 7-day hold |
| WM-089290-121318-BPS-008 | 8 | 12/13/18 | 15:25-16:40 | ~~SSC00324~~ BS<br>SSC00016 | SOA00524 | -30.21 | -3.86 | 6L | X | X | 7-day hold |
|  |  |  |  |  |  |  |  |  |  |  |  |
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Report Tier Levels - please select
Tier I - Results (Default if not specified) ______
Tier II (Results + QC Summaries ______
Tier III (Results + QC & Calibration Summaries) ______
Tier IV (Date Validation Package) 10% Surcharge ______

EDD required YES / No
Type: __________ Units: __________

Chain of Custody Seal: (Circle)
INTACT BROKEN [✓ ABSENT]

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature) Bryan P Szalda Date: 12/13/18 Time: 21:30 Received by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time: Received by: (Signature) Date: 12-17-18 Time: 0830

Cooler / Blank Temperature ______°C

# ALS Environmental
## Sample Acceptance Check Form

Client: GHD Services Inc.　Work order: P1806928

Project: 2018 Wase Evaluation Sampling / 089290-1817

Sample(s) received on: 12/17/18　Date opened: 12/17/18　by: ADAVID

*Note:* This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

| | | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Were **sample containers** properly marked with client sample ID? | ☒ | ☐ | ☐ |
| 2 | Did **sample containers** arrive in good condition? | ☒ | ☐ | ☐ |
| 3 | Were **chain-of-custody** papers used and filled out? | ☒ | ☐ | ☐ |
| 4 | Did **sample container labels** and/or tags agree with custody papers? | ☒ | ☐ | ☐ |
| 5 | Was **sample volume** received adequate for analysis? | ☒ | ☐ | ☐ |
| 6 | Are samples within specified holding times? | ☒ | ☐ | ☐ |
| 7 | Was proper **temperature** (thermal preservation) of cooler at receipt adhered to? | ☐ | ☐ | ☒ |
| 8 | Were **custody seals** on outside of cooler/Box/Container? | ☐ | ☒ | ☐ |
| | Location of seal(s)? ______ Sealing Lid? | ☐ | ☐ | ☒ |
| | Were signature and date included? | ☐ | ☐ | ☒ |
| | Were seals intact? | ☐ | ☐ | ☒ |
| 9 | Do containers have appropriate **preservation**, according to method/SOP or Client specified information? | ☐ | ☐ | ☒ |
| | Is there a client indication that the submitted samples are **pH** preserved? | ☐ | ☐ | ☒ |
| | Were **VOA vials** checked for presence/absence of air bubbles? | ☐ | ☐ | ☒ |
| | Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it? | ☐ | ☐ | ☒ |
| 10 | **Tubes:** Are the tubes capped and intact? | ☐ | ☐ | ☒ |
| 11 | **Badges:** Are the badges properly capped and intact? | ☐ | ☐ | ☒ |
| | Are dual bed badges separated and individually capped and intact? | ☐ | ☐ | ☒ |

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P1806928-001.01 | 6.0 L Silonite Can | | | | | |
| P1806928-002.01 | 6.0 L Silonite Can | | | | | |
| P1806928-003.01 | 6.0 L Silonite Can | | | | | |
| P1806928-004.01 | 6.0 L Silonite Can | | | | | |
| P1806928-005.01 | 6.0 L Silonite Can | | | | | |
| P1806928-006.01 | 6.0 L Silonite Can | | | | | |
| P1806928-007.01 | 6.0 L Silonite Can | | | | | |
| P1806928-008.01 | 6.0 L Silonite Can | | | | | |
| | | | | | | |
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Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 1

| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-121118-BPS-001** | ALS Project ID: | P1806928 |
| **Client Project ID:** | **High Acres Waste Evaluation / 089290-1817** | ALS Sample ID: | P1806928-001 |

| | | | |
|---|---|---|---|
| Test Code: | ASTM D 5504-12 | Date Collected: | 12/11/18 |
| Instrument ID: | Agilent 7890A/GC22/SCD | Time Collected: | 14:20 |
| Analyst: | Magaly Rodriguez | Date Received: | 12/17/18 |
| Sample Type: | 6.0 L Silonite Canister | Date Analyzed: | 12/18/18 |
| Test Notes: | | Time Analyzed: | 09:30 |
| Container ID: | SSC00498 | Volume(s) Analyzed: | 1.0 ml(s) |

Initial Pressure (psig): 1.07 Final Pressure (psig): 3.57

Container Dilution Factor: 1.16

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.1 | 2.4 | ND | 5.8 | 1.7 | |
| 463-58-1 | Carbonyl Sulfide | **17** | 14 | NA | **7.0** | 5.8 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 11 | 4.6 | ND | 5.8 | 2.3 | |
| 75-08-1 | Ethyl Mercaptan | ND | 15 | 5.9 | ND | 5.8 | 2.3 | |
| 75-18-3 | Dimethyl Sulfide | **13** | 15 | 5.9 | **5.1** | 5.8 | 2.3 | **J** |
| 75-15-0 | Carbon Disulfide | **13** | 9.0 | NA | **4.2** | 2.9 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 18 | 7.2 | ND | 5.8 | 2.3 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 21 | 8.6 | ND | 5.8 | 2.3 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 18 | 7.2 | ND | 5.8 | 2.3 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 18 | 7.2 | ND | 5.8 | 2.3 | |
| 110-02-1 | Thiophene | ND | 20 | 8.0 | ND | 5.8 | 2.3 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 21 | 8.6 | ND | 5.8 | 2.3 | |
| 352-93-2 | Diethyl Sulfide | ND | 21 | 8.6 | ND | 5.8 | 2.3 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 21 | 8.6 | ND | 5.8 | 2.3 | |
| 624-92-0 | Dimethyl Disulfide | ND | 11 | 4.5 | ND | 2.9 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 23 | 9.3 | ND | 5.8 | 2.3 | |
| 110-01-0 | Tetrahydrothiophene | ND | 21 | 8.4 | ND | 5.8 | 2.3 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 27 | 11 | ND | 5.8 | 2.3 | |
| 872-55-9 | 2-Ethylthiophene | ND | 27 | 11 | ND | 5.8 | 2.3 | |
| 110-81-6 | Diethyl Disulfide | ND | 14 | 12 | ND | 2.9 | 2.3 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-002**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-002

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00304

Date Collected: 12/11/18
Time Collected: 14:33
Date Received: 12/17/18
Date Analyzed: 12/18/18
Time Analyzed: 09:48
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.76 Final Pressure (psig): 3.66

Container Dilution Factor: 1.19

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.3 | 2.5 | ND | 6.0 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | ND | 15 | NA | ND | 6.0 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.7 | ND | 6.0 | 2.4 | |
| 75-08-1 | Ethyl Mercaptan | ND | 15 | 6.0 | ND | 6.0 | 2.4 | |
| 75-18-3 | Dimethyl Sulfide | ND | 15 | 6.0 | ND | 6.0 | 2.4 | |
| 75-15-0 | Carbon Disulfide | ND | 9.3 | NA | ND | 3.0 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.4 | ND | 6.0 | 2.4 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.4 | ND | 6.0 | 2.4 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.4 | ND | 6.0 | 2.4 | |
| 110-02-1 | Thiophene | ND | 20 | 8.2 | ND | 6.0 | 2.4 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 352-93-2 | Diethyl Sulfide | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 624-92-0 | Dimethyl Disulfide | ND | 11 | 4.6 | ND | 3.0 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 24 | 9.6 | ND | 6.0 | 2.4 | |
| 110-01-0 | Tetrahydrothiophene | ND | 21 | 8.6 | ND | 6.0 | 2.4 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 27 | 11 | ND | 6.0 | 2.4 | |
| 872-55-9 | 2-Ethylthiophene | ND | 27 | 11 | ND | 6.0 | 2.4 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.0 | 2.4 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-003**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-003

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00316

Date Collected: 12/11/18
Time Collected: 15:25
Date Received: 12/17/18
Date Analyzed: 12/18/18
Time Analyzed: 10:05
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.55 Final Pressure (psig): 3.58

Container Dilution Factor: 1.20

| CAS # | Compound | **Result** **µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result** **ppbV** | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.4 | 2.5 | ND | 6.0 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | **50** | 15 | NA | **20** | 6.0 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.7 | ND | 6.0 | 2.4 | |
| 75-08-1 | Ethyl Mercaptan | ND | 15 | 6.1 | ND | 6.0 | 2.4 | |
| 75-18-3 | Dimethyl Sulfide | **90** | 15 | 6.1 | **36** | 6.0 | 2.4 | |
| 75-15-0 | Carbon Disulfide | **14** | 9.3 | NA | **4.6** | 3.0 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.5 | ND | 6.0 | 2.4 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.5 | ND | 6.0 | 2.4 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.5 | ND | 6.0 | 2.4 | |
| 110-02-1 | Thiophene | ND | 21 | 8.3 | ND | 6.0 | 2.4 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 352-93-2 | Diethyl Sulfide | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 624-92-0 | Dimethyl Disulfide | **69** | 12 | 4.6 | **18** | 3.0 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 24 | 9.6 | ND | 6.0 | 2.4 | |
| 110-01-0 | Tetrahydrothiophene | ND | 22 | 8.7 | ND | 6.0 | 2.4 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 28 | 11 | ND | 6.0 | 2.4 | |
| 872-55-9 | 2-Ethylthiophene | ND | 28 | 11 | ND | 6.0 | 2.4 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.0 | 2.4 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-004**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-004

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00354

Date Collected: 12/12/18
Time Collected: 13:12
Date Received: 12/17/18
Date Analyzed: 12/18/18
Time Analyzed: 12:15
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.61 Final Pressure (psig): 4.05

Container Dilution Factor: 1.22

| CAS # | Compound | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.5 | 2.5 | ND | 6.1 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | **90** | 15 | NA | **37** | 6.1 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.8 | ND | 6.1 | 2.4 | |
| 75-08-1 | Ethyl Mercaptan | ND | 15 | 6.2 | ND | 6.1 | 2.4 | |
| 75-18-3 | Dimethyl Sulfide | **370** | 15 | 6.2 | **140** | 6.1 | 2.4 | |
| 75-15-0 | Carbon Disulfide | **19** | 9.5 | NA | **6.1** | 3.1 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 110-02-1 | Thiophene | ND | 21 | 8.4 | ND | 6.1 | 2.4 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 352-93-2 | Diethyl Sulfide | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 624-92-0 | Dimethyl Disulfide | **57** | 12 | 4.7 | **15** | 3.1 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 24 | 9.8 | ND | 6.1 | 2.4 | |
| 110-01-0 | Tetrahydrothiophene | ND | 22 | 8.8 | ND | 6.1 | 2.4 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 28 | 11 | ND | 6.1 | 2.4 | |
| 872-55-9 | 2-Ethylthiophene | ND | 28 | 11 | ND | 6.1 | 2.4 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.1 | 2.4 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-005**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-005

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00302

Date Collected: 12/12/18
Time Collected: 14:50
Date Received: 12/17/18
Date Analyzed: 12/18/18
Time Analyzed: 13:29
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.65 Final Pressure (psig): 3.49

Container Dilution Factor: 1.19

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.3 | 2.5 | ND | 6.0 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | **69** | 15 | NA | **28** | 6.0 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.7 | ND | 6.0 | 2.4 | |
| 75-08-1 | Ethyl Mercaptan | ND | 15 | 6.0 | ND | 6.0 | 2.4 | |
| 75-18-3 | Dimethyl Sulfide | **95** | 15 | 6.0 | **38** | 6.0 | 2.4 | |
| 75-15-0 | Carbon Disulfide | **14** | 9.3 | NA | **4.4** | 3.0 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.4 | ND | 6.0 | 2.4 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.4 | ND | 6.0 | 2.4 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.4 | ND | 6.0 | 2.4 | |
| 110-02-1 | Thiophene | ND | 20 | 8.2 | ND | 6.0 | 2.4 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 352-93-2 | Diethyl Sulfide | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 22 | 8.8 | ND | 6.0 | 2.4 | |
| 624-92-0 | Dimethyl Disulfide | ND | 11 | 4.6 | ND | 3.0 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 24 | 9.6 | ND | 6.0 | 2.4 | |
| 110-01-0 | Tetrahydrothiophene | ND | 21 | 8.6 | ND | 6.0 | 2.4 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 27 | 11 | ND | 6.0 | 2.4 | |
| 872-55-9 | 2-Ethylthiophene | ND | 27 | 11 | ND | 6.0 | 2.4 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.0 | 2.4 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-006**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-006

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00070

Date Collected: 12/12/18
Time Collected: 15:25
Date Received: 12/17/18
Date Analyzed: 12/18/18
Time Analyzed: 13:51
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.21 Final Pressure (psig): 3.65

Container Dilution Factor: 1.23

| CAS # | Compound | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.6 | 2.6 | ND | 6.2 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | **17** | 15 | NA | **6.8** | 6.2 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.8 | ND | 6.2 | 2.5 | |
| 75-08-1 | Ethyl Mercaptan | ND | 16 | 6.2 | ND | 6.2 | 2.5 | |
| 75-18-3 | Dimethyl Sulfide | ND | 16 | 6.2 | ND | 6.2 | 2.5 | |
| 75-15-0 | Carbon Disulfide | ND | 9.6 | NA | ND | 3.1 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 110-02-1 | Thiophene | ND | 21 | 8.5 | ND | 6.2 | 2.5 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 352-93-2 | Diethyl Sulfide | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 624-92-0 | Dimethyl Disulfide | ND | 12 | 4.7 | ND | 3.1 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 25 | 9.9 | ND | 6.2 | 2.5 | |
| 110-01-0 | Tetrahydrothiophene | ND | 22 | 8.9 | ND | 6.2 | 2.5 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 28 | 11 | ND | 6.2 | 2.5 | |
| 872-55-9 | 2-Ethylthiophene | ND | 28 | 11 | ND | 6.2 | 2.5 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.1 | 2.5 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-007**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-007

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00293

Date Collected: 12/13/18
Time Collected: 12:04
Date Received: 12/17/18
Date Analyzed: 12/18/18
Time Analyzed: 14:10
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.35 Final Pressure (psig): 3.62

Container Dilution Factor: 1.22

| **CAS #** | **Compound** | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.5 | 2.5 | ND | 6.1 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | ND | 15 | NA | ND | 6.1 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.8 | ND | 6.1 | 2.4 | |
| 75-08-1 | Ethyl Mercaptan | ND | 15 | 6.2 | ND | 6.1 | 2.4 | |
| 75-18-3 | Dimethyl Sulfide | 20 | 15 | 6.2 | 7.9 | 6.1 | 2.4 | |
| 75-15-0 | Carbon Disulfide | ND | 9.5 | NA | ND | 3.1 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 110-02-1 | Thiophene | ND | 21 | 8.4 | ND | 6.1 | 2.4 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 352-93-2 | Diethyl Sulfide | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 624-92-0 | Dimethyl Disulfide | ND | 12 | 4.7 | ND | 3.1 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 24 | 9.8 | ND | 6.1 | 2.4 | |
| 110-01-0 | Tetrahydrothiophene | ND | 22 | 8.8 | ND | 6.1 | 2.4 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 28 | 11 | ND | 6.1 | 2.4 | |
| 872-55-9 | 2-Ethylthiophene | ND | 28 | 11 | ND | 6.1 | 2.4 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.1 | 2.4 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-008**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-008

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00016

Date Collected: 12/13/18
Time Collected: 16:40
Date Received: 12/17/18
Date Analyzed: 12/18/18
Time Analyzed: 14:24
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.96 Final Pressure (psig): 3.59

Container Dilution Factor: 1.33

| CAS # | Compound | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 9.3 | 2.8 | ND | 6.7 | 2.0 | |
| 463-58-1 | Carbonyl Sulfide | **21** | 16 | NA | **8.5** | 6.7 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 13 | 5.2 | ND | 6.7 | 2.7 | |
| 75-08-1 | Ethyl Mercaptan | ND | 17 | 6.8 | ND | 6.7 | 2.7 | |
| 75-18-3 | Dimethyl Sulfide | **31** | 17 | 6.8 | **12** | 6.7 | 2.7 | |
| 75-15-0 | Carbon Disulfide | ND | 10 | NA | ND | 3.3 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 21 | 8.3 | ND | 6.7 | 2.7 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 25 | 9.8 | ND | 6.7 | 2.7 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 21 | 8.3 | ND | 6.7 | 2.7 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 21 | 8.3 | ND | 6.7 | 2.7 | |
| 110-02-1 | Thiophene | ND | 23 | 9.2 | ND | 6.7 | 2.7 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 25 | 9.8 | ND | 6.7 | 2.7 | |
| 352-93-2 | Diethyl Sulfide | ND | 25 | 9.8 | ND | 6.7 | 2.7 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 25 | 9.8 | ND | 6.7 | 2.7 | |
| 624-92-0 | Dimethyl Disulfide | ND | 13 | 5.1 | ND | 3.3 | 1.3 | |
| 616-44-4 | 3-Methylthiophene | ND | 27 | 11 | ND | 6.7 | 2.7 | |
| 110-01-0 | Tetrahydrothiophene | ND | 24 | 9.6 | ND | 6.7 | 2.7 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 31 | 12 | ND | 6.7 | 2.7 | |
| 872-55-9 | 2-Ethylthiophene | ND | 31 | 12 | ND | 6.7 | 2.7 | |
| 110-81-6 | Diethyl Disulfide | ND | 17 | 13 | ND | 3.3 | 2.7 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
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**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P181218-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 12/18/18
Time Analyzed: 08:50
Volume(s) Analyzed: 1.0 ml(s)

| CAS # | Compound | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 7.0 | 2.1 | ND | 5.0 | 1.5 | |
| 463-58-1 | Carbonyl Sulfide | ND | 12 | NA | ND | 5.0 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 9.8 | 3.9 | ND | 5.0 | 2.0 | |
| 75-08-1 | Ethyl Mercaptan | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-18-3 | Dimethyl Sulfide | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-15-0 | Carbon Disulfide | ND | 7.8 | NA | ND | 2.5 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 110-02-1 | Thiophene | ND | 17 | 6.9 | ND | 5.0 | 2.0 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 352-93-2 | Diethyl Sulfide | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 624-92-0 | Dimethyl Disulfide | ND | 9.6 | 3.9 | ND | 2.5 | 1.0 | |
| 616-44-4 | 3-Methylthiophene | ND | 20 | 8.0 | ND | 5.0 | 2.0 | |
| 110-01-0 | Tetrahydrothiophene | ND | 18 | 7.2 | ND | 5.0 | 2.0 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 872-55-9 | 2-Ethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 110-81-6 | Diethyl Disulfide | ND | 12 | 10 | ND | 2.5 | 2.0 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

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**Client:** **GHD Services Inc.**

**Client Sample ID:** **Lab Control Sample**

**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928

ALS Sample ID: P181218-LCS

Test Code: ASTM D 5504-12

Instrument ID: Agilent 7890A/GC22/SCD

Analyst: Magaly Rodriguez

Sample Type: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/18/18

Volume(s) Analyzed: NA ml(s)

| **CAS #** | **Compound** | Spike Amount ppbV | **Result ppbV** | **% Recovery** | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | 989 | **909** | **92** | 81-141 | |
| 463-58-1 | Carbonyl Sulfide | 1,050 | **957** | **91** | 81-147 | |
| 74-93-1 | Methyl Mercaptan | 1,050 | **990** | **94** | 80-144 | |

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-001**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00498

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.10 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 1.07 Final Pressure (psig): 3.57

Container Dilution Factor: 1.16

| CAS # | Compound | Result µg/m$^3$ | MRL µg/m$^3$ | MDL µg/m$^3$ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 6.0 | 1.5 | ND | 3.5 | 0.88 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **12** | 6.0 | 1.0 | **2.5** | 1.2 | 0.20 | |
| 74-87-3 | Chloromethane | **1.3** | 5.8 | 1.0 | **0.64** | 2.8 | 0.48 | J |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 5.9 | 0.97 | ND | 0.85 | 0.14 | |
| 75-01-4 | Vinyl Chloride | ND | 6.1 | 0.66 | ND | 2.4 | 0.26 | |
| 106-99-0 | 1,3-Butadiene | ND | 6.0 | 1.0 | ND | 2.7 | 0.46 | |
| 74-83-9 | Bromomethane | ND | 5.8 | 0.86 | ND | 1.5 | 0.22 | |
| 75-00-3 | Chloroethane | ND | 5.9 | 0.77 | ND | 2.2 | 0.29 | |
| 64-17-5 | Ethanol | **17,000** | 300 | 21 | **9,200** | 160 | 11 | D |
| 75-05-8 | Acetonitrile | **2.0** | 6.0 | 1.5 | **1.2** | 3.6 | 0.90 | J |
| 107-02-8 | Acrolein | **2.0** | 12 | 1.7 | **0.86** | 5.1 | 0.76 | J |
| 67-64-1 | Acetone | **1,500** | 63 | 14 | **630** | 26 | 5.9 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **10** | 6.1 | 0.94 | **1.8** | 1.1 | 0.17 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 24 | 2.6 | ND | 9.9 | 1.0 | |
| 107-13-1 | Acrylonitrile | ND | 6.0 | 1.3 | ND | 2.8 | 0.59 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 6.3 | 0.86 | ND | 1.6 | 0.22 | |
| 75-09-2 | Methylene Chloride | **56** | 6.3 | 1.7 | **16** | 1.8 | 0.50 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 6.1 | 0.84 | ND | 2.0 | 0.27 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 6.1 | 0.88 | ND | 0.80 | 0.12 | |
| 75-15-0 | Carbon Disulfide | **6.1** | 13 | 1.9 | **2.0** | 4.1 | 0.60 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 6.1 | 0.86 | ND | 1.6 | 0.22 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 6.0 | 0.90 | ND | 1.5 | 0.22 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 6.3 | 0.73 | ND | 1.7 | 0.20 | |
| 108-05-4 | Vinyl Acetate | **39** | 61 | 14 | **11** | 17 | 4.0 | J |
| 78-93-3 | 2-Butanone (MEK) | **26** | 12 | 1.3 | **8.8** | 3.9 | 0.43 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-001**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00498

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.10 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 1.07 Final Pressure (psig): 3.57

Container Dilution Factor: 1.16

| CAS # | Compound | Result µg/m$^3$ | MRL µg/m$^3$ | MDL µg/m$^3$ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 6.1 | 0.87 | ND | 1.6 | 0.22 | |
| 141-78-6 | Ethyl Acetate | **560** | 13 | 3.2 | **150** | 3.5 | 0.90 | |
| 110-54-3 | n-Hexane | **3.8** | 6.3 | 1.3 | **1.1** | 1.8 | 0.36 | **J** |
| 67-66-3 | Chloroform | **0.92** | 6.3 | 0.82 | **0.19** | 1.3 | 0.17 | **J** |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 6.1 | 0.78 | ND | 2.1 | 0.26 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 6.1 | 0.68 | ND | 1.5 | 0.17 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 6.3 | 0.77 | ND | 1.1 | 0.14 | |
| 71-43-2 | Benzene | **1.9** | 6.0 | 0.89 | **0.58** | 1.9 | 0.28 | **J** |
| 56-23-5 | Carbon Tetrachloride | ND | 6.0 | 0.86 | ND | 0.96 | 0.14 | |
| 110-82-7 | Cyclohexane | **2.7** | 12 | 1.7 | **0.80** | 3.4 | 0.51 | **J** |
| 78-87-5 | 1,2-Dichloropropane | **1.0** | 6.3 | 0.77 | **0.22** | 1.4 | 0.17 | **J** |
| 75-27-4 | Bromodichloromethane | ND | 6.1 | 0.89 | ND | 0.92 | 0.13 | |
| 79-01-6 | Trichloroethene | ND | 6.1 | 0.84 | ND | 1.1 | 0.16 | |
| 123-91-1 | 1,4-Dioxane | ND | 6.1 | 0.73 | ND | 1.7 | 0.20 | |
| 80-62-6 | Methyl Methacrylate | ND | 13 | 2.2 | ND | 3.1 | 0.54 | |
| 142-82-5 | n-Heptane | **7.4** | 6.3 | 0.99 | **1.8** | 1.5 | 0.24 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 6.5 | 0.96 | ND | 1.4 | 0.21 | |
| 108-10-1 | 4-Methyl-2-pentanone | **4.9** | 6.1 | 0.85 | **1.2** | 1.5 | 0.21 | **J** |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 6.1 | 1.3 | ND | 1.4 | 0.28 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 6.3 | 0.63 | ND | 1.1 | 0.11 | |
| 108-88-3 | Toluene | **54** | 6.1 | 0.75 | **14** | 1.6 | 0.20 | |
| 591-78-6 | 2-Hexanone | ND | 6.3 | 0.77 | ND | 1.5 | 0.19 | |
| 124-48-1 | Dibromochloromethane | ND | 6.3 | 0.81 | ND | 0.74 | 0.095 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 6.3 | 0.72 | ND | 0.82 | 0.094 | |
| 123-86-4 | n-Butyl Acetate | **55** | 6.3 | 0.85 | **12** | 1.3 | 0.18 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-001**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00498

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.10 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 1.07 Final Pressure (psig): 3.57

Container Dilution Factor: 1.16

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **20** | 6.3 | 1.4 | **4.3** | 1.3 | 0.30 | |
| 127-18-4 | Tetrachloroethene | **30** | 6.1 | 0.80 | **4.5** | 0.91 | 0.12 | |
| 108-90-7 | Chlorobenzene | ND | 6.1 | 0.82 | ND | 1.3 | 0.18 | |
| 100-41-4 | Ethylbenzene | **34** | 6.0 | 0.87 | **7.8** | 1.4 | 0.20 | |
| 179601-23-1 | m,p-Xylenes | **110** | 13 | 1.6 | **24** | 2.9 | 0.37 | |
| 75-25-2 | Bromoform | ND | 6.1 | 1.3 | ND | 0.59 | 0.12 | |
| 100-42-5 | Styrene | **7.1** | 6.1 | 1.0 | **1.7** | 1.4 | 0.23 | |
| 95-47-6 | o-Xylene | **26** | 6.1 | 0.89 | **6.1** | 1.4 | 0.21 | |
| 111-84-2 | n-Nonane | **160** | 6.3 | 1.0 | **31** | 1.2 | 0.20 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 6.1 | 0.86 | ND | 0.90 | 0.13 | |
| 98-82-8 | Cumene | **2.1** | 6.1 | 0.89 | **0.43** | 1.3 | 0.18 | J |
| 80-56-8 | alpha-Pinene | **930** | 6.0 | 0.95 | **170** | 1.1 | 0.17 | |
| 103-65-1 | n-Propylbenzene | **2.2** | 6.3 | 0.89 | **0.44** | 1.3 | 0.18 | J |
| 622-96-8 | 4-Ethyltoluene | ND | 6.1 | 0.99 | ND | 1.3 | 0.20 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | **3.6** | 6.1 | 0.89 | **0.73** | 1.3 | 0.18 | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | **9.3** | 6.1 | 0.86 | **1.9** | 1.3 | 0.17 | |
| 100-44-7 | Benzyl Chloride | ND | 13 | 1.4 | ND | 2.5 | 0.27 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 6.3 | 0.93 | ND | 1.0 | 0.15 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 6.3 | 0.95 | ND | 1.0 | 0.16 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 6.3 | 0.92 | ND | 1.0 | 0.15 | |
| 5989-27-5 | d-Limonene | **1,600** | 30 | 6.4 | **290** | 5.3 | 1.1 | D |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 6.0 | 1.2 | ND | 0.62 | 0.12 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 6.1 | 1.5 | ND | 0.83 | 0.20 | |
| 91-20-3 | Naphthalene | ND | 5.9 | 1.5 | ND | 1.1 | 0.29 | |
| 87-68-3 | Hexachlorobutadiene | ND | 6.1 | 1.3 | ND | 0.58 | 0.12 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

RESULTS OF ANALYSIS
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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-001**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-001

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes: **T**
Container ID: SSC00498

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.10 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 1.07 Final Pressure (psig): 3.57

Container Dilution Factor: 1.16

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.10 | 1,1-Difluoroethane | **1,900** | |
| 4.25 | Propane | **1,400** | |
| 4.91 | Isobutane | **5,000** | |
| 5.46 | n-Butane | **2,500** | |
| 7.59 | unknown | **250** | |
| 7.98 | n-Pentane | **310** | |
| 8.56 | unknown | **86** | |
| 10.24 | Trimethylsilanol | **130** | |
| 11.92 | Isobutanol | **59** | |
| 14.09 | Hexamethyldisiloxane | **670** | |
| 17.70 | unknown hydrocarbon | **150** | |
| 18.18 | 1,2,4-Trimethylcyclohexane | **66** | |
| 18.69 | 1,3,5-Trimethyl-, (1.Alpha.,3.Alpha.,5.Beta.)Cyclohexane | **74** | |
| 19.79 | Camphene | **220** | |
| 19.94 | unknown hydrocarbon | **100** | |
| 20.15 | beta-Pinene | **210** | |
| 20.29 | n-Decane | **180** | |
| 20.59 | 4-Methyldecane | **100** | |
| 20.99 | .gamma.-Terpinene | **110** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-002**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00304

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.76 Final Pressure (psig): 3.66

Container Dilution Factor: 1.19

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **0.66** | 0.62 | 0.15 | **0.38** | 0.36 | 0.090 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **2.0** | 0.62 | 0.10 | **0.40** | 0.13 | 0.021 | |
| 74-87-3 | Chloromethane | **0.22** | 0.60 | 0.10 | **0.11** | 0.29 | 0.050 | J |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.61 | 0.10 | ND | 0.087 | 0.014 | |
| 75-01-4 | Vinyl Chloride | ND | 0.63 | 0.068 | ND | 0.25 | 0.027 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.62 | 0.10 | ND | 0.28 | 0.047 | |
| 74-83-9 | Bromomethane | ND | 0.60 | 0.088 | ND | 0.15 | 0.023 | |
| 75-00-3 | Chloroethane | ND | 0.61 | 0.079 | ND | 0.23 | 0.030 | |
| 64-17-5 | Ethanol | **5.7** | 6.1 | 0.44 | **3.0** | 3.2 | 0.23 | J |
| 75-05-8 | Acetonitrile | **0.37** | 0.62 | 0.15 | **0.22** | 0.37 | 0.092 | J |
| 107-02-8 | Acrolein | ND | 1.2 | 0.18 | ND | 0.52 | 0.078 | |
| 67-64-1 | Acetone | **10** | 6.4 | 1.4 | **4.3** | 2.7 | 0.60 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **1.0** | 0.63 | 0.096 | **0.18** | 0.11 | 0.017 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **0.50** | 2.5 | 0.26 | **0.20** | 1.0 | 0.11 | J |
| 107-13-1 | Acrylonitrile | ND | 0.62 | 0.13 | ND | 0.29 | 0.060 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.64 | 0.088 | ND | 0.16 | 0.022 | |
| 75-09-2 | Methylene Chloride | **0.26** | 0.64 | 0.18 | **0.074** | 0.19 | 0.051 | J |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.63 | 0.086 | ND | 0.20 | 0.027 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 0.47 | 0.63 | 0.090 | **0.062** | 0.082 | 0.012 | J |
| 75-15-0 | Carbon Disulfide | **1.1** | 1.3 | 0.19 | **0.37** | 0.42 | 0.061 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.63 | 0.088 | ND | 0.16 | 0.022 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.62 | 0.093 | ND | 0.15 | 0.023 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.64 | 0.075 | ND | 0.18 | 0.021 | |
| 108-05-4 | Vinyl Acetate | ND | 6.3 | 1.4 | ND | 1.8 | 0.41 | |
| 78-93-3 | 2-Butanone (MEK) | 14 | 1.2 | 0.13 | **4.8** | 0.40 | 0.044 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-002**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00304

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.76 Final Pressure (psig): 3.66

Container Dilution Factor: 1.19

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.63 | 0.089 | ND | 0.16 | 0.023 | |
| 141-78-6 | Ethyl Acetate | **4.3** | 1.3 | 0.33 | **1.2** | 0.36 | 0.093 | |
| 110-54-3 | n-Hexane | **0.52** | 0.64 | 0.13 | **0.15** | 0.18 | 0.037 | **J** |
| 67-66-3 | Chloroform | ND | 0.64 | 0.084 | ND | 0.13 | 0.017 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.63 | 0.080 | ND | 0.21 | 0.027 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.63 | 0.070 | ND | 0.16 | 0.017 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.64 | 0.079 | ND | 0.12 | 0.014 | |
| 71-43-2 | Benzene | **0.49** | 0.62 | 0.092 | **0.15** | 0.19 | 0.029 | **J** |
| 56-23-5 | Carbon Tetrachloride | **0.35** | 0.62 | 0.088 | **0.056** | 0.098 | 0.014 | **J** |
| 110-82-7 | Cyclohexane | ND | 1.2 | 0.18 | ND | 0.35 | 0.052 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.64 | 0.079 | ND | 0.14 | 0.017 | |
| 75-27-4 | Bromodichloromethane | ND | 0.63 | 0.092 | ND | 0.094 | 0.014 | |
| 79-01-6 | Trichloroethene | ND | 0.63 | 0.086 | ND | 0.12 | 0.016 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.63 | 0.075 | ND | 0.18 | 0.021 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.3 | 0.23 | ND | 0.32 | 0.055 | |
| 142-82-5 | n-Heptane | **0.45** | 0.64 | 0.10 | **0.11** | 0.16 | 0.025 | **J** |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.67 | 0.099 | ND | 0.15 | 0.022 | |
| 108-10-1 | 4-Methyl-2-pentanone | **0.13** | 0.63 | 0.087 | **0.031** | 0.15 | 0.021 | **J** |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.63 | 0.13 | ND | 0.14 | 0.029 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.64 | 0.064 | ND | 0.12 | 0.012 | |
| 108-88-3 | Toluene | **1.5** | 0.63 | 0.077 | **0.40** | 0.17 | 0.021 | |
| 591-78-6 | 2-Hexanone | **0.60** | 0.64 | 0.079 | **0.15** | 0.16 | 0.019 | **J** |
| 124-48-1 | Dibromochloromethane | ND | 0.64 | 0.083 | ND | 0.075 | 0.0098 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.64 | 0.074 | ND | 0.084 | 0.0096 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.64 | 0.087 | ND | 0.14 | 0.018 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-002**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00304

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.76 Final Pressure (psig): 3.66

Container Dilution Factor: 1.19

| CAS # | Compound | **Result** $\mu g/m^3$ | MRL $\mu g/m^3$ | MDL $\mu g/m^3$ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **2.3** | 0.64 | 0.14 | **0.49** | 0.14 | 0.031 | |
| 127-18-4 | Tetrachloroethene | ND | 0.63 | 0.082 | ND | 0.093 | 0.012 | |
| 108-90-7 | Chlorobenzene | ND | 0.63 | 0.084 | ND | 0.14 | 0.018 | |
| 100-41-4 | Ethylbenzene | **0.13** | 0.62 | 0.089 | **0.031** | 0.14 | 0.021 | J |
| 179601-23-1 | m,p-Xylenes | **0.40** | 1.3 | 0.17 | **0.092** | 0.30 | 0.038 | J |
| 75-25-2 | Bromoform | ND | 0.63 | 0.13 | ND | 0.061 | 0.013 | |
| 100-42-5 | Styrene | ND | 0.63 | 0.10 | ND | 0.15 | 0.024 | |
| 95-47-6 | o-Xylene | **0.13** | 0.63 | 0.092 | **0.031** | 0.15 | 0.021 | J |
| 111-84-2 | n-Nonane | **0.15** | 0.64 | 0.11 | **0.029** | 0.12 | 0.020 | J |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.63 | 0.088 | ND | 0.092 | 0.013 | |
| 98-82-8 | Cumene | ND | 0.63 | 0.092 | ND | 0.13 | 0.019 | |
| 80-56-8 | alpha-Pinene | **2.0** | 0.62 | 0.098 | **0.36** | 0.11 | 0.018 | |
| 103-65-1 | n-Propylbenzene | ND | 0.64 | 0.092 | ND | 0.13 | 0.019 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.63 | 0.10 | ND | 0.13 | 0.021 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.63 | 0.092 | ND | 0.13 | 0.019 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | **0.10** | 0.63 | 0.088 | **0.021** | 0.13 | 0.018 | J |
| 100-44-7 | Benzyl Chloride | ND | 1.3 | 0.14 | ND | 0.25 | 0.028 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.64 | 0.095 | ND | 0.11 | 0.016 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.64 | 0.098 | ND | 0.11 | 0.016 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.64 | 0.094 | ND | 0.11 | 0.016 | |
| 5989-27-5 | d-Limonene | **11** | 0.61 | 0.13 | **1.9** | 0.11 | 0.024 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.62 | 0.12 | ND | 0.064 | 0.012 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.63 | 0.15 | ND | 0.085 | 0.021 | |
| 91-20-3 | Naphthalene | ND | 0.61 | 0.15 | ND | 0.12 | 0.030 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.63 | 0.13 | ND | 0.059 | 0.012 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-002**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-002

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes: T
Container ID: SSC00304

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.76 Final Pressure (psig): 3.66

Container Dilution Factor: 1.19

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 10.21 | Trimethylsilanol | **38** | |
| 16.61 | 2,2,5-Trimethylhexane | **3.4** | |
| 16.68 | 1-Octene | **5.5** | |
| 18.58 | 2,2,4-Trimethylheptane | **5.0** | |
| 18.94 | 3,3-Dimethyloctane | **2.7** | |
| 20.15 | 1-Decene | **3.7** | |
| 20.58 | o-Cymene | **2.7** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-003**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah/Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00316

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7 - 1/8/19
Volume(s) Analyzed: 0.050 Liter(s)
0.0020 Liter(s)

Initial Pressure (psig): 0.55 Final Pressure (psig): 3.58

Container Dilution Factor: 1.20

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 12 | 3.1 | ND | 7.3 | 1.8 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **3.4** | 12 | 2.1 | **0.68** | 2.5 | 0.42 | **J** |
| 74-87-3 | Chloromethane | **2.5** | 12 | 2.1 | **1.2** | 5.8 | 1.0 | **J** |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 12 | 2.0 | ND | 1.8 | 0.29 | |
| 75-01-4 | Vinyl Chloride | ND | 13 | 1.4 | ND | 5.0 | 0.54 | |
| 106-99-0 | 1,3-Butadiene | ND | 12 | 2.1 | ND | 5.6 | 0.96 | |
| 74-83-9 | Bromomethane | ND | 12 | 1.8 | ND | 3.1 | 0.46 | |
| 75-00-3 | Chloroethane | ND | 12 | 1.6 | ND | 4.6 | 0.60 | |
| 64-17-5 | Ethanol | **75,000** | 3,100 | 220 | **40,000** | 1,600 | 120 | **D** |
| 75-05-8 | Acetonitrile | ND | 12 | 3.1 | ND | 7.4 | 1.9 | |
| 107-02-8 | Acrolein | ND | 24 | 3.6 | ND | 10 | 1.6 | |
| 67-64-1 | Acetone | ND | 130 | 29 | ND | 55 | 12 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 4.9 | 13 | 1.9 | **0.88** | 2.3 | 0.35 | **J** |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 50 | 5.3 | ND | 21 | 2.1 | |
| 107-13-1 | Acrylonitrile | ND | 12 | 2.6 | ND | 5.8 | 1.2 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 13 | 1.8 | ND | 3.3 | 0.45 | |
| 75-09-2 | Methylene Chloride | **9,100** | 320 | 90 | **2,600** | 93 | 26 | **D** |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 13 | 1.7 | ND | 4.1 | 0.55 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 13 | 1.8 | ND | 1.7 | 0.24 | |
| 75-15-0 | Carbon Disulfide | **13** | 26 | 3.8 | **4.2** | 8.5 | 1.2 | **J** |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 13 | 1.8 | ND | 3.2 | 0.45 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 12 | 1.9 | ND | 3.1 | 0.46 | |
| 1634-04-4 | Methyl tert-Butyl Ether | **12** | 13 | 1.5 | **3.3** | 3.6 | 0.42 | **J** |
| 108-05-4 | Vinyl Acetate | ND | 130 | 29 | ND | 36 | 8.2 | |
| 78-93-3 | 2-Butanone (MEK) | **310** | 24 | 2.6 | **100** | 8.1 | 0.90 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121118-BPS-003**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah/Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00316

Date Collected: 12/11/18
Date Received: 12/17/18
Date Analyzed: 1/7 - 1/8/19
Volume(s) Analyzed: 0.050 Liter(s)
0.0020 Liter(s)

Initial Pressure (psig): 0.55 Final Pressure (psig): 3.58

Container Dilution Factor: 1.20

| **CAS #** | **Compound** | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 13 | 1.8 | ND | 3.2 | 0.45 | |
| 141-78-6 | Ethyl Acetate | **4,800** | 26 | 6.7 | **1,300** | 7.3 | 1.9 | |
| 110-54-3 | n-Hexane | **81** | 13 | 2.6 | **23** | 3.7 | 0.75 | |
| 67-66-3 | Chloroform | **26** | 13 | 1.7 | **5.3** | 2.7 | 0.35 | |
| 109-99-9 | Tetrahydrofuran (THF) | **37** | 13 | 1.6 | **12** | 4.3 | 0.55 | |
| 107-06-2 | 1,2-Dichloroethane | **24** | 13 | 1.4 | **6.0** | 3.1 | 0.35 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 13 | 1.6 | ND | 2.4 | 0.29 | |
| 71-43-2 | Benzene | **3.2** | 12 | 1.8 | **1.0** | 3.9 | 0.58 | **J** |
| 56-23-5 | Carbon Tetrachloride | **29** | 12 | 1.8 | **4.5** | 2.0 | 0.28 | |
| 110-82-7 | Cyclohexane | **84** | 24 | 3.6 | **24** | 7.0 | 1.0 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 13 | 1.6 | ND | 2.8 | 0.34 | |
| 75-27-4 | Bromodichloromethane | ND | 13 | 1.8 | ND | 1.9 | 0.28 | |
| 79-01-6 | Trichloroethene | ND | 13 | 1.7 | ND | 2.4 | 0.32 | |
| 123-91-1 | 1,4-Dioxane | ND | 13 | 1.5 | ND | 3.5 | 0.42 | |
| 80-62-6 | Methyl Methacrylate | **8.1** | 26 | 4.6 | **2.0** | 6.4 | 1.1 | **J** |
| 142-82-5 | n-Heptane | **320** | 13 | 2.0 | 79 | 3.2 | 0.50 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 13 | 2.0 | ND | 3.0 | 0.44 | |
| 108-10-1 | 4-Methyl-2-pentanone | **46** | 13 | 1.8 | **11** | 3.1 | 0.43 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 13 | 2.6 | ND | 2.8 | 0.58 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 13 | 1.3 | ND | 2.4 | 0.24 | |
| 108-88-3 | Toluene | **1,200** | 13 | 1.6 | **320** | 3.4 | 0.41 | |
| 591-78-6 | 2-Hexanone | ND | 13 | 1.6 | ND | 3.2 | 0.39 | |
| 124-48-1 | Dibromochloromethane | ND | 13 | 1.7 | ND | 1.5 | 0.20 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 13 | 1.5 | ND | 1.7 | 0.19 | |
| 123-86-4 | n-Butyl Acetate | **93** | 13 | 1.8 | **19** | 2.7 | 0.37 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-121118-BPS-003** | ALS Project ID: | P1806928 |
| **Client Project ID:** | **High Acres Waste Evaluation / 089290-1817** | ALS Sample ID: | P1806928-003 |

| | | | |
|---|---|---|---|
| Test Code: | EPA TO-15 | Date Collected: | 12/11/18 |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | 12/17/18 |
| Analyst: | Raneem Sahtah/Anusha Bayyarapu | Date Analyzed: | 1/7 - 1/8/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.050 Liter(s) |
| Test Notes: | | | 0.0020 Liter(s) |
| Container ID: | SSC00316 | | |

Initial Pressure (psig): 0.55 Final Pressure (psig): 3.58

Container Dilution Factor: 1.20

| CAS # | Compound | **Result µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **90** | 13 | 2.9 | **19** | 2.8 | 0.62 | |
| 127-18-4 | Tetrachloroethene | **18** | 13 | 1.7 | **2.6** | 1.9 | 0.24 | |
| 108-90-7 | Chlorobenzene | ND | 13 | 1.7 | ND | 2.8 | 0.37 | |
| 100-41-4 | Ethylbenzene | **80** | 12 | 1.8 | **18** | 2.9 | 0.41 | |
| 179601-23-1 | m,p-Xylenes | **200** | 26 | 3.4 | **45** | 6.1 | 0.77 | |
| 75-25-2 | Bromoform | ND | 13 | 2.6 | ND | 1.2 | 0.26 | |
| 100-42-5 | Styrene | **80** | 13 | 2.1 | **19** | 3.0 | 0.48 | |
| 95-47-6 | o-Xylene | **77** | 13 | 1.8 | **18** | 2.9 | 0.43 | |
| 111-84-2 | n-Nonane | **170** | 13 | 2.1 | **33** | 2.5 | 0.41 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 13 | 1.8 | ND | 1.9 | 0.26 | |
| 98-82-8 | Cumene | **4.1** | 13 | 1.8 | **0.84** | 2.6 | 0.38 | **J** |
| 80-56-8 | alpha-Pinene | **300** | 12 | 2.0 | **53** | 2.2 | 0.35 | |
| 103-65-1 | n-Propylbenzene | **4.7** | 13 | 1.8 | **0.96** | 2.6 | 0.38 | **J** |
| 622-96-8 | 4-Ethyltoluene | **4.7** | 13 | 2.0 | **0.96** | 2.6 | 0.42 | **J** |
| 108-67-8 | 1,3,5-Trimethylbenzene | **4.7** | 13 | 1.8 | **0.96** | 2.6 | 0.38 | **J** |
| 95-63-6 | 1,2,4-Trimethylbenzene | **10** | 13 | 1.8 | **2.1** | 2.6 | 0.36 | **J** |
| 100-44-7 | Benzyl Chloride | ND | 26 | 2.9 | ND | 5.1 | 0.56 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 13 | 1.9 | ND | 2.2 | 0.32 | |
| 106-46-7 | 1,4-Dichlorobenzene | **75** | 13 | 2.0 | **13** | 2.2 | 0.33 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 13 | 1.9 | ND | 2.2 | 0.32 | |
| 5989-27-5 | d-Limonene | **2,700** | 310 | 66 | **480** | 55 | 12 | **D** |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 12 | 2.4 | ND | 1.3 | 0.25 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 13 | 3.1 | ND | 1.7 | 0.42 | |
| 91-20-3 | Naphthalene | ND | 12 | 3.1 | ND | 2.3 | 0.60 | |
| 87-68-3 | Hexachlorobutadiene | ND | 13 | 2.6 | ND | 1.2 | 0.25 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**

**Client Sample ID:** **WM-089290-121118-BPS-003**

**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928

ALS Sample ID: P1806928-003

## Tentatively Identified Compounds

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah/Anusha Bayyarapu

Sample Type: 6.0 L Silonite Canister

Test Notes: T

Container ID: SSC00316

Date Collected: 12/11/18

Date Received: 12/17/18

Date Analyzed: 1/7 - 1/8/19

Volume(s) Analyzed: 0.050 Liter(s)
0.0020 Liter(s)

Initial Pressure (psig): 0.55 Final Pressure (psig): 3.58

Container Dilution Factor: 1.20

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 3.84 | Pentafluoroethane | **90** | |
| 3.97 | Norflurane | **170** | |
| 4.09 | 1,1-Difluoroethane | **580** | |
| 4.26 | Propane | **1,800** | |
| 4.61 | Dimethyl Ether | **650** | |
| 4.91 | Isobutane | **13,000** | |
| 5.23 | unknown hydrocarbon | **70** | |
| 5.46 | n-Butane | **5,900** | |
| 5.71 | Neopentane | **66** | |
| 7.18 | 2-Methylbutane | **7,500** | |
| 7.98 | n-Pentane | **3,400** | |
| 8.73 | 1,3-Pentadiene | **90** | |
| 11.93 | Isobutanol | **180** | |
| 13.76 | 3-Methylhexane | **120** | |
| 14.09 | Hexamethyldisiloxane | **180** | |
| 14.16 | 2,2,3,3-Tetramethylbutane | **130** | |
| 15.08 | Methylcyclohexane | **190** | |
| 20.15 | beta-Pinene | **180** | |
| 20.29 | n-Decane | **130** | |
| 20.99 | .gamma.-Terpinene | **130** | |

T = Analyte is a tentatively identified compound, result is estimated.

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-004**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00354

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.61 Final Pressure (psig): 4.05

Container Dilution Factor: 1.22

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **29** | 3.2 | 0.79 | **17** | 1.8 | 0.46 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **1.9** | 3.2 | 0.53 | **0.38** | 0.64 | 0.11 | **J** |
| 74-87-3 | Chloromethane | **10** | 3.1 | 0.52 | **4.8** | 1.5 | 0.25 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 3.1 | 0.51 | ND | 0.45 | 0.073 | |
| 75-01-4 | Vinyl Chloride | ND | 3.2 | 0.35 | ND | 1.3 | 0.14 | |
| 106-99-0 | 1,3-Butadiene | ND | 3.2 | 0.54 | ND | 1.4 | 0.24 | |
| 74-83-9 | Bromomethane | ND | 3.1 | 0.45 | ND | 0.79 | 0.12 | |
| 75-00-3 | Chloroethane | ND | 3.1 | 0.40 | ND | 1.2 | 0.15 | |
| 64-17-5 | Ethanol | **28,000** | 310 | 23 | **15,000** | 170 | 12 | **D** |
| 75-05-8 | Acetonitrile | ND | 3.2 | 0.79 | ND | 1.9 | 0.47 | |
| 107-02-8 | Acrolein | **7.5** | 6.1 | 0.92 | **3.3** | 2.7 | 0.40 | |
| 67-64-1 | Acetone | **340** | 33 | 7.3 | **140** | 14 | 3.1 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **0.99** | 3.2 | 0.49 | **0.18** | 0.58 | 0.088 | **J** |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 13 | 1.3 | ND | 5.2 | 0.55 | |
| 107-13-1 | Acrylonitrile | ND | 3.2 | 0.67 | ND | 1.5 | 0.31 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 3.3 | 0.45 | ND | 0.83 | 0.11 | |
| 75-09-2 | Methylene Chloride | ND | 3.3 | 0.92 | ND | 0.95 | 0.26 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 3.2 | 0.44 | ND | 1.0 | 0.14 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 3.2 | 0.46 | ND | 0.42 | 0.061 | |
| 75-15-0 | Carbon Disulfide | **18** | 6.7 | 0.98 | **5.8** | 2.2 | 0.31 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 3.2 | 0.45 | ND | 0.82 | 0.11 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 3.2 | 0.48 | ND | 0.78 | 0.12 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 3.3 | 0.38 | ND | 0.91 | 0.11 | |
| 108-05-4 | Vinyl Acetate | **130** | 32 | 7.3 | **37** | 9.2 | 2.1 | |
| 78-93-3 | 2-Butanone (MEK) | **16** | 6.1 | 0.67 | **5.6** | 2.1 | 0.23 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-004**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00354

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.61 Final Pressure (psig): 4.05

Container Dilution Factor: 1.22

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 3.2 | 0.46 | ND | 0.82 | 0.12 | |
| 141-78-6 | Ethyl Acetate | **2,000** | 67 | 17 | **570** | 19 | 4.7 | D |
| 110-54-3 | n-Hexane | ND | 3.3 | 0.67 | ND | 0.93 | 0.19 | |
| 67-66-3 | Chloroform | **4.3** | 3.3 | 0.43 | **0.87** | 0.67 | 0.089 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 3.2 | 0.41 | ND | 1.1 | 0.14 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 3.2 | 0.36 | ND | 0.80 | 0.089 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 3.3 | 0.40 | ND | 0.60 | 0.074 | |
| 71-43-2 | Benzene | **2.0** | 3.2 | 0.47 | **0.63** | 0.99 | 0.15 | J |
| 56-23-5 | Carbon Tetrachloride | ND | 3.2 | 0.45 | ND | 0.50 | 0.072 | |
| 110-82-7 | Cyclohexane | ND | 6.1 | 0.92 | ND | 1.8 | 0.27 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 3.3 | 0.40 | ND | 0.71 | 0.087 | |
| 75-27-4 | Bromodichloromethane | **0.52** | 3.2 | 0.47 | **0.078** | 0.48 | 0.070 | J |
| 79-01-6 | Trichloroethene | ND | 3.2 | 0.44 | ND | 0.60 | 0.082 | |
| 123-91-1 | 1,4-Dioxane | ND | 3.2 | 0.38 | ND | 0.90 | 0.11 | |
| 80-62-6 | Methyl Methacrylate | ND | 6.7 | 1.2 | ND | 1.6 | 0.28 | |
| 142-82-5 | n-Heptane | **2.5** | 3.3 | 0.52 | **0.60** | 0.80 | 0.13 | J |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 3.4 | 0.51 | ND | 0.75 | 0.11 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 3.2 | 0.45 | ND | 0.79 | 0.11 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 3.2 | 0.67 | ND | 0.71 | 0.15 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 3.3 | 0.33 | ND | 0.60 | 0.060 | |
| 108-88-3 | Toluene | **3.9** | 3.2 | 0.40 | **1.0** | 0.86 | 0.11 | |
| 591-78-6 | 2-Hexanone | **0.74** | 3.3 | 0.40 | **0.18** | 0.80 | 0.098 | J |
| 124-48-1 | Dibromochloromethane | ND | 3.3 | 0.43 | ND | 0.39 | 0.050 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 3.3 | 0.38 | ND | 0.43 | 0.049 | |
| 123-86-4 | n-Butyl Acetate | **60** | 3.3 | 0.45 | **13** | 0.69 | 0.094 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-004**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00354

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.61 Final Pressure (psig): 4.05

Container Dilution Factor: 1.22

| CAS # | Compound | **Result µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **13** | 3.3 | 0.73 | **2.8** | 0.71 | 0.16 | |
| 127-18-4 | Tetrachloroethene | ND | 3.2 | 0.42 | ND | 0.48 | 0.062 | |
| 108-90-7 | Chlorobenzene | ND | 3.2 | 0.43 | ND | 0.70 | 0.094 | |
| 100-41-4 | Ethylbenzene | ND | 3.2 | 0.46 | ND | 0.73 | 0.11 | |
| 179601-23-1 | m,p-Xylenes | **1.0** | 6.7 | 0.85 | **0.24** | 1.5 | 0.20 | J |
| 75-25-2 | Bromoform | ND | 3.2 | 0.67 | ND | 0.31 | 0.065 | |
| 100-42-5 | Styrene | ND | 3.2 | 0.52 | ND | 0.76 | 0.12 | |
| 95-47-6 | o-Xylene | ND | 3.2 | 0.47 | ND | 0.74 | 0.11 | |
| 111-84-2 | n-Nonane | **2.2** | 3.3 | 0.54 | **0.42** | 0.63 | 0.10 | J |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 3.2 | 0.45 | ND | 0.47 | 0.066 | |
| 98-82-8 | Cumene | ND | 3.2 | 0.47 | ND | 0.66 | 0.096 | |
| 80-56-8 | alpha-Pinene | **28** | 3.2 | 0.50 | **5.0** | 0.57 | 0.090 | |
| 103-65-1 | n-Propylbenzene | ND | 3.3 | 0.47 | ND | 0.67 | 0.096 | |
| 622-96-8 | 4-Ethyltoluene | ND | 3.2 | 0.52 | ND | 0.66 | 0.11 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 3.2 | 0.47 | ND | 0.66 | 0.096 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 3.2 | 0.45 | ND | 0.66 | 0.092 | |
| 100-44-7 | Benzyl Chloride | ND | 6.7 | 0.73 | ND | 1.3 | 0.14 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 3.3 | 0.49 | ND | 0.55 | 0.081 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 3.3 | 0.50 | ND | 0.55 | 0.083 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 3.3 | 0.48 | ND | 0.55 | 0.080 | |
| 5989-27-5 | d-Limonene | **220** | 3.1 | 0.67 | **39** | 0.56 | 0.12 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 3.2 | 0.61 | ND | 0.33 | 0.063 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 3.2 | 0.79 | ND | 0.44 | 0.11 | |
| 91-20-3 | Naphthalene | ND | 3.1 | 0.79 | ND | 0.59 | 0.15 | |
| 87-68-3 | Hexachlorobutadiene | ND | 3.2 | 0.67 | ND | 0.30 | 0.063 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-004**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-004

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes: **T**
Container ID: SSC00354

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.61 Final Pressure (psig): 4.05

Container Dilution Factor: 1.22

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.18 | unknown | **50** | |
| 4.93 | Acetaldehyde | **350** | |
| 5.41 | n-Butane | **11** | |
| 7.95 | n-Pentane | **54** | |
| 8.25 | Dimethyl Sulfide | **250** | |
| 8.57 | Methyl Acetate | **83** | |
| 8.72 | 1,3-Pentadiene | **15** | |
| 9.37 | 2-Methylpropanal | **42** | |
| 9.72 | 1-Propanol | **21** | |
| 11.93 | Isobutanol | **60** | |
| 12.51 | 3-Methylbutanal | **24** | |
| 12.84 | 2-Methylbutanal | **17** | |
| 13.46 | 2-Pentanone | **46** | |
| 14.94 | 3-Methyl-1-butanol | **31** | |
| 15.20 | Dimethyl disulfide | **26** | |
| 16.82 | n-Butyl Acetate | **24** | |
| 17.64 | Acetate-2-pentanol | **46** | |
| 18.13 | 3-Methyl-, Acetate-1-butanol | **52** | |
| 19.46 | 2-Methylpropyl Esterbutanoic Acid | **15** | |
| 20.53 | 3-Carene | **17** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-005**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah/Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00302

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7 - 1/8/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.65 Final Pressure (psig): 3.49

Container Dilution Factor: 1.19

| CAS # | Compound | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **8.5** | 3.1 | 0.77 | **5.0** | 1.8 | 0.45 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **6.8** | 3.1 | 0.52 | **1.4** | 0.63 | 0.10 | |
| 74-87-3 | Chloromethane | **52** | 3.0 | 0.51 | **25** | 1.4 | 0.25 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 3.0 | 0.50 | ND | 0.43 | 0.072 | |
| 75-01-4 | Vinyl Chloride | ND | 3.2 | 0.34 | ND | 1.2 | 0.13 | |
| 106-99-0 | 1,3-Butadiene | ND | 3.1 | 0.52 | ND | 1.4 | 0.24 | |
| 74-83-9 | Bromomethane | ND | 3.0 | 0.44 | ND | 0.77 | 0.11 | |
| 75-00-3 | Chloroethane | **79** | 3.0 | 0.39 | **30** | 1.2 | 0.15 | |
| 64-17-5 | Ethanol | **5,100** | 300 | 22 | **2,700** | 160 | 12 | **D** |
| 75-05-8 | Acetonitrile | **28** | 3.1 | 0.77 | **17** | 1.8 | 0.46 | |
| 107-02-8 | Acrolein | **7.5** | 6.0 | 0.89 | **3.3** | 2.6 | 0.39 | |
| 67-64-1 | Acetone | **9,800** | 320 | 71 | **4,100** | 140 | 30 | **D** |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **6.4** | 3.2 | 0.48 | **1.1** | 0.56 | 0.086 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **200** | 12 | 1.3 | **81** | 5.1 | 0.53 | |
| 107-13-1 | Acrylonitrile | ND | 3.1 | 0.65 | ND | 1.4 | 0.30 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 3.2 | 0.44 | ND | 0.81 | 0.11 | |
| 75-09-2 | Methylene Chloride | **21** | 3.2 | 0.89 | **5.9** | 0.93 | 0.26 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 3.2 | 0.43 | ND | 1.0 | 0.14 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | **0.64** | 3.2 | 0.45 | **0.084** | 0.41 | 0.059 | **J** |
| 75-15-0 | Carbon Disulfide | **14** | 6.5 | 0.95 | **4.4** | 2.1 | 0.31 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 3.2 | 0.44 | ND | 0.80 | 0.11 | |
| 75-34-3 | 1,1-Dichloroethane | **1.8** | 3.1 | 0.46 | **0.45** | 0.76 | 0.11 | **J** |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 3.2 | 0.37 | ND | 0.89 | 0.10 | |
| 108-05-4 | Vinyl Acetate | 60 | 32 | 7.1 | 17 | 9.0 | 2.0 | |
| 78-93-3 | 2-Butanone (MEK) | **4,300** | 60 | 6.5 | **1,500** | 20 | 2.2 | **D** |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-005**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah/Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00302

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7 - 1/8/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.65 Final Pressure (psig): 3.49

Container Dilution Factor: 1.19

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 3.2 | 0.45 | ND | 0.80 | 0.11 | |
| 141-78-6 | Ethyl Acetate | **150** | 6.5 | 1.7 | 40 | 1.8 | 0.46 | |
| 110-54-3 | n-Hexane | **6.8** | 3.2 | 0.65 | **1.9** | 0.91 | 0.19 | |
| 67-66-3 | Chloroform | **130** | 3.2 | 0.42 | **26** | 0.66 | 0.087 | |
| 109-99-9 | Tetrahydrofuran (THF) | **6.2** | 3.2 | 0.40 | **2.1** | 1.1 | 0.14 | |
| 107-06-2 | 1,2-Dichloroethane | **1.4** | 3.2 | 0.35 | **0.35** | 0.78 | 0.087 | J |
| 71-55-6 | 1,1,1-Trichloroethane | **4.9** | 3.2 | 0.39 | **0.90** | 0.59 | 0.072 | |
| 71-43-2 | Benzene | **1.3** | 3.1 | 0.46 | **0.40** | 0.97 | 0.14 | J |
| 56-23-5 | Carbon Tetrachloride | **3.7** | 3.1 | 0.44 | **0.59** | 0.49 | 0.070 | |
| 110-82-7 | Cyclohexane | **3.3** | 6.0 | 0.89 | **0.96** | 1.7 | 0.26 | J |
| 78-87-5 | 1,2-Dichloropropane | **2.6** | 3.2 | 0.39 | **0.56** | 0.70 | 0.085 | J |
| 75-27-4 | Bromodichloromethane | **0.95** | 3.2 | 0.46 | **0.14** | 0.47 | 0.068 | J |
| 79-01-6 | Trichloroethene | **3.4** | 3.2 | 0.43 | **0.63** | 0.59 | 0.080 | |
| 123-91-1 | 1,4-Dioxane | ND | 3.2 | 0.37 | ND | 0.88 | 0.10 | |
| 80-62-6 | Methyl Methacrylate | **2.8** | 6.5 | 1.1 | **0.69** | 1.6 | 0.28 | J |
| 142-82-5 | n-Heptane | **14** | 3.2 | 0.51 | **3.4** | 0.78 | 0.12 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 3.3 | 0.49 | ND | 0.73 | 0.11 | |
| 108-10-1 | 4-Methyl-2-pentanone | **6.0** | 3.2 | 0.43 | **1.5** | 0.77 | 0.11 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 3.2 | 0.65 | ND | 0.69 | 0.14 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 3.2 | 0.32 | ND | 0.59 | 0.059 | |
| 108-88-3 | Toluene | **190** | 3.2 | 0.39 | **51** | 0.84 | 0.10 | |
| 591-78-6 | 2-Hexanone | **3.5** | 3.2 | 0.39 | **0.85** | 0.78 | 0.096 | |
| 124-48-1 | Dibromochloromethane | ND | 3.2 | 0.42 | ND | 0.38 | 0.049 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 3.2 | 0.37 | ND | 0.42 | 0.048 | |
| 123-86-4 | n-Butyl Acetate | **19** | 3.2 | 0.43 | **4.1** | 0.68 | 0.091 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-005**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah/Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00302

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7 - 1/8/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.65 Final Pressure (psig): 3.49

Container Dilution Factor: 1.19

| CAS # | Compound | Result µg/m$^3$ | MRL µg/m$^3$ | MDL µg/m$^3$ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 7.5 | 3.2 | 0.71 | 1.6 | 0.69 | 0.15 | |
| 127-18-4 | Tetrachloroethene | 6.3 | 3.2 | 0.41 | 0.93 | 0.47 | 0.061 | |
| 108-90-7 | Chlorobenzene | ND | 3.2 | 0.42 | ND | 0.69 | 0.092 | |
| 100-41-4 | Ethylbenzene | 5.1 | 3.1 | 0.45 | 1.2 | 0.71 | 0.10 | |
| 179601-23-1 | m,p-Xylenes | 15 | 6.5 | 0.83 | 3.4 | 1.5 | 0.19 | |
| 75-25-2 | Bromoform | ND | 3.2 | 0.65 | ND | 0.31 | 0.063 | |
| 100-42-5 | Styrene | 3.3 | 3.2 | 0.51 | 0.77 | 0.74 | 0.12 | |
| 95-47-6 | o-Xylene | 4.7 | 3.2 | 0.46 | 1.1 | 0.73 | 0.11 | |
| 111-84-2 | n-Nonane | 14 | 3.2 | 0.53 | 2.6 | 0.61 | 0.10 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 3.2 | 0.44 | ND | 0.46 | 0.064 | |
| 98-82-8 | Cumene | ND | 3.2 | 0.46 | ND | 0.64 | 0.093 | |
| 80-56-8 | alpha-Pinene | 23 | 3.1 | 0.49 | 4.1 | 0.56 | 0.088 | |
| 103-65-1 | n-Propylbenzene | 1.0 | 3.2 | 0.46 | 0.21 | 0.65 | 0.093 | J |
| 622-96-8 | 4-Ethyltoluene | 1.3 | 3.2 | 0.51 | 0.26 | 0.64 | 0.10 | J |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1.7 | 3.2 | 0.46 | 0.34 | 0.64 | 0.093 | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | 4.0 | 3.2 | 0.44 | 0.81 | 0.64 | 0.090 | |
| 100-44-7 | Benzyl Chloride | 7.6 | 6.5 | 0.71 | 1.5 | 1.3 | 0.14 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 3.2 | 0.48 | ND | 0.53 | 0.079 | |
| 106-46-7 | 1,4-Dichlorobenzene | 2.5 | 3.2 | 0.49 | 0.42 | 0.53 | 0.081 | J |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 3.2 | 0.47 | ND | 0.53 | 0.078 | |
| 5989-27-5 | d-Limonene | 290 | 3.0 | 0.65 | 52 | 0.54 | 0.12 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 3.1 | 0.60 | ND | 0.32 | 0.062 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 3.2 | 0.77 | ND | 0.42 | 0.10 | |
| 91-20-3 | Naphthalene | ND | 3.0 | 0.77 | ND | 0.58 | 0.15 | |
| 87-68-3 | Hexachlorobutadiene | ND | 3.2 | 0.65 | ND | 0.30 | 0.061 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-005**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-005

### Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah/Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes: T
Container ID: SSC00302

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7 - 1/8/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.65 Final Pressure (psig): 3.49

Container Dilution Factor: 1.19

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 3.91 | unknown | **16** | |
| 3.97 | Norflurane | **71** | |
| 4.08 | 1,1-Difluoroethane | **230** | |
| 4.24 | Propane | **530** | |
| 4.90 | Isobutane | **1,600** | |
| 5.45 | n-Butane | **1,100** | |
| 5.70 | Neopentane | **17** | |
| 6.11 | Chloroethane | **20** | |
| 7.97 | n-Pentane | **230** | |
| 8.25 | Dimethyl Sulfide | **96** | |
| 9.19 | n-Propyl chloride | **36** | |
| 9.67 | 1-Propanol | **49** | |
| 10.32 | 2,3-Butanedione | **31** | |
| 11.02 | 2-Butanol | **92** | |
| 13.46 | 2-Pentanone | **37** | |
| 13.75 | 3-Methylhexane | **19** | |
| 20.15 | beta-Pinene | **19** | |
| 20.29 | n-Decane | **21** | |
| 20.58 | o-Cymene | **18** | |
| 21.86 | unknown siloxane | **13** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-006**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00070

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.20 Liter(s)

Initial Pressure (psig): 0.21 Final Pressure (psig): 3.65

Container Dilution Factor: 1.23

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **11** | 3.2 | 0.80 | **6.6** | 1.9 | 0.46 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **1.9** | 3.2 | 0.54 | **0.38** | 0.65 | 0.11 | J |
| 74-87-3 | Chloromethane | **0.85** | 3.1 | 0.53 | **0.41** | 1.5 | 0.26 | J |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 3.1 | 0.52 | ND | 0.45 | 0.074 | |
| 75-01-4 | Vinyl Chloride | ND | 3.3 | 0.35 | ND | 1.3 | 0.14 | |
| 106-99-0 | 1,3-Butadiene | ND | 3.2 | 0.54 | ND | 1.4 | 0.24 | |
| 74-83-9 | Bromomethane | ND | 3.1 | 0.46 | ND | 0.79 | 0.12 | |
| 75-00-3 | Chloroethane | ND | 3.1 | 0.41 | ND | 1.2 | 0.15 | |
| 64-17-5 | Ethanol | **110** | 31 | 2.3 | **59** | 17 | 1.2 | |
| 75-05-8 | Acetonitrile | **8.6** | 3.2 | 0.80 | **5.1** | 1.9 | 0.48 | |
| 107-02-8 | Acrolein | ND | 6.2 | 0.92 | ND | 2.7 | 0.40 | |
| 67-64-1 | Acetone | **490** | 33 | 7.4 | **200** | 14 | 3.1 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **1.1** | 3.3 | 0.50 | **0.19** | 0.58 | 0.089 | J |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **550** | 13 | 1.4 | **220** | 5.3 | 0.55 | |
| 107-13-1 | Acrylonitrile | ND | 3.2 | 0.68 | ND | 1.5 | 0.31 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 3.3 | 0.46 | ND | 0.84 | 0.11 | |
| 75-09-2 | Methylene Chloride | ND | 3.3 | 0.92 | ND | 0.96 | 0.27 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 3.3 | 0.44 | ND | 1.0 | 0.14 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 3.3 | 0.47 | ND | 0.43 | 0.061 | |
| 75-15-0 | Carbon Disulfide | **3.5** | 6.8 | 0.98 | **1.1** | 2.2 | 0.32 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 3.3 | 0.46 | ND | 0.82 | 0.11 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 3.2 | 0.48 | ND | 0.79 | 0.12 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 3.3 | 0.39 | ND | 0.92 | 0.11 | |
| 108-05-4 | Vinyl Acetate | ND | 33 | 7.4 | ND | 9.3 | 2.1 | |
| 78-93-3 | 2-Butanone (MEK) | **150** | 6.2 | 0.68 | **51** | 2.1 | 0.23 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

## ALS ENVIRONMENTAL

### RESULTS OF ANALYSIS

Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-006**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00070

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.20 Liter(s)

Initial Pressure (psig): 0.21 Final Pressure (psig): 3.65

Container Dilution Factor: 1.23

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 3.3 | 0.46 | ND | 0.82 | 0.12 | |
| 141-78-6 | Ethyl Acetate | **8.2** | 6.8 | 1.7 | **2.3** | 1.9 | 0.48 | |
| 110-54-3 | n-Hexane | **1.1** | 3.3 | 0.68 | **0.30** | 0.94 | 0.19 | J |
| 67-66-3 | Chloroform | ND | 3.3 | 0.44 | ND | 0.68 | 0.089 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 3.3 | 0.41 | ND | 1.1 | 0.14 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 3.3 | 0.36 | ND | 0.81 | 0.090 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 3.3 | 0.41 | ND | 0.61 | 0.074 | |
| 71-43-2 | Benzene | **0.85** | 3.2 | 0.47 | **0.27** | 1.0 | 0.15 | J |
| 56-23-5 | Carbon Tetrachloride | ND | 3.2 | 0.46 | ND | 0.51 | 0.072 | |
| 110-82-7 | Cyclohexane | ND | 6.2 | 0.92 | ND | 1.8 | 0.27 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 3.3 | 0.41 | ND | 0.72 | 0.088 | |
| 75-27-4 | Bromodichloromethane | ND | 3.3 | 0.47 | ND | 0.49 | 0.071 | |
| 79-01-6 | Trichloroethene | ND | 3.3 | 0.44 | ND | 0.61 | 0.082 | |
| 123-91-1 | 1,4-Dioxane | ND | 3.3 | 0.39 | ND | 0.90 | 0.11 | |
| 80-62-6 | Methyl Methacrylate | ND | 6.8 | 1.2 | ND | 1.7 | 0.29 | |
| 142-82-5 | n-Heptane | **1.7** | 3.3 | 0.52 | **0.42** | 0.81 | 0.13 | J |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 3.4 | 0.51 | ND | 0.76 | 0.11 | |
| 108-10-1 | 4-Methyl-2-pentanone | **3.1** | 3.3 | 0.45 | **0.76** | 0.80 | 0.11 | J |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 3.3 | 0.68 | ND | 0.72 | 0.15 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 3.3 | 0.33 | ND | 0.61 | 0.061 | |
| 108-88-3 | Toluene | **12** | 3.3 | 0.40 | **3.1** | 0.87 | 0.11 | |
| 591-78-6 | 2-Hexanone | **9.0** | 3.3 | 0.41 | **2.2** | 0.81 | 0.099 | |
| 124-48-1 | Dibromochloromethane | ND | 3.3 | 0.43 | ND | 0.39 | 0.051 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 3.3 | 0.38 | ND | 0.43 | 0.050 | |
| 123-86-4 | n-Butyl Acetate | ND | 3.3 | 0.45 | ND | 0.70 | 0.095 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121218-BPS-006**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00070

Date Collected: 12/12/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.20 Liter(s)

Initial Pressure (psig): 0.21 Final Pressure (psig): 3.65

Container Dilution Factor: 1.23

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **5.6** | 3.3 | 0.74 | **1.2** | 0.71 | 0.16 | |
| 127-18-4 | Tetrachloroethene | ND | 3.3 | 0.42 | ND | 0.48 | 0.063 | |
| 108-90-7 | Chlorobenzene | ND | 3.3 | 0.44 | ND | 0.71 | 0.095 | |
| 100-41-4 | Ethylbenzene | **0.52** | 3.2 | 0.46 | **0.12** | 0.74 | 0.11 | **J** |
| 179601-23-1 | m,p-Xylenes | ND | 6.8 | 0.86 | ND | 1.6 | 0.20 | |
| 75-25-2 | Bromoform | ND | 3.3 | 0.68 | ND | 0.32 | 0.065 | |
| 100-42-5 | Styrene | **0.90** | 3.3 | 0.53 | **0.21** | 0.77 | 0.12 | **J** |
| 95-47-6 | o-Xylene | ND | 3.3 | 0.47 | ND | 0.75 | 0.11 | |
| 111-84-2 | n-Nonane | ND | 3.3 | 0.55 | ND | 0.63 | 0.10 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 3.3 | 0.46 | ND | 0.47 | 0.066 | |
| 98-82-8 | Cumene | ND | 3.3 | 0.47 | ND | 0.66 | 0.096 | |
| 80-56-8 | alpha-Pinene | **17** | 3.2 | 0.50 | **3.1** | 0.57 | 0.091 | |
| 103-65-1 | n-Propylbenzene | ND | 3.3 | 0.47 | ND | 0.68 | 0.096 | |
| 622-96-8 | 4-Ethyltoluene | ND | 3.3 | 0.52 | ND | 0.66 | 0.11 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 3.3 | 0.47 | ND | 0.66 | 0.096 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 3.3 | 0.46 | ND | 0.66 | 0.093 | |
| 100-44-7 | Benzyl Chloride | ND | 6.8 | 0.74 | ND | 1.3 | 0.14 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 3.3 | 0.49 | ND | 0.55 | 0.082 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 3.3 | 0.50 | ND | 0.55 | 0.084 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 3.3 | 0.49 | ND | 0.55 | 0.081 | |
| 5989-27-5 | d-Limonene | **320** | 3.1 | 0.68 | **57** | 0.56 | 0.12 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 3.2 | 0.62 | ND | 0.33 | 0.064 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 3.3 | 0.80 | ND | 0.44 | 0.11 | |
| 91-20-3 | Naphthalene | ND | 3.1 | 0.80 | ND | 0.60 | 0.15 | |
| 87-68-3 | Hexachlorobutadiene | ND | 3.3 | 0.68 | ND | 0.31 | 0.063 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**

**Client Sample ID:** **WM-089290-121218-BPS-006**

**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928

ALS Sample ID: P1806928-006

### Tentatively Identified Compounds

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Anusha Bayyarapu

Sample Type: 6.0 L Silonite Canister

Test Notes: T

Container ID: SSC00070

Date Collected: 12/12/18

Date Received: 12/17/18

Date Analyzed: 1/7/19

Volume(s) Analyzed: 0.20 Liter(s)

Initial Pressure (psig): 0.21 Final Pressure (psig): 3.65

Container Dilution Factor: 1.23

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.05 | unknown | **22** | |
| 9.65 | 1-Propanol | **13** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-121318-BPS-007** | ALS Project ID: | P1806928 |
| **Client Project ID:** | **High Acres Waste Evaluation / 089290-1817** | ALS Sample ID: | P1806928-007 |

| | | | |
|---|---|---|---|
| Test Code: | EPA TO-15 | Date Collected: | 12/13/18 |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | 12/17/18 |
| Analyst: | Raneem Sahtah | Date Analyzed: | 1/8/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.020 Liter(s) |
| Test Notes: | | | 0.0025 Liter(s) |
| Container ID: | SSC00293 | | |

Initial Pressure (psig): 0.35 Final Pressure (psig): 3.62

Container Dilution Factor: 1.22

| CAS # | Compound | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 32 | 7.9 | ND | 18 | 4.6 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 32 | 5.3 | ND | 6.4 | 1.1 | |
| 74-87-3 | Chloromethane | ND | 31 | 5.2 | ND | 15 | 2.5 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 31 | 5.1 | ND | 4.5 | 0.73 | |
| 75-01-4 | Vinyl Chloride | ND | 32 | 3.5 | ND | 13 | 1.4 | |
| 106-99-0 | 1,3-Butadiene | ND | 32 | 5.4 | ND | 14 | 2.4 | |
| 74-83-9 | Bromomethane | ND | 31 | 4.5 | ND | 7.9 | 1.2 | |
| 75-00-3 | Chloroethane | **18** | 31 | 4.0 | **6.8** | 12 | 1.5 | **J** |
| 64-17-5 | Ethanol | **18,000** | 310 | 23 | **9,800** | 170 | 12 | |
| 75-05-8 | Acetonitrile | ND | 32 | 7.9 | ND | 19 | 4.7 | |
| 107-02-8 | Acrolein | ND | 61 | 9.2 | ND | 27 | 4.0 | |
| 67-64-1 | Acetone | **370** | 330 | 73 | **160** | 140 | 31 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 32 | 4.9 | ND | 5.8 | 0.88 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **430** | 130 | 13 | **180** | 52 | 5.5 | |
| 107-13-1 | Acrylonitrile | ND | 32 | 6.7 | ND | 15 | 3.1 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 33 | 4.5 | ND | 8.3 | 1.1 | |
| 75-09-2 | Methylene Chloride | ND | 33 | 9.2 | ND | 9.5 | 2.6 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 32 | 4.4 | ND | 10 | 1.4 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 32 | 4.6 | ND | 4.2 | 0.61 | |
| 75-15-0 | Carbon Disulfide | ND | 67 | 9.8 | ND | 22 | 3.1 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 32 | 4.5 | ND | 8.2 | 1.1 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 32 | 4.8 | ND | 7.8 | 1.2 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 33 | 3.8 | ND | 9.1 | 1.1 | |
| 108-05-4 | Vinyl Acetate | ND | 320 | 73 | ND | 92 | 21 | |
| 78-93-3 | 2-Butanone (MEK) | **95** | 61 | 6.7 | **32** | 21 | 2.3 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-121318-BPS-007** | ALS Project ID: | P1806928 |
| **Client Project ID:** | **High Acres Waste Evaluation / 089290-1817** | ALS Sample ID: | P1806928-007 |
| Test Code: | EPA TO-15 | Date Collected: | 12/13/18 |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | 12/17/18 |
| Analyst: | Raneem Sahtah | Date Analyzed: | 1/8/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.020 Liter(s) |
| Test Notes: | | | 0.0025 Liter(s) |
| Container ID: | SSC00293 | | |

Initial Pressure (psig): 0.35 Final Pressure (psig): 3.62

Container Dilution Factor: 1.22

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 32 | 4.6 | ND | 8.2 | 1.2 | |
| 141-78-6 | Ethyl Acetate | **670** | 67 | 17 | **190** | 19 | 4.7 | |
| 110-54-3 | n-Hexane | **6.9** | 33 | 6.7 | **2.0** | 9.3 | 1.9 | J |
| 67-66-3 | Chloroform | 4.6 | 33 | 4.3 | **0.94** | 6.7 | 0.89 | J |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 32 | 4.1 | ND | 11 | 1.4 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 32 | 3.6 | ND | 8.0 | 0.89 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 33 | 4.0 | ND | 6.0 | 0.74 | |
| 71-43-2 | Benzene | **7.0** | 32 | 4.7 | **2.2** | 9.9 | 1.5 | J |
| 56-23-5 | Carbon Tetrachloride | ND | 32 | 4.5 | ND | 5.0 | 0.72 | |
| 110-82-7 | Cyclohexane | ND | 61 | 9.2 | ND | 18 | 2.7 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 33 | 4.0 | ND | 7.1 | 0.87 | |
| 75-27-4 | Bromodichloromethane | ND | 32 | 4.7 | ND | 4.8 | 0.70 | |
| 79-01-6 | Trichloroethene | ND | 32 | 4.4 | ND | 6.0 | 0.82 | |
| 123-91-1 | 1,4-Dioxane | ND | 32 | 3.8 | ND | 9.0 | 1.1 | |
| 80-62-6 | Methyl Methacrylate | ND | 67 | 12 | ND | 16 | 2.8 | |
| 142-82-5 | n-Heptane | **14** | 33 | 5.2 | **3.5** | 8.0 | 1.3 | J |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 34 | 5.1 | ND | 7.5 | 1.1 | |
| 108-10-1 | 4-Methyl-2-pentanone | **86** | 32 | 4.5 | **21** | 7.9 | 1.1 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 32 | 6.7 | ND | 7.1 | 1.5 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 33 | 3.3 | ND | 6.0 | 0.60 | |
| 108-88-3 | Toluene | **160** | 32 | 4.0 | **43** | 8.6 | 1.1 | |
| 591-78-6 | 2-Hexanone | ND | 33 | 4.0 | ND | 8.0 | 0.98 | |
| 124-48-1 | Dibromochloromethane | ND | 33 | 4.3 | ND | 3.9 | 0.50 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 33 | 3.8 | ND | 4.3 | 0.49 | |
| 123-86-4 | n-Butyl Acetate | **810** | 33 | 4.5 | **170** | 6.9 | 0.94 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-007**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-007

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00293

Date Collected: 12/13/18
Date Received: 12/17/18
Date Analyzed: 1/8/19
Volume(s) Analyzed: 0.020 Liter(s)
0.0025 Liter(s)

Initial Pressure (psig): 0.35 Final Pressure (psig): 3.62

Container Dilution Factor: 1.22

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **10** | 33 | 7.3 | **2.1** | 7.1 | 1.6 | J |
| 127-18-4 | Tetrachloroethene | ND | 32 | 4.2 | ND | 4.8 | 0.62 | |
| 108-90-7 | Chlorobenzene | ND | 32 | 4.3 | ND | 7.0 | 0.94 | |
| 100-41-4 | Ethylbenzene | **23,000** | 250 | 37 | **5,300** | 58 | 8.4 | D |
| 179601-23-1 | m,p-Xylenes | **62,000** | 540 | 68 | **14,000** | 120 | 16 | D |
| 75-25-2 | Bromoform | ND | 32 | 6.7 | ND | 3.1 | 0.65 | |
| 100-42-5 | Styrene | **13** | 32 | 5.2 | **3.1** | 7.6 | 1.2 | J |
| 95-47-6 | o-Xylene | **15,000** | 260 | 38 | **3,600** | 60 | 8.7 | D |
| 111-84-2 | n-Nonane | **18** | 33 | 5.4 | **3.3** | 6.3 | 1.0 | J |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 32 | 4.5 | ND | 4.7 | 0.66 | |
| 98-82-8 | Cumene | **170** | 32 | 4.7 | **34** | 6.6 | 0.96 | |
| 80-56-8 | alpha-Pinene | **340** | 32 | 5.0 | **60** | 5.7 | 0.90 | |
| 103-65-1 | n-Propylbenzene | **74** | 33 | 4.7 | **15** | 6.7 | 0.96 | |
| 622-96-8 | 4-Ethyltoluene | **41** | 32 | 5.2 | **8.4** | 6.6 | 1.1 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | **20** | 32 | 4.7 | **4.1** | 6.6 | 0.96 | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | **25** | 32 | 4.5 | **5.1** | 6.6 | 0.92 | J |
| 100-44-7 | Benzyl Chloride | ND | 67 | 7.3 | ND | 13 | 1.4 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 33 | 4.9 | ND | 5.5 | 0.81 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 33 | 5.0 | ND | 5.5 | 0.83 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 33 | 4.8 | ND | 5.5 | 0.80 | |
| 5989-27-5 | d-Limonene | **3,600** | 31 | 6.7 | **650** | 5.6 | 1.2 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 32 | 6.1 | ND | 3.3 | 0.63 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 32 | 7.9 | ND | 4.4 | 1.1 | |
| 91-20-3 | Naphthalene | ND | 31 | 7.9 | ND | 5.9 | 1.5 | |
| 87-68-3 | Hexachlorobutadiene | ND | 32 | 6.7 | ND | 3.0 | 0.63 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-007**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-007

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes: **T**
Container ID: SSC00293

Date Collected: 12/13/18
Date Received: 12/17/18
Date Analyzed: 1/8/19
Volume(s) Analyzed: 0.020 Liter(s)
0.0025 Liter(s)

Initial Pressure (psig): 0.35 Final Pressure (psig): 3.62

Container Dilution Factor: 1.22

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 3.98 | Norflurane | **790** | |
| 4.10 | 1,1-Difluoroethane | **11,000** | |
| 4.22 | Propane | **1,600** | |
| 4.40 | unknown | **140** | |
| 4.62 | Dimethyl Ether | **150** | |
| 4.92 | Isobutane | **31,000** | |
| 5.45 | n-Butane | **22,000** | |
| 5.72 | Neopentane | **460** | |
| 7.18 | 2-Methylbutane | **5,700** | |
| 7.98 | n-Pentane | **890** | |
| 20.15 | beta-Pinene | **380** | |
| 20.99 | .gamma.-Terpinene | **260** | |
| 21.86 | unknown siloxane | **280** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-008**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-008

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00016

Date Collected: 12/13/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.10 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): -0.96 Final Pressure (psig): 3.59

Container Dilution Factor: 1.33

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 6.9 | 1.7 | ND | 4.0 | 1.0 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **3.0** | 6.9 | 1.2 | **0.62** | 1.4 | 0.23 | J |
| 74-87-3 | Chloromethane | **1.3** | 6.7 | 1.1 | **0.62** | 3.2 | 0.55 | J |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 6.8 | 1.1 | ND | 0.97 | 0.16 | |
| 75-01-4 | Vinyl Chloride | ND | 7.0 | 0.76 | ND | 2.8 | 0.30 | |
| 106-99-0 | 1,3-Butadiene | ND | 6.9 | 1.2 | ND | 3.1 | 0.53 | |
| 74-83-9 | Bromomethane | ND | 6.7 | 0.98 | ND | 1.7 | 0.25 | |
| 75-00-3 | Chloroethane | ND | 6.8 | 0.88 | ND | 2.6 | 0.33 | |
| 64-17-5 | Ethanol | **14,000** | 340 | 25 | **7,600** | 180 | 13 | D |
| 75-05-8 | Acetonitrile | **6.3** | 6.9 | 1.7 | **3.8** | 4.1 | 1.0 | J |
| 107-02-8 | Acrolein | ND | 13 | 2.0 | ND | 5.8 | 0.87 | |
| 67-64-1 | Acetone | **3,400** | 72 | 16 | **1,500** | 30 | 6.7 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **42** | 7.0 | 1.1 | **7.4** | 1.3 | 0.19 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **1,700** | 28 | 2.9 | **700** | 11 | 1.2 | |
| 107-13-1 | Acrylonitrile | ND | 6.9 | 1.5 | ND | 3.2 | 0.67 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 7.2 | 0.98 | ND | 1.8 | 0.25 | |
| 75-09-2 | Methylene Chloride | **110** | 7.2 | 2.0 | **33** | 2.1 | 0.57 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 7.0 | 0.96 | ND | 2.3 | 0.31 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 7.0 | 1.0 | ND | 0.92 | 0.13 | |
| 75-15-0 | Carbon Disulfide | **5.7** | 15 | 2.1 | **1.8** | 4.7 | 0.68 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 7.0 | 0.98 | ND | 1.8 | 0.25 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 6.9 | 1.0 | ND | 1.7 | 0.26 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 7.2 | 0.84 | ND | 2.0 | 0.23 | |
| 108-05-4 | Vinyl Acetate | ND | 70 | 16 | ND | 20 | 4.5 | |
| 78-93-3 | 2-Butanone (MEK) | **580** | 13 | 1.5 | **200** | 4.5 | 0.50 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-008**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-008

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00016

Date Collected: 12/13/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.10 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): -0.96 Final Pressure (psig): 3.59

Container Dilution Factor: 1.33

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 7.0 | 1.0 | ND | 1.8 | 0.25 | |
| 141-78-6 | Ethyl Acetate | **500** | 15 | 3.7 | **140** | 4.1 | 1.0 | |
| 110-54-3 | n-Hexane | **8.7** | 7.2 | 1.5 | **2.5** | 2.0 | 0.42 | |
| 67-66-3 | Chloroform | **2.1** | 7.2 | 0.94 | **0.43** | 1.5 | 0.19 | **J** |
| 109-99-9 | Tetrahydrofuran (THF) | **9.5** | 7.0 | 0.89 | **3.2** | 2.4 | 0.30 | |
| 107-06-2 | 1,2-Dichloroethane | **4.7** | 7.0 | 0.78 | **1.2** | 1.7 | 0.19 | **J** |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 7.2 | 0.88 | ND | 1.3 | 0.16 | |
| 71-43-2 | Benzene | **2.8** | 6.9 | 1.0 | **0.87** | 2.2 | 0.32 | **J** |
| 56-23-5 | Carbon Tetrachloride | ND | 6.9 | 0.98 | ND | 1.1 | 0.16 | |
| 110-82-7 | Cyclohexane | **24** | 13 | 2.0 | **6.9** | 3.9 | 0.58 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 7.2 | 0.88 | ND | 1.6 | 0.19 | |
| 75-27-4 | Bromodichloromethane | ND | 7.0 | 1.0 | ND | 1.1 | 0.15 | |
| 79-01-6 | Trichloroethene | ND | 7.0 | 0.96 | ND | 1.3 | 0.18 | |
| 123-91-1 | 1,4-Dioxane | ND | 7.0 | 0.84 | ND | 2.0 | 0.23 | |
| 80-62-6 | Methyl Methacrylate | **8.9** | 15 | 2.5 | **2.2** | 3.6 | 0.62 | **J** |
| 142-82-5 | n-Heptane | **510** | 7.2 | 1.1 | **120** | 1.8 | 0.28 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 7.4 | 1.1 | ND | 1.6 | 0.24 | |
| 108-10-1 | 4-Methyl-2-pentanone | **230** | 7.0 | 0.97 | **56** | 1.7 | 0.24 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 7.0 | 1.5 | ND | 1.6 | 0.32 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 7.2 | 0.72 | ND | 1.3 | 0.13 | |
| 108-88-3 | Toluene | **720** | 7.0 | 0.86 | **190** | 1.9 | 0.23 | |
| 591-78-6 | 2-Hexanone | ND | 7.2 | 0.88 | ND | 1.8 | 0.21 | |
| 124-48-1 | Dibromochloromethane | ND | 7.2 | 0.93 | ND | 0.84 | 0.11 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 7.2 | 0.82 | ND | 0.93 | 0.11 | |
| 123-86-4 | n-Butyl Acetate | **19** | 7.2 | 0.97 | **3.9** | 1.5 | 0.20 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-008**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P1806928-008

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00016

Date Collected: 12/13/18
Date Received: 12/17/18
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.10 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): -0.96 Final Pressure (psig): 3.59

Container Dilution Factor: 1.33

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **86** | 7.2 | 1.6 | **18** | 1.5 | 0.34 | |
| 127-18-4 | Tetrachloroethene | **3.6** | 7.0 | 0.92 | **0.54** | 1.0 | 0.14 | J |
| 108-90-7 | Chlorobenzene | ND | 7.0 | 0.94 | ND | 1.5 | 0.21 | |
| 100-41-4 | Ethylbenzene | **39** | 6.9 | 1.0 | **9.1** | 1.6 | 0.23 | |
| 179601-23-1 | m,p-Xylenes | **120** | 15 | 1.9 | **28** | 3.4 | 0.43 | |
| 75-25-2 | Bromoform | ND | 7.0 | 1.5 | ND | 0.68 | 0.14 | |
| 100-42-5 | Styrene | **25** | 7.0 | 1.1 | **5.8** | 1.7 | 0.27 | |
| 95-47-6 | o-Xylene | **46** | 7.0 | 1.0 | **11** | 1.6 | 0.24 | |
| 111-84-2 | n-Nonane | **230** | 7.2 | 1.2 | **43** | 1.4 | 0.23 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 7.0 | 0.98 | ND | 1.0 | 0.14 | |
| 98-82-8 | Cumene | 9.7 | 7.0 | 1.0 | **2.0** | 1.4 | 0.21 | |
| 80-56-8 | alpha-Pinene | **180** | 6.9 | 1.1 | **32** | 1.2 | 0.20 | |
| 103-65-1 | n-Propylbenzene | **25** | 7.2 | 1.0 | **5.1** | 1.5 | 0.21 | |
| 622-96-8 | 4-Ethyltoluene | **32** | 7.0 | 1.1 | **6.6** | 1.4 | 0.23 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | **44** | 7.0 | 1.0 | **8.9** | 1.4 | 0.21 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | **130** | 7.0 | 0.98 | **26** | 1.4 | 0.20 | |
| 100-44-7 | Benzyl Chloride | ND | 15 | 1.6 | ND | 2.8 | 0.31 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 7.2 | 1.1 | ND | 1.2 | 0.18 | |
| 106-46-7 | 1,4-Dichlorobenzene | **2.9** | 7.2 | 1.1 | **0.48** | 1.2 | 0.18 | J |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 7.2 | 1.1 | ND | 1.2 | 0.17 | |
| 5989-27-5 | d-Limonene | **2,200** | 34 | 7.3 | **390** | 6.1 | 1.3 | D |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 6.9 | 1.3 | ND | 0.72 | 0.14 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 7.0 | 1.7 | ND | 0.95 | 0.23 | |
| 91-20-3 | Naphthalene | ND | 6.8 | 1.7 | ND | 1.3 | 0.33 | |
| 87-68-3 | Hexachlorobutadiene | ND | 7.0 | 1.5 | ND | 0.66 | 0.14 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
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| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-121318-BPS-008** | ALS Project ID: | P1806928 |
| **Client Project ID:** | **High Acres Waste Evaluation / 089290-1817** | ALS Sample ID: | P1806928-008 |

### Tentatively Identified Compounds

| | | | |
|---|---|---|---|
| Test Code: | EPA TO-15 | Date Collected: | 12/13/18 |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | 12/17/18 |
| Analyst: | Anusha Bayyarapu | Date Analyzed: | 1/7/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.10 Liter(s)<br>0.020 Liter(s) |
| Test Notes: | **T** | | |
| Container ID: | SSC00016 | | |

Initial Pressure (psig): -0.96 Final Pressure (psig): 3.59

Container Dilution Factor: 1.33

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.01 | Norflurane | **59** | |
| 4.11 | 1,1-Difluoroethane | **500** | |
| 4.24 | Propane | **440** | |
| 4.61 | Dimethyl Ether | **1,700** | |
| 4.91 | Isobutane | **3,800** | |
| 5.21 | unknown hydrocarbon | **32** | |
| 5.45 | n-Butane | **2,700** | |
| 8.00 | n-Pentane | **4,400** | |
| 8.57 | unknown | **390** | |
| 10.34 | 2-Methylpentane | **130** | |
| 13.50 | 2-Methylhexane | **220** | |
| 13.57 | 2,3-Dimethylpentane | **77** | |
| 13.76 | 3-Methylhexane | **340** | |
| 14.06 | unknown | **56** | |
| 15.08 | Methylcyclohexane | **200** | |
| 20.15 | beta-Pinene | **170** | |
| 20.29 | n-Decane | **310** | |
| 20.59 | 4-Methyldecane | **220** | |
| 21.39 | n-Undecane | **210** | |
| 21.86 | unknown siloxane | **160** | |

T = Analyte is a tentatively identified compound, result is estimated.

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190107-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/7/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 0.52 | 0.13 | ND | 0.30 | 0.076 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 0.52 | 0.087 | ND | 0.11 | 0.018 | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.086 | ND | 0.24 | 0.042 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.51 | 0.084 | ND | 0.073 | 0.012 | |
| 75-01-4 | Vinyl Chloride | ND | 0.53 | 0.057 | ND | 0.21 | 0.022 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.52 | 0.088 | ND | 0.24 | 0.040 | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.074 | ND | 0.13 | 0.019 | |
| 75-00-3 | Chloroethane | ND | 0.51 | 0.066 | ND | 0.19 | 0.025 | |
| 64-17-5 | Ethanol | ND | 5.1 | 0.37 | ND | 2.7 | 0.20 | |
| 75-05-8 | Acetonitrile | ND | 0.52 | 0.13 | ND | 0.31 | 0.077 | |
| 107-02-8 | Acrolein | ND | 1.0 | 0.15 | ND | 0.44 | 0.065 | |
| 67-64-1 | Acetone | ND | 5.4 | 1.2 | ND | 2.3 | 0.51 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 0.53 | 0.081 | ND | 0.094 | 0.014 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 2.1 | 0.22 | ND | 0.85 | 0.090 | |
| 107-13-1 | Acrylonitrile | ND | 0.52 | 0.11 | ND | 0.24 | 0.051 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.54 | 0.074 | ND | 0.14 | 0.019 | |
| 75-09-2 | Methylene Chloride | ND | 0.54 | 0.15 | ND | 0.16 | 0.043 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.53 | 0.072 | ND | 0.17 | 0.023 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 0.53 | 0.076 | ND | 0.069 | 0.0099 | |
| 75-15-0 | Carbon Disulfide | ND | 1.1 | 0.16 | ND | 0.35 | 0.051 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.53 | 0.074 | ND | 0.13 | 0.019 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.52 | 0.078 | ND | 0.13 | 0.019 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.54 | 0.063 | ND | 0.15 | 0.017 | |
| 108-05-4 | Vinyl Acetate | ND | 5.3 | 1.2 | ND | 1.5 | 0.34 | |
| 78-93-3 | 2-Butanone (MEK) | ND | 1.0 | 0.11 | ND | 0.34 | 0.037 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190107-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/7/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.53 | 0.075 | ND | 0.13 | 0.019 | |
| 141-78-6 | Ethyl Acetate | ND | 1.1 | 0.28 | ND | 0.31 | 0.078 | |
| 110-54-3 | n-Hexane | ND | 0.54 | 0.11 | ND | 0.15 | 0.031 | |
| 67-66-3 | Chloroform | ND | 0.54 | 0.071 | ND | 0.11 | 0.015 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.53 | 0.067 | ND | 0.18 | 0.023 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.53 | 0.059 | ND | 0.13 | 0.015 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.54 | 0.066 | ND | 0.099 | 0.012 | |
| 71-43-2 | Benzene | ND | 0.52 | 0.077 | ND | 0.16 | 0.024 | |
| 56-23-5 | Carbon Tetrachloride | ND | 0.52 | 0.074 | ND | 0.083 | 0.012 | |
| 110-82-7 | Cyclohexane | ND | 1.0 | 0.15 | ND | 0.29 | 0.044 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.54 | 0.066 | ND | 0.12 | 0.014 | |
| 75-27-4 | Bromodichloromethane | ND | 0.53 | 0.077 | ND | 0.079 | 0.011 | |
| 79-01-6 | Trichloroethene | ND | 0.53 | 0.072 | ND | 0.099 | 0.013 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.53 | 0.063 | ND | 0.15 | 0.017 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.1 | 0.19 | ND | 0.27 | 0.046 | |
| 142-82-5 | n-Heptane | ND | 0.54 | 0.085 | ND | 0.13 | 0.021 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.56 | 0.083 | ND | 0.12 | 0.018 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 0.53 | 0.073 | ND | 0.13 | 0.018 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.53 | 0.11 | ND | 0.12 | 0.024 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.54 | 0.054 | ND | 0.099 | 0.0099 | |
| 108-88-3 | Toluene | ND | 0.53 | 0.065 | ND | 0.14 | 0.017 | |
| 591-78-6 | 2-Hexanone | ND | 0.54 | 0.066 | ND | 0.13 | 0.016 | |
| 124-48-1 | Dibromochloromethane | ND | 0.54 | 0.070 | ND | 0.063 | 0.0082 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.54 | 0.062 | ND | 0.070 | 0.0081 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.54 | 0.073 | ND | 0.11 | 0.015 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190107-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/7/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | ND | 0.54 | 0.12 | ND | 0.12 | 0.026 | |
| 127-18-4 | Tetrachloroethene | ND | 0.53 | 0.069 | ND | 0.078 | 0.010 | |
| 108-90-7 | Chlorobenzene | ND | 0.53 | 0.071 | ND | 0.12 | 0.015 | |
| 100-41-4 | Ethylbenzene | ND | 0.52 | 0.075 | ND | 0.12 | 0.017 | |
| 179601-23-1 | m,p-Xylenes | ND | 1.1 | 0.14 | ND | 0.25 | 0.032 | |
| 75-25-2 | Bromoform | ND | 0.53 | 0.11 | ND | 0.051 | 0.011 | |
| 100-42-5 | Styrene | ND | 0.53 | 0.086 | ND | 0.12 | 0.020 | |
| 95-47-6 | o-Xylene | ND | 0.53 | 0.077 | ND | 0.12 | 0.018 | |
| 111-84-2 | n-Nonane | ND | 0.54 | 0.089 | ND | 0.10 | 0.017 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.53 | 0.074 | ND | 0.077 | 0.011 | |
| 98-82-8 | Cumene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 80-56-8 | alpha-Pinene | ND | 0.52 | 0.082 | ND | 0.093 | 0.015 | |
| 103-65-1 | n-Propylbenzene | ND | 0.54 | 0.077 | ND | 0.11 | 0.016 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.53 | 0.085 | ND | 0.11 | 0.017 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 0.53 | 0.074 | ND | 0.11 | 0.015 | |
| 100-44-7 | Benzyl Chloride | ND | 1.1 | 0.12 | ND | 0.21 | 0.023 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.54 | 0.080 | ND | 0.090 | 0.013 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.54 | 0.082 | ND | 0.090 | 0.014 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.54 | 0.079 | ND | 0.090 | 0.013 | |
| 5989-27-5 | d-Limonene | ND | 0.51 | 0.11 | ND | 0.092 | 0.020 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.52 | 0.10 | ND | 0.054 | 0.010 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.53 | 0.13 | ND | 0.071 | 0.018 | |
| 91-20-3 | Naphthalene | ND | 0.51 | 0.13 | ND | 0.097 | 0.025 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.53 | 0.11 | ND | 0.050 | 0.010 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190107-MB

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/7/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| | No Compounds Detected | | |

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**

**Client Sample ID:** **Method Blank**

**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928

ALS Sample ID: P190108-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Anusha Bayyarapu

Sample Type: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 1/8/19

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 0.52 | 0.13 | ND | 0.30 | 0.076 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 0.52 | 0.087 | ND | 0.11 | 0.018 | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.086 | ND | 0.24 | 0.042 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.51 | 0.084 | ND | 0.073 | 0.012 | |
| 75-01-4 | Vinyl Chloride | ND | 0.53 | 0.057 | ND | 0.21 | 0.022 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.52 | 0.088 | ND | 0.24 | 0.040 | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.074 | ND | 0.13 | 0.019 | |
| 75-00-3 | Chloroethane | ND | 0.51 | 0.066 | ND | 0.19 | 0.025 | |
| 64-17-5 | Ethanol | ND | 5.1 | 0.37 | ND | 2.7 | 0.20 | |
| 75-05-8 | Acetonitrile | ND | 0.52 | 0.13 | ND | 0.31 | 0.077 | |
| 107-02-8 | Acrolein | ND | 1.0 | 0.15 | ND | 0.44 | 0.065 | |
| 67-64-1 | Acetone | ND | 5.4 | 1.2 | ND | 2.3 | 0.51 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 0.53 | 0.081 | ND | 0.094 | 0.014 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 2.1 | 0.22 | ND | 0.85 | 0.090 | |
| 107-13-1 | Acrylonitrile | ND | 0.52 | 0.11 | ND | 0.24 | 0.051 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.54 | 0.074 | ND | 0.14 | 0.019 | |
| 75-09-2 | Methylene Chloride | ND | 0.54 | 0.15 | ND | 0.16 | 0.043 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.53 | 0.072 | ND | 0.17 | 0.023 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 0.53 | 0.076 | ND | 0.069 | 0.0099 | |
| 75-15-0 | Carbon Disulfide | ND | 1.1 | 0.16 | ND | 0.35 | 0.051 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.53 | 0.074 | ND | 0.13 | 0.019 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.52 | 0.078 | ND | 0.13 | 0.019 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.54 | 0.063 | ND | 0.15 | 0.017 | |
| 108-05-4 | Vinyl Acetate | ND | 5.3 | 1.2 | ND | 1.5 | 0.34 | |
| 78-93-3 | 2-Butanone (MEK) | ND | 1.0 | 0.11 | ND | 0.34 | 0.037 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190108-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.53 | 0.075 | ND | 0.13 | 0.019 | |
| 141-78-6 | Ethyl Acetate | ND | 1.1 | 0.28 | ND | 0.31 | 0.078 | |
| 110-54-3 | n-Hexane | ND | 0.54 | 0.11 | ND | 0.15 | 0.031 | |
| 67-66-3 | Chloroform | ND | 0.54 | 0.071 | ND | 0.11 | 0.015 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.53 | 0.067 | ND | 0.18 | 0.023 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.53 | 0.059 | ND | 0.13 | 0.015 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.54 | 0.066 | ND | 0.099 | 0.012 | |
| 71-43-2 | Benzene | ND | 0.52 | 0.077 | ND | 0.16 | 0.024 | |
| 56-23-5 | Carbon Tetrachloride | ND | 0.52 | 0.074 | ND | 0.083 | 0.012 | |
| 110-82-7 | Cyclohexane | ND | 1.0 | 0.15 | ND | 0.29 | 0.044 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.54 | 0.066 | ND | 0.12 | 0.014 | |
| 75-27-4 | Bromodichloromethane | ND | 0.53 | 0.077 | ND | 0.079 | 0.011 | |
| 79-01-6 | Trichloroethene | ND | 0.53 | 0.072 | ND | 0.099 | 0.013 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.53 | 0.063 | ND | 0.15 | 0.017 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.1 | 0.19 | ND | 0.27 | 0.046 | |
| 142-82-5 | n-Heptane | ND | 0.54 | 0.085 | ND | 0.13 | 0.021 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.56 | 0.083 | ND | 0.12 | 0.018 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 0.53 | 0.073 | ND | 0.13 | 0.018 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.53 | 0.11 | ND | 0.12 | 0.024 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.54 | 0.054 | ND | 0.099 | 0.0099 | |
| 108-88-3 | Toluene | ND | 0.53 | 0.065 | ND | 0.14 | 0.017 | |
| 591-78-6 | 2-Hexanone | ND | 0.54 | 0.066 | ND | 0.13 | 0.016 | |
| 124-48-1 | Dibromochloromethane | ND | 0.54 | 0.070 | ND | 0.063 | 0.0082 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.54 | 0.062 | ND | 0.070 | 0.0081 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.54 | 0.073 | ND | 0.11 | 0.015 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190108-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | ND | 0.54 | 0.12 | ND | 0.12 | 0.026 | |
| 127-18-4 | Tetrachloroethene | ND | 0.53 | 0.069 | ND | 0.078 | 0.010 | |
| 108-90-7 | Chlorobenzene | ND | 0.53 | 0.071 | ND | 0.12 | 0.015 | |
| 100-41-4 | Ethylbenzene | ND | 0.52 | 0.075 | ND | 0.12 | 0.017 | |
| 179601-23-1 | m,p-Xylenes | ND | 1.1 | 0.14 | ND | 0.25 | 0.032 | |
| 75-25-2 | Bromoform | ND | 0.53 | 0.11 | ND | 0.051 | 0.011 | |
| 100-42-5 | Styrene | ND | 0.53 | 0.086 | ND | 0.12 | 0.020 | |
| 95-47-6 | o-Xylene | ND | 0.53 | 0.077 | ND | 0.12 | 0.018 | |
| 111-84-2 | n-Nonane | ND | 0.54 | 0.089 | ND | 0.10 | 0.017 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.53 | 0.074 | ND | 0.077 | 0.011 | |
| 98-82-8 | Cumene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 80-56-8 | alpha-Pinene | ND | 0.52 | 0.082 | ND | 0.093 | 0.015 | |
| 103-65-1 | n-Propylbenzene | ND | 0.54 | 0.077 | ND | 0.11 | 0.016 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.53 | 0.085 | ND | 0.11 | 0.017 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 0.53 | 0.074 | ND | 0.11 | 0.015 | |
| 100-44-7 | Benzyl Chloride | ND | 1.1 | 0.12 | ND | 0.21 | 0.023 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.54 | 0.080 | ND | 0.090 | 0.013 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.54 | 0.082 | ND | 0.090 | 0.014 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.54 | 0.079 | ND | 0.090 | 0.013 | |
| 5989-27-5 | d-Limonene | ND | 0.51 | 0.11 | ND | 0.092 | 0.020 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.52 | 0.10 | ND | 0.054 | 0.010 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.53 | 0.13 | ND | 0.071 | 0.018 | |
| 91-20-3 | Naphthalene | ND | 0.51 | 0.13 | ND | 0.097 | 0.025 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.53 | 0.11 | ND | 0.050 | 0.010 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190108-MB

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| | No Compounds Detected | | |

# ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**
ALS Project ID: P1806928

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu/Wida Ang
Sample Type: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 12/11 - 12/13/18
Date(s) Received: 12/17/18
Date(s) Analyzed: 1/7 - 1/8/19

| Client Sample ID | ALS Sample ID | 1,2-Dichloroethane-d4 Percent Recovered | Toluene-d8 Percent Recovered | Bromofluorobenzene Percent Recovered | Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| Method Blank | P190107-MB | **87** | **103** | **104** | 70-130 | |
| Method Blank | P190108-MB | **87** | **104** | **105** | 70-130 | |
| Lab Control Sample | P190107-LCS | **85** | **103** | **105** | 70-130 | |
| Lab Control Sample | P190108-LCS | **85** | **102** | **105** | 70-130 | |
| WM-089290-121118-BPS-001 | P1806928-001 | **87** | **100** | **106** | 70-130 | |
| WM-089290-121118-BPS-002 | P1806928-002 | **88** | **102** | **106** | 70-130 | |
| WM-089290-121118-BPS-003 | P1806928-003 | **85** | **101** | **106** | 70-130 | |
| WM-089290-121218-BPS-004 | P1806928-004 | **86** | **102** | **106** | 70-130 | |
| WM-089290-121218-BPS-005 | P1806928-005 | **86** | **102** | **104** | 70-130 | |
| WM-089290-121218-BPS-006 | P1806928-006 | **86** | **103** | **104** | 70-130 | |
| WM-089290-121318-BPS-007 | P1806928-007 | **87** | **101** | **106** | 70-130 | |
| WM-089290-121318-BPS-008 | P1806928-008 | **86** | **102** | **104** | 70-130 | |

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190107-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 115-07-1 | Propene | 211 | 179 | 85 | 53-112 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | 210 | 159 | 76 | 62-103 | |
| 74-87-3 | Chloromethane | 211 | 146 | 69 | 51-121 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | 211 | 148 | 70 | 56-111 | |
| 75-01-4 | Vinyl Chloride | 214 | 150 | 70 | 57-117 | |
| 106-99-0 | 1,3-Butadiene | 210 | 156 | 74 | 53-134 | |
| 74-83-9 | Bromomethane | 212 | 192 | 91 | 65-110 | |
| 75-00-3 | Chloroethane | 214 | 193 | 90 | 64-111 | |
| 64-17-5 | Ethanol | 1,020 | 879 | 86 | 57-124 | |
| 75-05-8 | Acetonitrile | 206 | 195 | 95 | 57-126 | |
| 107-02-8 | Acrolein | 205 | 194 | 95 | 62-121 | |
| 67-64-1 | Acetone | 1,060 | 829 | 78 | 60-113 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 211 | 161 | 76 | 63-104 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | 413 | 362 | 88 | 60-124 | |
| 107-13-1 | Acrylonitrile | 207 | 193 | 93 | 66-125 | |
| 75-35-4 | 1,1-Dichloroethene | 218 | 188 | 86 | 68-107 | |
| 75-09-2 | Methylene Chloride | 217 | 181 | 83 | 66-105 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | 216 | 193 | 89 | 63-127 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 216 | 187 | 87 | 59-109 | |
| 75-15-0 | Carbon Disulfide | 218 | 175 | 80 | 67-109 | |
| 156-60-5 | trans-1,2-Dichloroethene | 214 | 183 | 86 | 70-115 | |
| 75-34-3 | 1,1-Dichloroethane | 216 | 180 | 83 | 66-106 | |
| 1634-04-4 | Methyl tert-Butyl Ether | 214 | 201 | 94 | 67-109 | |
| 108-05-4 | Vinyl Acetate | 1,060 | 886 | 84 | 68-136 | |
| 78-93-3 | 2-Butanone (MEK) | 208 | 185 | 89 | 71-116 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190107-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | 211 | **170** | **81** | 67-110 | |
| 141-78-6 | Ethyl Acetate | 436 | **386** | **89** | 64-127 | |
| 110-54-3 | n-Hexane | 216 | **171** | **79** | 60-115 | |
| 67-66-3 | Chloroform | 217 | **167** | **77** | 66-105 | |
| 109-99-9 | Tetrahydrofuran (THF) | 216 | **196** | **91** | 65-110 | |
| 107-06-2 | 1,2-Dichloroethane | 215 | **155** | **72** | 60-110 | |
| 71-55-6 | 1,1,1-Trichloroethane | 215 | **166** | **77** | 64-108 | |
| 71-43-2 | Benzene | 211 | **167** | **79** | 67-106 | |
| 56-23-5 | Carbon Tetrachloride | 212 | **164** | **77** | 64-112 | |
| 110-82-7 | Cyclohexane | 416 | **335** | **81** | 67-110 | |
| 78-87-5 | 1,2-Dichloropropane | 216 | **181** | **84** | 66-112 | |
| 75-27-4 | Bromodichloromethane | 215 | **177** | **82** | 67-113 | |
| 79-01-6 | Trichloroethene | 213 | **177** | **83** | 66-108 | |
| 123-91-1 | 1,4-Dioxane | 214 | **208** | **97** | 70-116 | |
| 80-62-6 | Methyl Methacrylate | 431 | **402** | **93** | 73-118 | |
| 142-82-5 | n-Heptane | 215 | **183** | **85** | 66-110 | |
| 10061-01-5 | cis-1,3-Dichloropropene | 214 | **191** | **89** | 75-120 | |
| 108-10-1 | 4-Methyl-2-pentanone | 209 | **201** | **96** | 65-124 | |
| 10061-02-6 | trans-1,3-Dichloropropene | 213 | **202** | **95** | 77-123 | |
| 79-00-5 | 1,1,2-Trichloroethane | 215 | **185** | **86** | 68-112 | |
| 108-88-3 | Toluene | 212 | **189** | **89** | 62-111 | |
| 591-78-6 | 2-Hexanone | 214 | **214** | **100** | 59-128 | |
| 124-48-1 | Dibromochloromethane | 213 | **212** | **100** | 67-123 | |
| 106-93-4 | 1,2-Dibromoethane | 216 | **209** | **97** | 66-122 | |
| 123-86-4 | n-Butyl Acetate | 219 | **217** | **99** | 64-128 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190107-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/7/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 217 | **201** | **93** | 65-114 | |
| 127-18-4 | Tetrachloroethene | 213 | **194** | **91** | 55-120 | |
| 108-90-7 | Chlorobenzene | 215 | **189** | **88** | 61-114 | |
| 100-41-4 | Ethylbenzene | 212 | **186** | **88** | 64-113 | |
| 179601-23-1 | m,p-Xylenes | 426 | **370** | **87** | 64-114 | |
| 75-25-2 | Bromoform | 213 | **230** | **108** | 65-132 | |
| 100-42-5 | Styrene | 212 | **212** | **100** | 67-124 | |
| 95-47-6 | o-Xylene | 214 | **187** | **87** | 65-114 | |
| 111-84-2 | n-Nonane | 215 | **188** | **87** | 64-117 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 214 | **193** | **90** | 66-119 | |
| 98-82-8 | Cumene | 214 | **190** | **89** | 61-116 | |
| 80-56-8 | alpha-Pinene | 211 | **188** | **89** | 65-120 | |
| 103-65-1 | n-Propylbenzene | 218 | **194** | **89** | 63-117 | |
| 622-96-8 | 4-Ethyltoluene | 214 | **199** | **93** | 63-124 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 214 | **188** | **88** | 60-117 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 215 | **189** | **88** | 61-122 | |
| 100-44-7 | Benzyl Chloride | 217 | **199** | **92** | 77-142 | |
| 541-73-1 | 1,3-Dichlorobenzene | 216 | **198** | **92** | 61-125 | |
| 106-46-7 | 1,4-Dichlorobenzene | 216 | **200** | **93** | 59-123 | |
| 95-50-1 | 1,2-Dichlorobenzene | 216 | **194** | **90** | 61-126 | |
| 5989-27-5 | d-Limonene | 211 | **197** | **93** | 66-124 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | 209 | **199** | **95** | 67-138 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 214 | **182** | **85** | 62-141 | |
| 91-20-3 | Naphthalene | 203 | **165** | **81** | 62-145 | |
| 87-68-3 | Hexachlorobutadiene | 209 | **200** | **96** | 49-131 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190108-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 115-07-1 | Propene | 211 | 179 | 85 | 53-112 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | 210 | 157 | 75 | 62-103 | |
| 74-87-3 | Chloromethane | 211 | 143 | 68 | 51-121 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | 211 | 146 | 69 | 56-111 | |
| 75-01-4 | Vinyl Chloride | 214 | 148 | 69 | 57-117 | |
| 106-99-0 | 1,3-Butadiene | 210 | 155 | 74 | 53-134 | |
| 74-83-9 | Bromomethane | 212 | 192 | 91 | 65-110 | |
| 75-00-3 | Chloroethane | 214 | 191 | 89 | 64-111 | |
| 64-17-5 | Ethanol | 1,020 | 868 | 85 | 57-124 | |
| 75-05-8 | Acetonitrile | 206 | 195 | 95 | 57-126 | |
| 107-02-8 | Acrolein | 205 | 194 | 95 | 62-121 | |
| 67-64-1 | Acetone | 1,060 | 822 | 78 | 60-113 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 211 | 158 | 75 | 63-104 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | 413 | 360 | 87 | 60-124 | |
| 107-13-1 | Acrylonitrile | 207 | 192 | 93 | 66-125 | |
| 75-35-4 | 1,1-Dichloroethene | 218 | 186 | 85 | 68-107 | |
| 75-09-2 | Methylene Chloride | 217 | 181 | 83 | 66-105 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | 216 | 193 | 89 | 63-127 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 216 | 186 | 86 | 59-109 | |
| 75-15-0 | Carbon Disulfide | 218 | 173 | 79 | 67-109 | |
| 156-60-5 | trans-1,2-Dichloroethene | 214 | 183 | 86 | 70-115 | |
| 75-34-3 | 1,1-Dichloroethane | 216 | 179 | 83 | 66-106 | |
| 1634-04-4 | Methyl tert-Butyl Ether | 214 | 204 | 95 | 67-109 | |
| 108-05-4 | Vinyl Acetate | 1,060 | 865 | 82 | 68-136 | |
| 78-93-3 | 2-Butanone (MEK) | 208 | 185 | 89 | 71-116 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190108-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | 211 | **169** | **80** | 67-110 | |
| 141-78-6 | Ethyl Acetate | 436 | **379** | **87** | 64-127 | |
| 110-54-3 | n-Hexane | 216 | **169** | **78** | 60-115 | |
| 67-66-3 | Chloroform | 217 | **165** | **76** | 66-105 | |
| 109-99-9 | Tetrahydrofuran (THF) | 216 | **195** | **90** | 65-110 | |
| 107-06-2 | 1,2-Dichloroethane | 215 | **152** | **71** | 60-110 | |
| 71-55-6 | 1,1,1-Trichloroethane | 215 | **163** | **76** | 64-108 | |
| 71-43-2 | Benzene | 211 | **165** | **78** | 67-106 | |
| 56-23-5 | Carbon Tetrachloride | 212 | **160** | **75** | 64-112 | |
| 110-82-7 | Cyclohexane | 416 | **332** | **80** | 67-110 | |
| 78-87-5 | 1,2-Dichloropropane | 216 | **180** | **83** | 66-112 | |
| 75-27-4 | Bromodichloromethane | 215 | **174** | **81** | 67-113 | |
| 79-01-6 | Trichloroethene | 213 | **173** | **81** | 66-108 | |
| 123-91-1 | 1,4-Dioxane | 214 | **207** | **97** | 70-116 | |
| 80-62-6 | Methyl Methacrylate | 431 | **398** | **92** | 73-118 | |
| 142-82-5 | n-Heptane | 215 | **179** | **83** | 66-110 | |
| 10061-01-5 | cis-1,3-Dichloropropene | 214 | **189** | **88** | 75-120 | |
| 108-10-1 | 4-Methyl-2-pentanone | 209 | **199** | **95** | 65-124 | |
| 10061-02-6 | trans-1,3-Dichloropropene | 213 | **201** | **94** | 77-123 | |
| 79-00-5 | 1,1,2-Trichloroethane | 215 | **183** | **85** | 68-112 | |
| 108-88-3 | Toluene | 212 | **185** | **87** | 62-111 | |
| 591-78-6 | 2-Hexanone | 214 | **211** | **99** | 59-128 | |
| 124-48-1 | Dibromochloromethane | 213 | **207** | **97** | 67-123 | |
| 106-93-4 | 1,2-Dibromoethane | 216 | **206** | **95** | 66-122 | |
| 123-86-4 | n-Butyl Acetate | 219 | **214** | **98** | 64-128 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation / 089290-1817**

ALS Project ID: P1806928
ALS Sample ID: P190108-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 217 | **197** | **91** | 65-114 | |
| 127-18-4 | Tetrachloroethene | 213 | **190** | **89** | 55-120 | |
| 108-90-7 | Chlorobenzene | 215 | **185** | **86** | 61-114 | |
| 100-41-4 | Ethylbenzene | 212 | **182** | **86** | 64-113 | |
| 179601-23-1 | m,p-Xylenes | 426 | **362** | **85** | 64-114 | |
| 75-25-2 | Bromoform | 213 | **222** | **104** | 65-132 | |
| 100-42-5 | Styrene | 212 | **207** | **98** | 67-124 | |
| 95-47-6 | o-Xylene | 214 | **183** | **86** | 65-114 | |
| 111-84-2 | n-Nonane | 215 | **186** | **87** | 64-117 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 214 | **190** | **89** | 66-119 | |
| 98-82-8 | Cumene | 214 | **185** | **86** | 61-116 | |
| 80-56-8 | alpha-Pinene | 211 | **187** | **89** | 65-120 | |
| 103-65-1 | n-Propylbenzene | 218 | **190** | **87** | 63-117 | |
| 622-96-8 | 4-Ethyltoluene | 214 | **194** | **91** | 63-124 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 214 | **184** | **86** | 60-117 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 215 | **185** | **86** | 61-122 | |
| 100-44-7 | Benzyl Chloride | 217 | **194** | **89** | 77-142 | |
| 541-73-1 | 1,3-Dichlorobenzene | 216 | **192** | **89** | 61-125 | |
| 106-46-7 | 1,4-Dichlorobenzene | 216 | **195** | **90** | 59-123 | |
| 95-50-1 | 1,2-Dichlorobenzene | 216 | **189** | **88** | 61-126 | |
| 5989-27-5 | d-Limonene | 211 | **194** | **92** | 66-124 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | 209 | **194** | **93** | 67-138 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 214 | **178** | **83** | 62-141 | |
| 91-20-3 | Naphthalene | 203 | **161** | **79** | 62-145 | |
| 87-68-3 | Hexachlorobutadiene | 209 | **193** | **92** | 49-131 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS

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# LABORATORY REPORT

January 10, 2019

Bryan Szalda
GHD Services Inc.
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, NY 14304

**RE: High Acres Waste Evaluation Study / 089290-1817**

Dear Bryan:

Enclosed are the results of the samples submitted to our laboratory on December 19, 2018. For your reference, these analyses have been assigned our service request number P1806990.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**ALS | Environmental**

Sue Anderson

***By Sue Anderson at 4:30 pm, Jan 10, 2019***

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
**T:** +1 805 526 7161
**www.alsglobal.com**

| | | | |
|---|---|---|---|
| Client: | GHD Services Inc. | Service Request No: | P1806990 |
| Project: | High Acres Waste Evaluation Study / 089290-1817 | New York Lab ID: | 11221 |

---

## CASE NARRATIVE

The samples were received intact under chain of custody on December 19, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

### Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per ASTM D 5504-12 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP accreditation.

### Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

---

*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

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Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

## ALS Environmental - Simi Valley

## CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEC | http://dec.alaska.gov/eh/lab.aspx | 17-019 |
| Arizona DHS | http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home | AZ0694 |
| Florida DOH (NELAP) | http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html | E871020 |
| Louisiana DEQ (NELAP) | http://www.deq.louisiana.gov/page/la-lab-accreditation | 05071 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml | 2018027 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 1521096 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/enforcement/oqa.html | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-005 |
| Pennsylvania DEP | http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx | 68-03307 (Registration) |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html | T104704413-18-9 |
| Utah DOH (NELAP) | http://health.utah.gov/lab/lab_cert_env | CA016272018-9 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

# ALS ENVIRONMENTAL

## DETAIL SUMMARY REPORT

Client: GHD Services Inc.
Project ID: High Acres Waste Evaluation Study / 089290-1817

Service Request: P1806990

Date Received: 12/19/2018
Time Received: 11:00

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | Container ID | Pi1 (psig) | Pf1 (psig) | ASTM D 5504-12 - Sulfur Can | TO-15 - VOC Cans |
|---|---|---|---|---|---|---|---|---|---|
| WM-089290-121318-BPS-009 | P1806990-001 | Air | 12/13/2018 | 18:54 | SSC00041 | -0.18 | 3.87 | X | X |
| WM-089290-121418-BPS-010 | P1806990-002 | Air | 12/14/2018 | 12:57 | SSC00435 | -0.04 | 3.93 | X | X |
| WM-089290-121518-BPS-011 | P1806990-003 | Air | 12/15/2018 | 11:30 | SSC00433 | 0.05 | 3.45 | X | X |
| WM-089290-121718-BPS-012 | P1806990-004 | Air | 12/17/2018 | 13:14 | SSC00289 | 0.07 | 3.70 | X | X |

# Air - Chain of Custody Record & Analytical Service Request

ALS
2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Page 1 of 1

P1806990

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) [✓ 10-Day-Standard]

ALS Project No 95312

Company Name & Address (Reporting Information)
GHD
2055 Niagara Falls Blvd.
Niagara Falls, NY 14304

Project Manager: Bryan P. Szalda

Phone: 716-297-6150

Fax: 716-297-2265

Email Address for Result Reporting: Bryan.Szalda@ghd.com

Project Name: High Acres Waste Evaluation Study

Project Number: 089290-1817

P.O. # / Billing Information:

Sampler (Print & Sign): Bryan P. Szalda Bryan P Szalda

ALS Contact: Sue Anderson

Analysis Method

| Client Sample ID | Laboratory ID Number | Date Collected | Time Collected | Canister ID (Bar code # - AC, SC, etc.) | Flow Controller ID (Bar code # - FC #) | Canister Start Pressure "Hg | Canister End Pressure "Hg/psig | Sample Volume | TO-15 including TICs | ASTM 5504 Sulfurs | Comments e.g. Actual Preservative or specific instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WM-089290-121318-BPS-009 | 1 | 12/13/18 | 17:30-18:54 | SSC 00041 | SoA 00334 | -30.08 | -3.19 | 6L | X | X | 7-day hold time |
| WM-089290-121418-BPS-010 | 2 | 12/14/18 | 11:27-12:57 | SSC 00435 | SoA 00236 | -30.12 | -1.56 | 6L | X | X | 7-day hold time |
| WM-089290-121518-BPS-011 | 3 | 12/15/18 | 10:00-11:30 | SSC 00433 | SoA 00256 | -30.02 | -1.80 | 6L | X | X | 7-day hold time |
| WM-089290-121718-BPS-012 | 4 | 12/17/18 | 11:44-13:14 | SSC 00289 | SoA 00269 | -29.79 | -1.71 | 6L | X | X | 7-day hold time |

Report Tier Levels - please select
Tier I - Results (Default in not specified) ______
Tier II (Results + QC Summaries ______
Tier III (Results + QC & Calibration Summaries) ______
Tier IV (Date Validation Package) 10% Surcharge ______

EDD required YES / No
Type: ______ Units: ______

Chain of Custody Seal: (Circle)
INTACT BROKEN [✓ ABSENT]

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature) Bryan P Szalda Date: 12/18/18 Time: 13:39
Received by: (Signature) Date: Time:
Relinquished by: (Signature) Date: Time:
Received by: (Signature) 12-19-18 Date: Time: 1100
Cooler / Blank Temperature ____ °C

# ALS Environmental
## Sample Acceptance Check Form

Client: GHD Services Inc. Work order: P1806990

Project: High Acres Waste Evaluation Study / 089290-1817

Sample(s) received on: 12/19/18 Date opened: 12/19/18 by: ADAVID

*__Note:__* This form is used for __all__ samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

| | | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Were **sample containers** properly marked with client sample ID? | ☒ | ☐ | ☐ |
| 2 | Did **sample containers** arrive in good condition? | ☒ | ☐ | ☐ |
| 3 | Were **chain-of-custody** papers used and filled out? | ☒ | ☐ | ☐ |
| 4 | Did **sample container labels** and/or tags agree with custody papers? | ☒ | ☐ | ☐ |
| 5 | Was **sample volume** received adequate for analysis? | ☒ | ☐ | ☐ |
| 6 | Are samples within specified holding times? | ☒ | ☐ | ☐ |
| 7 | Was proper **temperature** (thermal preservation) of cooler at receipt adhered to? | ☐ | ☐ | ☒ |
| 8 | Were **custody seals** on outside of cooler/Box/Container? | ☐ | ☒ | ☐ |
| | Location of seal(s)? Sealing Lid? | ☐ | ☐ | ☒ |
| | Were signature and date included? | ☐ | ☐ | ☒ |
| | Were seals intact? | ☐ | ☐ | ☒ |
| 9 | Do containers have appropriate **preservation**, according to method/SOP or Client specified information? | ☐ | ☐ | ☒ |
| | Is there a client indication that the submitted samples are **pH** preserved? | ☐ | ☐ | ☒ |
| | Were __**VOA vials**__ checked for presence/absence of air bubbles? | ☐ | ☐ | ☒ |
| | Does the client/method/SOP require that the analyst check the sample pH and __if necessary__ alter it? | ☐ | ☐ | ☒ |
| 10 | **Tubes:** Are the tubes capped and intact? | ☐ | ☐ | ☒ |
| 11 | **Badges:** Are the badges properly capped and intact? | ☐ | ☐ | ☒ |
| | Are dual bed badges separated and individually capped and intact? | ☐ | ☐ | ☒ |

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P1806990-001.01 | 6.0 L Silonite Can | | | | | |
| P1806990-002.01 | 6.0 L Silonite Can | | | | | |
| P1806990-003.01 | 6.0 L Silonite Can | | | | | |
| P1806990-004.01 | 6.0 L Silonite Can | | | | | |
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Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-009**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-001

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00041

Date Collected: 12/13/18
Time Collected: 18:54
Date Received: 12/19/18
Date Analyzed: 12/20/18
Time Analyzed: 16:49
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.18 Final Pressure (psig): 3.87

Container Dilution Factor: 1.28

| CAS # | Compound | **Result µg/m$^3$** | MRL µg/m$^3$ | MDL µg/m$^3$ | **Result ppbV** | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.9 | 2.7 | ND | 6.4 | 1.9 | |
| 463-58-1 | Carbonyl Sulfide | **17** | 16 | NA | **7.1** | 6.4 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 13 | 5.0 | ND | 6.4 | 2.6 | |
| 75-08-1 | Ethyl Mercaptan | ND | 16 | 6.5 | ND | 6.4 | 2.6 | |
| 75-18-3 | Dimethyl Sulfide | **23** | 16 | 6.5 | **8.9** | 6.4 | 2.6 | |
| 75-15-0 | Carbon Disulfide | ND | 10 | NA | ND | 3.2 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 20 | 8.0 | ND | 6.4 | 2.6 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 24 | 9.4 | ND | 6.4 | 2.6 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 20 | 8.0 | ND | 6.4 | 2.6 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 20 | 8.0 | ND | 6.4 | 2.6 | |
| 110-02-1 | Thiophene | ND | 22 | 8.8 | ND | 6.4 | 2.6 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 24 | 9.4 | ND | 6.4 | 2.6 | |
| 352-93-2 | Diethyl Sulfide | ND | 24 | 9.4 | ND | 6.4 | 2.6 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 24 | 9.4 | ND | 6.4 | 2.6 | |
| 624-92-0 | Dimethyl Disulfide | **27** | 12 | 4.9 | **7.1** | 3.2 | 1.3 | |
| 616-44-4 | 3-Methylthiophene | ND | 26 | 10 | ND | 6.4 | 2.6 | |
| 110-01-0 | Tetrahydrothiophene | ND | 23 | 9.2 | ND | 6.4 | 2.6 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 29 | 12 | ND | 6.4 | 2.6 | |
| 872-55-9 | 2-Ethylthiophene | ND | 29 | 12 | ND | 6.4 | 2.6 | |
| 110-81-6 | Diethyl Disulfide | ND | 16 | 13 | ND | 3.2 | 2.6 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121418-BPS-010**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-002

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00435

Date Collected: 12/14/18
Time Collected: 12:57
Date Received: 12/19/18
Date Analyzed: 12/21/18
Time Analyzed: 09:57
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.04 Final Pressure (psig): 3.93

Container Dilution Factor: 1.27

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.8 | 2.7 | ND | 6.4 | 1.9 | |
| 463-58-1 | Carbonyl Sulfide | **39** | 16 | NA | **16** | 6.4 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 5.0 | ND | 6.4 | 2.5 | |
| 75-08-1 | Ethyl Mercaptan | ND | 16 | 6.5 | ND | 6.4 | 2.5 | |
| 75-18-3 | Dimethyl Sulfide | **140** | 16 | 6.5 | **57** | 6.4 | 2.5 | |
| 75-15-0 | Carbon Disulfide | **24** | 9.9 | NA | **7.8** | 3.2 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 20 | 7.9 | ND | 6.4 | 2.5 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 23 | 9.4 | ND | 6.4 | 2.5 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 20 | 7.9 | ND | 6.4 | 2.5 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 20 | 7.9 | ND | 6.4 | 2.5 | |
| 110-02-1 | Thiophene | ND | 22 | 8.7 | ND | 6.4 | 2.5 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 23 | 9.4 | ND | 6.4 | 2.5 | |
| 352-93-2 | Diethyl Sulfide | **45** | 23 | 9.4 | **12** | 6.4 | 2.5 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 23 | 9.4 | ND | 6.4 | 2.5 | |
| 624-92-0 | Dimethyl Disulfide | **250** | 12 | 4.9 | **64** | 3.2 | 1.3 | |
| 616-44-4 | 3-Methylthiophene | ND | 25 | 10 | ND | 6.4 | 2.5 | |
| 110-01-0 | Tetrahydrothiophene | ND | 23 | 9.2 | ND | 6.4 | 2.5 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 29 | 12 | ND | 6.4 | 2.5 | |
| 872-55-9 | 2-Ethylthiophene | ND | 29 | 12 | ND | 6.4 | 2.5 | |
| 110-81-6 | Diethyl Disulfide | ND | 16 | 13 | ND | 3.2 | 2.5 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121518-BPS-011**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-003

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00433

Date Collected: 12/15/18
Time Collected: 11:30
Date Received: 12/19/18
Date Analyzed: 12/21/18
Time Analyzed: 10:10
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.05    Final Pressure (psig): 3.45

Container Dilution Factor: 1.23

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.6 | 2.6 | ND | 6.2 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | **61** | 15 | NA | **25** | 6.2 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.8 | ND | 6.2 | 2.5 | |
| 75-08-1 | Ethyl Mercaptan | ND | 16 | 6.2 | ND | 6.2 | 2.5 | |
| 75-18-3 | Dimethyl Sulfide | **72** | 16 | 6.2 | **28** | 6.2 | 2.5 | |
| 75-15-0 | Carbon Disulfide | **19** | 9.6 | NA | **6.0** | 3.1 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 110-02-1 | Thiophene | ND | 21 | 8.5 | ND | 6.2 | 2.5 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 352-93-2 | Diethyl Sulfide | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 624-92-0 | Dimethyl Disulfide | **190** | 12 | 4.7 | **49** | 3.1 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 25 | 9.9 | ND | 6.2 | 2.5 | |
| 110-01-0 | Tetrahydrothiophene | ND | 22 | 8.9 | ND | 6.2 | 2.5 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 28 | 11 | ND | 6.2 | 2.5 | |
| 872-55-9 | 2-Ethylthiophene | ND | 28 | 11 | ND | 6.2 | 2.5 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.1 | 2.5 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121718-BPS-012**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-004

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00289

Date Collected: 12/17/18
Time Collected: 13:14
Date Received: 12/19/18
Date Analyzed: 12/21/18
Time Analyzed: 10:27
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.07 Final Pressure (psig): 3.70

Container Dilution Factor: 1.25

| **CAS #** | **Compound** | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 8.7 | 2.6 | ND | 6.3 | 1.9 | |
| 463-58-1 | Carbonyl Sulfide | ND | 15 | NA | ND | 6.3 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.9 | ND | 6.3 | 2.5 | |
| 75-08-1 | Ethyl Mercaptan | ND | 16 | 6.4 | ND | 6.3 | 2.5 | |
| 75-18-3 | Dimethyl Sulfide | ND | 16 | 6.4 | ND | 6.3 | 2.5 | |
| 75-15-0 | Carbon Disulfide | ND | 9.7 | NA | ND | 3.1 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 110-02-1 | Thiophene | ND | 21 | 8.6 | ND | 6.3 | 2.5 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 352-93-2 | Diethyl Sulfide | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 624-92-0 | Dimethyl Disulfide | ND | 12 | 4.8 | ND | 3.1 | 1.3 | |
| 616-44-4 | 3-Methylthiophene | ND | 25 | 10 | ND | 6.3 | 2.5 | |
| 110-01-0 | Tetrahydrothiophene | ND | 23 | 9.0 | ND | 6.3 | 2.5 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 29 | 11 | ND | 6.3 | 2.5 | |
| 872-55-9 | 2-Ethylthiophene | ND | 29 | 11 | ND | 6.3 | 2.5 | |
| 110-81-6 | Diethyl Disulfide | ND | 16 | 12 | ND | 3.1 | 2.5 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P181220-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 12/20/18
Time Analyzed: 09:04
Volume(s) Analyzed: 1.0 ml(s)

| **CAS #** | **Compound** | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 7.0 | 2.1 | ND | 5.0 | 1.5 | |
| 463-58-1 | Carbonyl Sulfide | ND | 12 | NA | ND | 5.0 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 9.8 | 3.9 | ND | 5.0 | 2.0 | |
| 75-08-1 | Ethyl Mercaptan | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-18-3 | Dimethyl Sulfide | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-15-0 | Carbon Disulfide | ND | 7.8 | NA | ND | 2.5 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 110-02-1 | Thiophene | ND | 17 | 6.9 | ND | 5.0 | 2.0 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 352-93-2 | Diethyl Sulfide | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 624-92-0 | Dimethyl Disulfide | ND | 9.6 | 3.9 | ND | 2.5 | 1.0 | |
| 616-44-4 | 3-Methylthiophene | ND | 20 | 8.0 | ND | 5.0 | 2.0 | |
| 110-01-0 | Tetrahydrothiophene | ND | 18 | 7.2 | ND | 5.0 | 2.0 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 872-55-9 | 2-Ethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 110-81-6 | Diethyl Disulfide | ND | 12 | 10 | ND | 2.5 | 2.0 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
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**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P181221-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 12/21/18
Time Analyzed: 08:47
Volume(s) Analyzed: 1.0 ml(s)

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 7.0 | 2.1 | ND | 5.0 | 1.5 | |
| 463-58-1 | Carbonyl Sulfide | ND | 12 | NA | ND | 5.0 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 9.8 | 3.9 | ND | 5.0 | 2.0 | |
| 75-08-1 | Ethyl Mercaptan | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-18-3 | Dimethyl Sulfide | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-15-0 | Carbon Disulfide | ND | 7.8 | NA | ND | 2.5 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 110-02-1 | Thiophene | ND | 17 | 6.9 | ND | 5.0 | 2.0 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 352-93-2 | Diethyl Sulfide | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 624-92-0 | Dimethyl Disulfide | ND | 9.6 | 3.9 | ND | 2.5 | 1.0 | |
| 616-44-4 | 3-Methylthiophene | ND | 20 | 8.0 | ND | 5.0 | 2.0 | |
| 110-01-0 | Tetrahydrothiophene | ND | 18 | 7.2 | ND | 5.0 | 2.0 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 872-55-9 | 2-Ethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 110-81-6 | Diethyl Disulfide | ND | 12 | 10 | ND | 2.5 | 2.0 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P181220-LCS

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/20/18
Volume(s) Analyzed: NA ml(s)

| **CAS #** | **Compound** | Spike Amount ppbV | **Result ppbV** | **% Recovery** | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | 989 | **985** | **100** | 81-141 | |
| 463-58-1 | Carbonyl Sulfide | 1,050 | **1,060** | **101** | 81-147 | |
| 74-93-1 | Methyl Mercaptan | 1,050 | **1,090** | **104** | 80-144 | |

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P181221-LCS

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/21/18
Volume(s) Analyzed: NA ml(s)

| CAS # | Compound | Spike Amount ppbV | Result ppbV | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | 989 | **966** | **98** | 81-141 | |
| 463-58-1 | Carbonyl Sulfide | 1,050 | **998** | **95** | 81-147 | |
| 74-93-1 | Methyl Mercaptan | 1,050 | **1,040** | **99** | 80-144 | |

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-009**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00041

Date Collected: 12/13/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): -0.18 Final Pressure (psig): 3.87

Container Dilution Factor: 1.28

| **CAS #** | **Compound** | **Result** µg/m$^3$ | MRL µg/m$^3$ | MDL µg/m$^3$ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 11 | 2.8 | ND | 6.4 | 1.6 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **3.2** | 11 | 1.9 | **0.66** | 2.2 | 0.38 | J |
| 74-87-3 | Chloromethane | ND | 11 | 1.8 | ND | 5.2 | 0.89 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 11 | 1.8 | ND | 1.6 | 0.26 | |
| 75-01-4 | Vinyl Chloride | ND | 11 | 1.2 | ND | 4.4 | 0.48 | |
| 106-99-0 | 1,3-Butadiene | ND | 11 | 1.9 | ND | 5.0 | 0.85 | |
| 74-83-9 | Bromomethane | ND | 11 | 1.6 | ND | 2.7 | 0.41 | |
| 75-00-3 | Chloroethane | ND | 11 | 1.4 | ND | 4.1 | 0.53 | |
| 64-17-5 | Ethanol | **19,000** | 440 | 32 | **9,800** | 230 | 17 | D |
| 75-05-8 | Acetonitrile | ND | 11 | 2.8 | ND | 6.6 | 1.7 | |
| 107-02-8 | Acrolein | ND | 21 | 3.2 | ND | 9.3 | 1.4 | |
| 67-64-1 | Acetone | **2,100** | 120 | 26 | **870** | 49 | 11 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **18** | 11 | 1.7 | **3.1** | 2.0 | 0.31 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **550** | 45 | 4.7 | **220** | 18 | 1.9 | |
| 107-13-1 | Acrylonitrile | ND | 11 | 2.3 | ND | 5.1 | 1.1 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 12 | 1.6 | ND | 2.9 | 0.40 | |
| 75-09-2 | Methylene Chloride | **140** | 12 | 3.2 | **41** | 3.3 | 0.92 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 11 | 1.5 | ND | 3.6 | 0.49 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 11 | 1.6 | ND | 1.5 | 0.21 | |
| 75-15-0 | Carbon Disulfide | **5.5** | 23 | 3.4 | **1.8** | 7.5 | 1.1 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 11 | 1.6 | ND | 2.9 | 0.40 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 11 | 1.7 | ND | 2.7 | 0.41 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 12 | 1.3 | ND | 3.2 | 0.37 | |
| 108-05-4 | Vinyl Acetate | **330** | 110 | 26 | **93** | 32 | 7.3 | |
| 78-93-3 | 2-Butanone (MEK) | **140** | 21 | 2.3 | **46** | 7.2 | 0.80 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-009**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00041

Date Collected: 12/13/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): -0.18 Final Pressure (psig): 3.87

Container Dilution Factor: 1.28

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 11 | 1.6 | ND | 2.9 | 0.40 | |
| 141-78-6 | Ethyl Acetate | **1,100** | 23 | 6.0 | **300** | 6.5 | 1.7 | |
| 110-54-3 | n-Hexane | ND | 12 | 2.3 | ND | 3.3 | 0.67 | |
| 67-66-3 | Chloroform | **2.2** | 12 | 1.5 | **0.45** | 2.4 | 0.31 | **J** |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 11 | 1.4 | ND | 3.8 | 0.48 | |
| 107-06-2 | 1,2-Dichloroethane | **3.7** | 11 | 1.3 | **0.91** | 2.8 | 0.31 | **J** |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 12 | 1.4 | ND | 2.1 | 0.26 | |
| 71-43-2 | Benzene | **5.7** | 11 | 1.6 | **1.8** | 3.5 | 0.51 | **J** |
| 56-23-5 | Carbon Tetrachloride | ND | 11 | 1.6 | ND | 1.8 | 0.25 | |
| 110-82-7 | Cyclohexane | **8.4** | 21 | 3.2 | **2.4** | 6.2 | 0.93 | **J** |
| 78-87-5 | 1,2-Dichloropropane | ND | 12 | 1.4 | ND | 2.5 | 0.30 | |
| 75-27-4 | Bromodichloromethane | ND | 11 | 1.6 | ND | 1.7 | 0.25 | |
| 79-01-6 | Trichloroethene | **1.8** | 11 | 1.5 | **0.33** | 2.1 | 0.29 | **J** |
| 123-91-1 | 1,4-Dioxane | ND | 11 | 1.3 | ND | 3.1 | 0.37 | |
| 80-62-6 | Methyl Methacrylate | ND | 23 | 4.1 | ND | 5.7 | 0.99 | |
| 142-82-5 | n-Heptane | 46 | 12 | 1.8 | **11** | 2.8 | 0.44 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 12 | 1.8 | ND | 2.6 | 0.39 | |
| 108-10-1 | 4-Methyl-2-pentanone | **3.6** | 11 | 1.6 | **0.89** | 2.8 | 0.38 | **J** |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 11 | 2.3 | ND | 2.5 | 0.52 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 12 | 1.2 | ND | 2.1 | 0.21 | |
| 108-88-3 | Toluene | **120** | 11 | 1.4 | **31** | 3.0 | 0.37 | |
| 591-78-6 | 2-Hexanone | ND | 12 | 1.4 | ND | 2.8 | 0.34 | |
| 124-48-1 | Dibromochloromethane | ND | 12 | 1.5 | ND | 1.4 | 0.18 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 12 | 1.3 | ND | 1.5 | 0.17 | |
| 123-86-4 | n-Butyl Acetate | **24** | 12 | 1.6 | **5.0** | 2.4 | 0.33 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-009**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00041

Date Collected: 12/13/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): -0.18 Final Pressure (psig): 3.87

Container Dilution Factor: 1.28

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **46** | 12 | 2.6 | **9.8** | 2.5 | 0.55 | |
| 127-18-4 | Tetrachloroethene | **4.7** | 11 | 1.5 | **0.70** | 1.7 | 0.22 | J |
| 108-90-7 | Chlorobenzene | ND | 11 | 1.5 | ND | 2.5 | 0.33 | |
| 100-41-4 | Ethylbenzene | **63** | 11 | 1.6 | **15** | 2.6 | 0.37 | |
| 179601-23-1 | m,p-Xylenes | **210** | 23 | 3.0 | **48** | 5.4 | 0.69 | |
| 75-25-2 | Bromoform | ND | 11 | 2.3 | ND | 1.1 | 0.23 | |
| 100-42-5 | Styrene | **13** | 11 | 1.8 | **3.1** | 2.7 | 0.43 | |
| 95-47-6 | o-Xylene | **66** | 11 | 1.6 | **15** | 2.6 | 0.38 | |
| 111-84-2 | n-Nonane | **250** | 12 | 1.9 | **48** | 2.2 | 0.36 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 11 | 1.6 | ND | 1.6 | 0.23 | |
| 98-82-8 | Cumene | **6.4** | 11 | 1.6 | **1.3** | 2.3 | 0.33 | J |
| 80-56-8 | alpha-Pinene | **150** | 11 | 1.7 | **27** | 2.0 | 0.31 | |
| 103-65-1 | n-Propylbenzene | **14** | 12 | 1.6 | **2.8** | 2.3 | 0.33 | |
| 622-96-8 | 4-Ethyltoluene | **18** | 11 | 1.8 | **3.7** | 2.3 | 0.37 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | **20** | 11 | 1.6 | **4.1** | 2.3 | 0.33 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | **61** | 11 | 1.6 | **12** | 2.3 | 0.32 | |
| 100-44-7 | Benzyl Chloride | ND | 23 | 2.6 | ND | 4.5 | 0.49 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 12 | 1.7 | ND | 1.9 | 0.28 | |
| 106-46-7 | 1,4-Dichlorobenzene | **8.3** | 12 | 1.7 | **1.4** | 1.9 | 0.29 | J |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 12 | 1.7 | ND | 1.9 | 0.28 | |
| 5989-27-5 | d-Limonene | **2,100** | 11 | 2.3 | **370** | 2.0 | 0.42 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 11 | 2.1 | ND | 1.1 | 0.22 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 11 | 2.8 | ND | 1.5 | 0.37 | |
| 91-20-3 | Naphthalene | ND | 11 | 2.8 | ND | 2.1 | 0.53 | |
| 87-68-3 | Hexachlorobutadiene | ND | 11 | 2.3 | ND | 1.1 | 0.22 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The mininum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121318-BPS-009**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-001

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes: T
Container ID: SSC00041

Date Collected: 12/13/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): -0.18 Final Pressure (psig): 3.87

Container Dilution Factor: 1.28

| GC/MS Retention Time | Compound Identification | Concentration µg/m³ | Data Qualifier |
|---|---|---|---|
| 3.87 | 1,1-Difluoroethane | 260 | |
| 4.02 | Propane | 210 | |
| 4.67 | Isobutane | 6,600 | |
| 5.19 | n-Butane | 3,100 | |
| 6.88 | 2-Methylbutane | 6,500 | |
| 7.67 | n-Pentane | 2,300 | |
| 18.54 | C9H18 Compound | 91 | |
| 18.88 | C9H18 Compound | 100 | |
| 19.09 | unknown | 86 | |
| 19.20 | 2,6-Dimethyloctane | 130 | |
| 19.70 | unknown hydrocarbon | 230 | |
| 19.86 | .beta.-Myrcene | 88 | |
| 19.91 | beta-Pinene | 360 | |
| 19.97 | 1,2,3-Trimethylbenzene | 220 | |
| 20.06 | n-Decane | 370 | |
| 20.29 | 3-Carene | 82 | |
| 20.36 | 4-Methyldecane | 210 | |
| 20.57 | n-Butylcyclohexane | 94 | |
| 20.76 | .gamma.-Terpinene | 260 | |
| 21.17 | n-Undecane | 92 | |
| 21.63 | unknown Siloxane | 94 | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-121418-BPS-010** | ALS Project ID: | P1806990 |
| **Client Project ID:** | **High Acres Waste Evaluation Study / 089290-1817** | ALS Sample ID: | P1806990-002 |
| Test Code: | EPA TO-15 | Date Collected: | 12/14/18 |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 | Date Received: | 12/19/18 |
| Analyst: | Wida Ang | Date Analyzed: | 1/9/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.015 Liter(s)<br>0.0050 Liter(s) |
| Test Notes: | | | |
| Container ID: | SSC00435 | | |

Initial Pressure (psig): -0.04 Final Pressure (psig): 3.93

Container Dilution Factor: 1.27

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 44 | 11 | ND | 26 | 6.4 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 44 | 7.4 | ND | 8.9 | 1.5 | |
| 74-87-3 | Chloromethane | ND | 42 | 7.3 | ND | 21 | 3.5 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 43 | 7.1 | ND | 6.2 | 1.0 | |
| 75-01-4 | Vinyl Chloride | ND | 45 | 4.8 | ND | 18 | 1.9 | |
| 106-99-0 | 1,3-Butadiene | ND | 44 | 7.5 | ND | 20 | 3.4 | |
| 74-83-9 | Bromomethane | ND | 42 | 6.3 | ND | 11 | 1.6 | |
| 75-00-3 | Chloroethane | ND | 43 | 5.6 | ND | 16 | 2.1 | |
| 64-17-5 | Ethanol | **82,000** | 1,300 | 94 | **44,000** | 690 | 50 | **D** |
| 75-05-8 | Acetonitrile | ND | 44 | 11 | ND | 26 | 6.6 | |
| 107-02-8 | Acrolein | ND | 85 | 13 | ND | 37 | 5.5 | |
| 67-64-1 | Acetone | **23,000** | 460 | 100 | **9,800** | 190 | 43 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **86** | 45 | 6.9 | **15** | 8.0 | 1.2 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **3,400** | 180 | 19 | **1,400** | 72 | 7.6 | |
| 107-13-1 | Acrylonitrile | ND | 44 | 9.3 | ND | 20 | 4.3 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 46 | 6.3 | ND | 12 | 1.6 | |
| 75-09-2 | Methylene Chloride | **16** | 46 | 13 | **4.6** | 13 | 3.7 | **J** |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 45 | 6.1 | ND | 14 | 1.9 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 45 | 6.4 | ND | 5.9 | 0.84 | |
| 75-15-0 | Carbon Disulfide | **16** | 93 | 14 | **5.1** | 30 | 4.4 | **J** |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 45 | 6.3 | ND | 11 | 1.6 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 44 | 6.6 | ND | 11 | 1.6 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 46 | 5.3 | ND | 13 | 1.5 | |
| 108-05-4 | Vinyl Acetate | **230** | 450 | 100 | **66** | 130 | 29 | **J** |
| 78-93-3 | 2-Butanone (MEK) | **6,000** | 85 | 9.3 | **2,000** | 29 | 3.2 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121418-BPS-010**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00435

Date Collected: 12/14/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0050 Liter(s)

Initial Pressure (psig): -0.04 Final Pressure (psig): 3.93

Container Dilution Factor: 1.27

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 45 | 6.4 | ND | 11 | 1.6 | |
| 141-78-6 | Ethyl Acetate | **7,100** | 93 | 24 | **2,000** | 26 | 6.6 | |
| 110-54-3 | n-Hexane | **37** | 46 | 9.3 | **11** | 13 | 2.6 | **J** |
| 67-66-3 | Chloroform | **31** | 46 | 6.0 | **6.4** | 9.4 | 1.2 | **J** |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 45 | 5.7 | ND | 15 | 1.9 | |
| 107-06-2 | 1,2-Dichloroethane | **51** | 45 | 5.0 | **13** | 11 | 1.2 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 46 | 5.6 | ND | 8.4 | 1.0 | |
| 71-43-2 | Benzene | ND | 44 | 6.5 | ND | 14 | 2.0 | |
| 56-23-5 | Carbon Tetrachloride | ND | 44 | 6.3 | ND | 7.0 | 1.0 | |
| 110-82-7 | Cyclohexane | **270** | 85 | 13 | **78** | 25 | 3.7 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 46 | 5.6 | ND | 9.9 | 1.2 | |
| 75-27-4 | Bromodichloromethane | ND | 45 | 6.5 | ND | 6.7 | 0.97 | |
| 79-01-6 | Trichloroethene | ND | 45 | 6.1 | ND | 8.4 | 1.1 | |
| 123-91-1 | 1,4-Dioxane | ND | 45 | 5.3 | ND | 12 | 1.5 | |
| 80-62-6 | Methyl Methacrylate | ND | 93 | 16 | ND | 23 | 3.9 | |
| 142-82-5 | n-Heptane | **1,800** | 46 | 7.2 | **430** | 11 | 1.8 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 47 | 7.0 | ND | 10 | 1.5 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 45 | 6.2 | ND | 11 | 1.5 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 45 | 9.3 | ND | 9.9 | 2.1 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 46 | 4.6 | ND | 8.4 | 0.84 | |
| 108-88-3 | Toluene | **490** | 45 | 5.5 | **130** | 12 | 1.5 | |
| 591-78-6 | 2-Hexanone | ND | 46 | 5.6 | ND | 11 | 1.4 | |
| 124-48-1 | Dibromochloromethane | ND | 46 | 5.9 | ND | 5.4 | 0.70 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 46 | 5.2 | ND | 6.0 | 0.68 | |
| 123-86-4 | n-Butyl Acetate | ND | 46 | 6.2 | ND | 9.6 | 1.3 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121418-BPS-010**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00435

Date Collected: 12/14/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0050 Liter(s)

Initial Pressure (psig): -0.04 Final Pressure (psig): 3.93

Container Dilution Factor: 1.27

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **1,300** | 46 | 10 | **280** | 9.8 | 2.2 | |
| 127-18-4 | Tetrachloroethene | **6.8** | 45 | 5.8 | **1.0** | 6.6 | 0.86 | J |
| 108-90-7 | Chlorobenzene | ND | 45 | 6.0 | ND | 9.7 | 1.3 | |
| 100-41-4 | Ethylbenzene | **67** | 44 | 6.4 | **16** | 10 | 1.5 | |
| 179601-23-1 | m,p-Xylenes | **200** | 93 | 12 | **46** | 21 | 2.7 | |
| 75-25-2 | Bromoform | ND | 45 | 9.3 | ND | 4.3 | 0.90 | |
| 100-42-5 | Styrene | **47** | 45 | 7.3 | **11** | 11 | 1.7 | |
| 95-47-6 | o-Xylene | **49** | 45 | 6.5 | **11** | 10 | 1.5 | |
| 111-84-2 | n-Nonane | **510** | 46 | 7.5 | **98** | 8.7 | 1.4 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 45 | 6.3 | ND | 6.5 | 0.91 | |
| 98-82-8 | Cumene | ND | 45 | 6.5 | ND | 9.1 | 1.3 | |
| 80-56-8 | alpha-Pinene | **280** | 44 | 6.9 | **50** | 7.9 | 1.2 | |
| 103-65-1 | n-Propylbenzene | ND | 46 | 6.5 | ND | 9.3 | 1.3 | |
| 622-96-8 | 4-Ethyltoluene | ND | 45 | 7.2 | ND | 9.1 | 1.5 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | **8.6** | 45 | 6.5 | **1.7** | 9.1 | 1.3 | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | **20** | 45 | 6.3 | **4.1** | 9.1 | 1.3 | J |
| 100-44-7 | Benzyl Chloride | ND | 93 | 10 | ND | 18 | 2.0 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 46 | 6.8 | ND | 7.6 | 1.1 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 46 | 6.9 | ND | 7.6 | 1.2 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 46 | 6.7 | ND | 7.6 | 1.1 | |
| 5989-27-5 | d-Limonene | **5,000** | 43 | 9.3 | **900** | 7.8 | 1.7 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 44 | 8.5 | ND | 4.6 | 0.88 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 45 | 11 | ND | 6.0 | 1.5 | |
| 91-20-3 | Naphthalene | ND | 43 | 11 | ND | 8.2 | 2.1 | |
| 87-68-3 | Hexachlorobutadiene | ND | 45 | 9.3 | ND | 4.2 | 0.87 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121418-BPS-010**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-002

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes: **T**
Container ID: SSC00435

Date Collected: 12/14/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0050 Liter(s)

Initial Pressure (psig): -0.04 Final Pressure (psig): 3.93

Container Dilution Factor: 1.27

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.37 | Dimethyl Ether | **500** | |
| 4.65 | Isobutane | **6,500** | |
| 5.17 | n-Butane | **1,700** | |
| 7.66 | n-Pentane | **2,900** | |
| 10.73 | 2-Butanol | **1,800** | |
| 11.63 | Isobutanol | **350** | |
| 13.20 | 2-Methylhexane | **500** | |
| 13.46 | 3-Methylhexane | **550** | |
| 13.92 | 1,1-Dimethylethyl Esteracetic Acid | **550** | |
| 14.78 | Methylcyclohexane | **3,500** | |
| 15.00 | 2,5-Dimethylhexane | **380** | |
| 15.07 | 2,4-Dimethylhexane | **510** | |
| 15.86 | 2-Methylheptane | **870** | |
| 16.05 | 3-Methylheptane | **820** | |
| 16.22 | 1,3-Dimethylcyclohexane | **650** | |
| 17.49 | unknown hydrocarbon | **450** | |
| 18.17 | 3-Methyloctane | **300** | |
| 19.92 | beta-Pinene | **490** | |
| 20.12 | 2,2,4,6,6-Pentamethylheptane | **350** | |
| 21.64 | unknown Siloxane | **360** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121518-BPS-011**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00433

Date Collected: 12/15/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.0050 Liter(s)
0.0025 Liter(s)

Initial Pressure (psig): 0.05 Final Pressure (psig): 3.45

Container Dilution Factor: 1.23

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 130 | 32 | ND | 74 | 19 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 130 | 21 | ND | 26 | 4.3 | |
| 74-87-3 | Chloromethane | ND | 120 | 21 | ND | 60 | 10 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 130 | 21 | ND | 18 | 3.0 | |
| 75-01-4 | Vinyl Chloride | ND | 130 | 14 | ND | 51 | 5.5 | |
| 106-99-0 | 1,3-Butadiene | ND | 130 | 22 | ND | 58 | 9.8 | |
| 74-83-9 | Bromomethane | ND | 120 | 18 | ND | 32 | 4.7 | |
| 75-00-3 | Chloroethane | ND | 130 | 16 | ND | 48 | 6.2 | |
| 64-17-5 | Ethanol | **95,000** | 2,500 | 180 | **51,000** | 1,300 | 97 | **D** |
| 75-05-8 | Acetonitrile | ND | 130 | 32 | ND | 76 | 19 | |
| 107-02-8 | Acrolein | ND | 250 | 37 | ND | 110 | 16 | |
| 67-64-1 | Acetone | **9,200** | 1,300 | 300 | **3,900** | 560 | 120 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 130 | 20 | ND | 23 | 3.5 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **13,000** | 520 | 54 | **5,500** | 210 | 22 | |
| 107-13-1 | Acrylonitrile | ND | 130 | 27 | ND | 59 | 12 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 130 | 18 | ND | 34 | 4.6 | |
| 75-09-2 | Methylene Chloride | **140** | 130 | 37 | **40** | 38 | 11 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 130 | 18 | ND | 42 | 5.7 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 130 | 19 | ND | 17 | 2.4 | |
| 75-15-0 | Carbon Disulfide | ND | 270 | 39 | ND | 87 | 13 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 130 | 18 | ND | 33 | 4.6 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 130 | 19 | ND | 32 | 4.7 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 130 | 15 | ND | 37 | 4.3 | |
| 108-05-4 | Vinyl Acetate | ND | 1,300 | 300 | ND | 370 | 84 | |
| 78-93-3 | 2-Butanone (MEK) | **1,700** | 250 | 27 | **580** | 83 | 9.2 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121518-BPS-011**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00433

Date Collected: 12/15/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.0050 Liter(s)
0.0025 Liter(s)

Initial Pressure (psig): 0.05 Final Pressure (psig): 3.45

Container Dilution Factor: 1.23

| CAS # | Compound | **Result**<br>**µg/m$^3$** | MRL<br>µg/m$^3$ | MDL<br>µg/m$^3$ | **Result**<br>**ppbV** | MRL<br>ppbV | MDL<br>ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 130 | 18 | ND | 33 | 4.7 | |
| 141-78-6 | Ethyl Acetate | **4,700** | 270 | 69 | **1,300** | 75 | 19 | |
| 110-54-3 | n-Hexane | ND | 130 | 27 | ND | 38 | 7.7 | |
| 67-66-3 | Chloroform | ND | 130 | 17 | ND | 27 | 3.6 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 130 | 16 | ND | 44 | 5.6 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 130 | 15 | ND | 32 | 3.6 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 130 | 16 | ND | 24 | 3.0 | |
| 71-43-2 | Benzene | ND | 130 | 19 | ND | 40 | 5.9 | |
| 56-23-5 | Carbon Tetrachloride | ND | 130 | 18 | ND | 20 | 2.9 | |
| 110-82-7 | Cyclohexane | **46** | 250 | 37 | **14** | 71 | 11 | **J** |
| 78-87-5 | 1,2-Dichloropropane | ND | 130 | 16 | ND | 29 | 3.5 | |
| 75-27-4 | Bromodichloromethane | ND | 130 | 19 | ND | 19 | 2.8 | |
| 79-01-6 | Trichloroethene | ND | 130 | 18 | ND | 24 | 3.3 | |
| 123-91-1 | 1,4-Dioxane | ND | 130 | 15 | ND | 36 | 4.3 | |
| 80-62-6 | Methyl Methacrylate | ND | 270 | 47 | ND | 66 | 11 | |
| 142-82-5 | n-Heptane | **250** | 130 | 21 | **60** | 32 | 5.1 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 140 | 20 | ND | 30 | 4.5 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 130 | 18 | ND | 32 | 4.4 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 130 | 27 | ND | 29 | 6.0 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 130 | 13 | ND | 24 | 2.4 | |
| 108-88-3 | Toluene | **460** | 130 | 16 | **120** | 35 | 4.2 | |
| 591-78-6 | 2-Hexanone | ND | 130 | 16 | ND | 32 | 4.0 | |
| 124-48-1 | Dibromochloromethane | ND | 130 | 17 | ND | 16 | 2.0 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 130 | 15 | ND | 17 | 2.0 | |
| 123-86-4 | n-Butyl Acetate | **26** | 130 | 18 | **5.5** | 28 | 3.8 | **J** |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121518-BPS-011**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00433

Date Collected: 12/15/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.0050 Liter(s)
0.0025 Liter(s)

Initial Pressure (psig): 0.05 Final Pressure (psig): 3.45

Container Dilution Factor: 1.23

| CAS # | Compound | **Result µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **82** | 130 | 30 | **18** | 28 | 6.3 | **J** |
| 127-18-4 | Tetrachloroethene | ND | 130 | 17 | ND | 19 | 2.5 | |
| 108-90-7 | Chlorobenzene | ND | 130 | 17 | ND | 28 | 3.8 | |
| 100-41-4 | Ethylbenzene | **49** | 130 | 18 | **11** | 29 | 4.2 | **J** |
| 179601-23-1 | m,p-Xylenes | **150** | 270 | 34 | **34** | 62 | 7.9 | **J** |
| 75-25-2 | Bromoform | ND | 130 | 27 | ND | 13 | 2.6 | |
| 100-42-5 | Styrene | **80** | 130 | 21 | **19** | 31 | 5.0 | **J** |
| 95-47-6 | o-Xylene | **57** | 130 | 19 | **13** | 30 | 4.4 | **J** |
| 111-84-2 | n-Nonane | **520** | 130 | 22 | **100** | 25 | 4.2 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 130 | 18 | ND | 19 | 2.7 | |
| 98-82-8 | Cumene | ND | 130 | 19 | ND | 27 | 3.9 | |
| 80-56-8 | alpha-Pinene | **350** | 130 | 20 | **63** | 23 | 3.6 | |
| 103-65-1 | n-Propylbenzene | ND | 130 | 19 | ND | 27 | 3.9 | |
| 622-96-8 | 4-Ethyltoluene | **25** | 130 | 21 | **5.1** | 27 | 4.3 | **J** |
| 108-67-8 | 1,3,5-Trimethylbenzene | **20** | 130 | 19 | **4.1** | 27 | 3.9 | **J** |
| 95-63-6 | 1,2,4-Trimethylbenzene | **54** | 130 | 18 | **11** | 27 | 3.7 | **J** |
| 100-44-7 | Benzyl Chloride | ND | 270 | 30 | ND | 52 | 5.7 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 130 | 20 | ND | 22 | 3.3 | |
| 106-46-7 | 1,4-Dichlorobenzene | **48** | 130 | 20 | **8.0** | 22 | 3.4 | **J** |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 130 | 19 | ND | 22 | 3.2 | |
| 5989-27-5 | d-Limonene | **10,000** | 130 | 27 | **1,800** | 23 | 4.9 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 130 | 25 | ND | 13 | 2.5 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 130 | 32 | ND | 18 | 4.3 | |
| 91-20-3 | Naphthalene | ND | 130 | 32 | ND | 24 | 6.1 | |
| 87-68-3 | Hexachlorobutadiene | ND | 130 | 27 | ND | 12 | 2.5 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121518-BPS-011**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-003

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes: **T**
Container ID: SSC00433

Date Collected: 12/15/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.0050 Liter(s)
0.0025 Liter(s)

Initial Pressure (psig): 0.05 Final Pressure (psig): 3.45

Container Dilution Factor: 1.23

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.65 | Isobutane | **6,100** | |
| 5.16 | n-Butane | **2,900** | |
| 6.86 | 2-Methylbutane | **7,000** | |
| 7.66 | n-Pentane | **2,900** | |
| 19.91 | beta-Pinene | **570** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121718-BPS-012**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00289

Date Collected: 12/17/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): 0.07 Final Pressure (psig): 3.70

Container Dilution Factor: 1.25

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 11 | 2.7 | ND | 6.3 | 1.6 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **2.3** | 11 | 1.8 | **0.46** | 2.2 | 0.37 | J |
| 74-87-3 | Chloromethane | ND | 10 | 1.8 | ND | 5.0 | 0.87 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 11 | 1.8 | ND | 1.5 | 0.25 | |
| 75-01-4 | Vinyl Chloride | ND | 11 | 1.2 | ND | 4.3 | 0.46 | |
| 106-99-0 | 1,3-Butadiene | ND | 11 | 1.8 | ND | 4.9 | 0.83 | |
| 74-83-9 | Bromomethane | ND | 10 | 1.5 | ND | 2.7 | 0.40 | |
| 75-00-3 | Chloroethane | **12** | 11 | 1.4 | **4.7** | 4.0 | 0.52 | |
| 64-17-5 | Ethanol | **25,000** | 430 | 31 | **13,000** | 230 | 16 | D |
| 75-05-8 | Acetonitrile | ND | 11 | 2.7 | ND | 6.5 | 1.6 | |
| 107-02-8 | Acrolein | ND | 21 | 3.1 | ND | 9.1 | 1.4 | |
| 67-64-1 | Acetone | **280** | 110 | 25 | **120** | 47 | 11 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 11 | 1.7 | ND | 2.0 | 0.30 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **720** | 44 | 4.6 | **290** | 18 | 1.9 | |
| 107-13-1 | Acrylonitrile | ND | 11 | 2.3 | ND | 5.0 | 1.1 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 11 | 1.5 | ND | 2.8 | 0.39 | |
| 75-09-2 | Methylene Chloride | ND | 11 | 3.1 | ND | 3.2 | 0.90 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 11 | 1.5 | ND | 3.5 | 0.48 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 11 | 1.6 | ND | 1.4 | 0.21 | |
| 75-15-0 | Carbon Disulfide | 4.4 | 23 | 3.3 | **1.4** | 7.4 | 1.1 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 11 | 1.5 | ND | 2.8 | 0.39 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 11 | 1.6 | ND | 2.7 | 0.40 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 11 | 1.3 | ND | 3.1 | 0.36 | |
| 108-05-4 | Vinyl Acetate | **65** | 110 | 25 | **19** | 31 | 7.1 | J |
| 78-93-3 | 2-Butanone (MEK) | **130** | 21 | 2.3 | **45** | 7.1 | 0.78 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121718-BPS-012**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00289

Date Collected: 12/17/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): 0.07 Final Pressure (psig): 3.70

Container Dilution Factor: 1.25

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 11 | 1.6 | ND | 2.8 | 0.39 | |
| 141-78-6 | Ethyl Acetate | **380** | 23 | 5.8 | **110** | 6.4 | 1.6 | |
| 110-54-3 | n-Hexane | ND | 11 | 2.3 | ND | 3.2 | 0.65 | |
| 67-66-3 | Chloroform | ND | 11 | 1.5 | ND | 2.3 | 0.30 | |
| 109-99-9 | Tetrahydrofuran (THF) | **12** | 11 | 1.4 | **4.0** | 3.7 | 0.47 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 11 | 1.2 | ND | 2.7 | 0.30 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 11 | 1.4 | ND | 2.1 | 0.25 | |
| 71-43-2 | Benzene | ND | 11 | 1.6 | ND | 3.4 | 0.50 | |
| 56-23-5 | Carbon Tetrachloride | ND | 11 | 1.5 | ND | 1.7 | 0.25 | |
| 110-82-7 | Cyclohexane | **5.8** | 21 | 3.1 | **1.7** | 6.1 | 0.91 | **J** |
| 78-87-5 | 1,2-Dichloropropane | ND | 11 | 1.4 | ND | 2.4 | 0.30 | |
| 75-27-4 | Bromodichloromethane | ND | 11 | 1.6 | ND | 1.6 | 0.24 | |
| 79-01-6 | Trichloroethene | ND | 11 | 1.5 | ND | 2.1 | 0.28 | |
| 123-91-1 | 1,4-Dioxane | ND | 11 | 1.3 | ND | 3.1 | 0.36 | |
| 80-62-6 | Methyl Methacrylate | ND | 23 | 4.0 | ND | 5.6 | 0.97 | |
| 142-82-5 | n-Heptane | **12** | 11 | 1.8 | **3.0** | 2.7 | 0.43 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 12 | 1.7 | ND | 2.6 | 0.38 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 11 | 1.5 | ND | 2.7 | 0.37 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 11 | 2.3 | ND | 2.4 | 0.50 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 11 | 1.1 | ND | 2.1 | 0.21 | |
| 108-88-3 | Toluene | **87** | 11 | 1.4 | **23** | 2.9 | 0.36 | |
| 591-78-6 | 2-Hexanone | ND | 11 | 1.4 | ND | 2.7 | 0.34 | |
| 124-48-1 | Dibromochloromethane | ND | 11 | 1.5 | ND | 1.3 | 0.17 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 11 | 1.3 | ND | 1.5 | 0.17 | |
| 123-86-4 | n-Butyl Acetate | **5.3** | 11 | 1.5 | **1.1** | 2.4 | 0.32 | **J** |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-121718-BPS-012** | ALS Project ID: | P1806990 |
| **Client Project ID:** | **High Acres Waste Evaluation Study / 089290-1817** | ALS Sample ID: | P1806990-004 |
| Test Code: | EPA TO-15 | Date Collected: | 12/17/18 |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 | Date Received: | 12/19/18 |
| Analyst: | Wida Ang | Date Analyzed: | 1/9/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.060 Liter(s)<br>0.015 Liter(s) |
| Test Notes: | | | |
| Container ID: | SSC00289 | | |

Initial Pressure (psig): 0.07 Final Pressure (psig): 3.70

Container Dilution Factor: 1.25

| CAS # | Compound | **Result µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **10** | 11 | 2.5 | **2.2** | 2.4 | 0.54 | **J** |
| 127-18-4 | Tetrachloroethene | ND | 11 | 1.4 | ND | 1.6 | 0.21 | |
| 108-90-7 | Chlorobenzene | ND | 11 | 1.5 | ND | 2.4 | 0.32 | |
| 100-41-4 | Ethylbenzene | **16** | 11 | 1.6 | **3.8** | 2.5 | 0.36 | |
| 179601-23-1 | m,p-Xylenes | **51** | 23 | 2.9 | **12** | 5.3 | 0.67 | |
| 75-25-2 | Bromoform | ND | 11 | 2.3 | ND | 1.1 | 0.22 | |
| 100-42-5 | Styrene | **12** | 11 | 1.8 | **2.9** | 2.6 | 0.42 | |
| 95-47-6 | o-Xylene | **18** | 11 | 1.6 | **4.2** | 2.5 | 0.37 | |
| 111-84-2 | n-Nonane | **84** | 11 | 1.9 | **16** | 2.1 | 0.35 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 11 | 1.5 | ND | 1.6 | 0.22 | |
| 98-82-8 | Cumene | **2.3** | 11 | 1.6 | **0.47** | 2.2 | 0.33 | **J** |
| 80-56-8 | alpha-Pinene | **200** | 11 | 1.7 | **36** | 1.9 | 0.31 | |
| 103-65-1 | n-Propylbenzene | **4.5** | 11 | 1.6 | **0.92** | 2.3 | 0.33 | **J** |
| 622-96-8 | 4-Ethyltoluene | **8.3** | 11 | 1.8 | **1.7** | 2.2 | 0.36 | **J** |
| 108-67-8 | 1,3,5-Trimethylbenzene | **5.8** | 11 | 1.6 | **1.2** | 2.2 | 0.33 | **J** |
| 95-63-6 | 1,2,4-Trimethylbenzene | **16** | 11 | 1.5 | **3.3** | 2.2 | 0.31 | |
| 100-44-7 | Benzyl Chloride | ND | 23 | 2.5 | ND | 4.4 | 0.48 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 11 | 1.7 | ND | 1.9 | 0.28 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 11 | 1.7 | ND | 1.9 | 0.28 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 11 | 1.6 | ND | 1.9 | 0.27 | |
| 5989-27-5 | d-Limonene | **910** | 11 | 2.3 | **160** | 1.9 | 0.41 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 11 | 2.1 | ND | 1.1 | 0.22 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 11 | 2.7 | ND | 1.5 | 0.36 | |
| 91-20-3 | Naphthalene | ND | 11 | 2.7 | ND | 2.0 | 0.52 | |
| 87-68-3 | Hexachlorobutadiene | ND | 11 | 2.3 | ND | 1.0 | 0.21 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-121718-BPS-012**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P1806990-004

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes: **T**
Container ID: SSC00289

Date Collected: 12/17/18
Date Received: 12/19/18
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): 0.07 Final Pressure (psig): 3.70

Container Dilution Factor: 1.25

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.40 | Dimethyl Ether | 65 | |
| 4.65 | Isobutane | **200** | |
| 5.17 | n-Butane | **120** | |
| 6.86 | 2-Methylbutane | **510** | |
| 7.66 | n-Pentane | **250** | |
| 9.40 | 1-Propanol | 60 | |
| 10.75 | 2-Butanol | **230** | |
| 19.54 | Camphene | 97 | |
| 19.91 | beta-Pinene | **120** | |
| 20.06 | n-Decane | 78 | |
| 20.36 | unknown | 46 | |
| 20.76 | .gamma.-Terpinene | 44 | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P190108-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| **CAS #** | **Compound** | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 0.52 | 0.13 | ND | 0.30 | 0.076 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 0.52 | 0.087 | ND | 0.11 | 0.018 | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.086 | ND | 0.24 | 0.042 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.51 | 0.084 | ND | 0.073 | 0.012 | |
| 75-01-4 | Vinyl Chloride | ND | 0.53 | 0.057 | ND | 0.21 | 0.022 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.52 | 0.088 | ND | 0.24 | 0.040 | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.074 | ND | 0.13 | 0.019 | |
| 75-00-3 | Chloroethane | ND | 0.51 | 0.066 | ND | 0.19 | 0.025 | |
| 64-17-5 | Ethanol | ND | 5.1 | 0.37 | ND | 2.7 | 0.20 | |
| 75-05-8 | Acetonitrile | ND | 0.52 | 0.13 | ND | 0.31 | 0.077 | |
| 107-02-8 | Acrolein | ND | 1.0 | 0.15 | ND | 0.44 | 0.065 | |
| 67-64-1 | Acetone | ND | 5.4 | 1.2 | ND | 2.3 | 0.51 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 0.53 | 0.081 | ND | 0.094 | 0.014 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 2.1 | 0.22 | ND | 0.85 | 0.090 | |
| 107-13-1 | Acrylonitrile | ND | 0.52 | 0.11 | ND | 0.24 | 0.051 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.54 | 0.074 | ND | 0.14 | 0.019 | |
| 75-09-2 | Methylene Chloride | ND | 0.54 | 0.15 | ND | 0.16 | 0.043 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.53 | 0.072 | ND | 0.17 | 0.023 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 0.53 | 0.076 | ND | 0.069 | 0.0099 | |
| 75-15-0 | Carbon Disulfide | ND | 1.1 | 0.16 | ND | 0.35 | 0.051 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.53 | 0.074 | ND | 0.13 | 0.019 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.52 | 0.078 | ND | 0.13 | 0.019 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.54 | 0.063 | ND | 0.15 | 0.017 | |
| 108-05-4 | Vinyl Acetate | ND | 5.3 | 1.2 | ND | 1.5 | 0.34 | |
| 78-93-3 | 2-Butanone (MEK) | ND | 1.0 | 0.11 | ND | 0.34 | 0.037 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 4

| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **Method Blank** | ALS Project ID: | P1806990 |
| **Client Project ID:** | **High Acres Waste Evaluation Study / 089290-1817** | ALS Sample ID: | P190108-MB |
| Test Code: | EPA TO-15 | Date Collected: | NA |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 | Date Received: | NA |
| Analyst: | Wida Ang | Date Analyzed: | 1/8/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 1.00 Liter(s) |
| Test Notes: | | | |

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.53 | 0.075 | ND | 0.13 | 0.019 | |
| 141-78-6 | Ethyl Acetate | ND | 1.1 | 0.28 | ND | 0.31 | 0.078 | |
| 110-54-3 | n-Hexane | ND | 0.54 | 0.11 | ND | 0.15 | 0.031 | |
| 67-66-3 | Chloroform | ND | 0.54 | 0.071 | ND | 0.11 | 0.015 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.53 | 0.067 | ND | 0.18 | 0.023 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.53 | 0.059 | ND | 0.13 | 0.015 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.54 | 0.066 | ND | 0.099 | 0.012 | |
| 71-43-2 | Benzene | ND | 0.52 | 0.077 | ND | 0.16 | 0.024 | |
| 56-23-5 | Carbon Tetrachloride | ND | 0.52 | 0.074 | ND | 0.083 | 0.012 | |
| 110-82-7 | Cyclohexane | ND | 1.0 | 0.15 | ND | 0.29 | 0.044 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.54 | 0.066 | ND | 0.12 | 0.014 | |
| 75-27-4 | Bromodichloromethane | ND | 0.53 | 0.077 | ND | 0.079 | 0.011 | |
| 79-01-6 | Trichloroethene | ND | 0.53 | 0.072 | ND | 0.099 | 0.013 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.53 | 0.063 | ND | 0.15 | 0.017 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.1 | 0.19 | ND | 0.27 | 0.046 | |
| 142-82-5 | n-Heptane | ND | 0.54 | 0.085 | ND | 0.13 | 0.021 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.56 | 0.083 | ND | 0.12 | 0.018 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 0.53 | 0.073 | ND | 0.13 | 0.018 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.53 | 0.11 | ND | 0.12 | 0.024 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.54 | 0.054 | ND | 0.099 | 0.0099 | |
| 108-88-3 | Toluene | ND | 0.53 | 0.065 | ND | 0.14 | 0.017 | |
| 591-78-6 | 2-Hexanone | ND | 0.54 | 0.066 | ND | 0.13 | 0.016 | |
| 124-48-1 | Dibromochloromethane | ND | 0.54 | 0.070 | ND | 0.063 | 0.0082 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.54 | 0.062 | ND | 0.070 | 0.0081 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.54 | 0.073 | ND | 0.11 | 0.015 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P190108-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | ND | 0.54 | 0.12 | ND | 0.12 | 0.026 | |
| 127-18-4 | Tetrachloroethene | ND | 0.53 | 0.069 | ND | 0.078 | 0.010 | |
| 108-90-7 | Chlorobenzene | ND | 0.53 | 0.071 | ND | 0.12 | 0.015 | |
| 100-41-4 | Ethylbenzene | ND | 0.52 | 0.075 | ND | 0.12 | 0.017 | |
| 179601-23-1 | m,p-Xylenes | ND | 1.1 | 0.14 | ND | 0.25 | 0.032 | |
| 75-25-2 | Bromoform | ND | 0.53 | 0.11 | ND | 0.051 | 0.011 | |
| 100-42-5 | Styrene | ND | 0.53 | 0.086 | ND | 0.12 | 0.020 | |
| 95-47-6 | o-Xylene | ND | 0.53 | 0.077 | ND | 0.12 | 0.018 | |
| 111-84-2 | n-Nonane | ND | 0.54 | 0.089 | ND | 0.10 | 0.017 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.53 | 0.074 | ND | 0.077 | 0.011 | |
| 98-82-8 | Cumene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 80-56-8 | alpha-Pinene | ND | 0.52 | 0.082 | ND | 0.093 | 0.015 | |
| 103-65-1 | n-Propylbenzene | ND | 0.54 | 0.077 | ND | 0.11 | 0.016 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.53 | 0.085 | ND | 0.11 | 0.017 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 0.53 | 0.074 | ND | 0.11 | 0.015 | |
| 100-44-7 | Benzyl Chloride | ND | 1.1 | 0.12 | ND | 0.21 | 0.023 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.54 | 0.080 | ND | 0.090 | 0.013 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.54 | 0.082 | ND | 0.090 | 0.014 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.54 | 0.079 | ND | 0.090 | 0.013 | |
| 5989-27-5 | d-Limonene | ND | 0.51 | 0.11 | ND | 0.092 | 0.020 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.52 | 0.10 | ND | 0.054 | 0.010 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.53 | 0.13 | ND | 0.071 | 0.018 | |
| 91-20-3 | Naphthalene | ND | 0.51 | 0.13 | ND | 0.097 | 0.025 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.53 | 0.11 | ND | 0.050 | 0.010 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P190108-MB

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/8/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| | No Compounds Detected | | |

## ALS ENVIRONMENTAL

### SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**
ALS Project ID: P1806990

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 12/13 - 12/17/18
Date(s) Received: 12/19/18
Date(s) Analyzed: 1/8 - 1/9/19

| Client Sample ID | ALS Sample ID | 1,2-Dichloroethane-d4 Percent Recovered | Toluene-d8 Percent Recovered | Bromofluorobenzene Percent Recovered | Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| Method Blank | P190108-MB | 97 | 111 | 87 | 70-130 | |
| Lab Control Sample | P190108-LCS | 113 | 94 | 86 | 70-130 | |
| WM-089290-121318-BPS-009 | P1806990-001 | 124 | 97 | 98 | 70-130 | |
| WM-089290-121418-BPS-010 | P1806990-002 | 110 | 96 | 95 | 70-130 | |
| WM-089290-121518-BPS-011 | P1806990-003 | 112 | 122 | 99 | 70-130 | |
| WM-089290-121718-BPS-012 | P1806990-004 | 107 | 95 | 100 | 70-130 | |

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P190108-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.125 Liter(s)

| **CAS #** | **Compound** | Spike Amount µg/m³ | **Result µg/m³** | **% Recovery** | ALS Acceptance Limits | **Data Qualifier** |
|---|---|---|---|---|---|---|
| 115-07-1 | Propene | 211 | **167** | **79** | 53-112 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | 210 | **176** | **84** | 62-103 | |
| 74-87-3 | Chloromethane | 211 | **235** | **111** | 51-121 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | 211 | **190** | **90** | 56-111 | |
| 75-01-4 | Vinyl Chloride | 214 | **241** | **113** | 57-117 | |
| 106-99-0 | 1,3-Butadiene | 210 | **210** | **100** | 53-134 | |
| 74-83-9 | Bromomethane | 212 | **178** | **84** | 65-110 | |
| 75-00-3 | Chloroethane | 214 | **164** | **77** | 64-111 | |
| 64-17-5 | Ethanol | 1,020 | **787** | **77** | 57-124 | |
| 75-05-8 | Acetonitrile | 206 | **165** | **80** | 57-126 | |
| 107-02-8 | Acrolein | 205 | **197** | **96** | 62-121 | |
| 67-64-1 | Acetone | 1,060 | **978** | **92** | 60-113 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 211 | **187** | **89** | 63-104 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | 413 | **427** | **103** | 60-124 | |
| 107-13-1 | Acrylonitrile | 207 | **228** | **110** | 66-125 | |
| 75-35-4 | 1,1-Dichloroethene | 218 | **189** | **87** | 68-107 | |
| 75-09-2 | Methylene Chloride | 217 | **198** | **91** | 66-105 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | 216 | **231** | **107** | 63-127 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 216 | **173** | **80** | 59-109 | |
| 75-15-0 | Carbon Disulfide | 218 | **194** | **89** | 67-109 | |
| 156-60-5 | trans-1,2-Dichloroethene | 214 | **212** | **99** | 70-115 | |
| 75-34-3 | 1,1-Dichloroethane | 216 | **197** | **91** | 66-106 | |
| 1634-04-4 | Methyl tert-Butyl Ether | 214 | **193** | **90** | 67-109 | |
| 108-05-4 | Vinyl Acetate | 1,060 | **1080** | **102** | 68-136 | |
| 78-93-3 | 2-Butanone (MEK) | 208 | **194** | **93** | 71-116 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P190108-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | 211 | **207** | **98** | 67-110 | |
| 141-78-6 | Ethyl Acetate | 436 | **466** | **107** | 64-127 | |
| 110-54-3 | n-Hexane | 216 | **204** | **94** | 60-115 | |
| 67-66-3 | Chloroform | 217 | **195** | **90** | 66-105 | |
| 109-99-9 | Tetrahydrofuran (THF) | 216 | **188** | **87** | 65-110 | |
| 107-06-2 | 1,2-Dichloroethane | 215 | **200** | **93** | 60-110 | |
| 71-55-6 | 1,1,1-Trichloroethane | 215 | **188** | **87** | 64-108 | |
| 71-43-2 | Benzene | 211 | **184** | **87** | 67-106 | |
| 56-23-5 | Carbon Tetrachloride | 212 | **182** | **86** | 64-112 | |
| 110-82-7 | Cyclohexane | 416 | **369** | **89** | 67-110 | |
| 78-87-5 | 1,2-Dichloropropane | 216 | **204** | **94** | 66-112 | |
| 75-27-4 | Bromodichloromethane | 215 | **197** | **92** | 67-113 | |
| 79-01-6 | Trichloroethene | 213 | **175** | **82** | 66-108 | |
| 123-91-1 | 1,4-Dioxane | 214 | **189** | **88** | 70-116 | |
| 80-62-6 | Methyl Methacrylate | 431 | **383** | **89** | 73-118 | |
| 142-82-5 | n-Heptane | 215 | **196** | **91** | 66-110 | |
| 10061-01-5 | cis-1,3-Dichloropropene | 214 | **206** | **96** | 75-120 | |
| 108-10-1 | 4-Methyl-2-pentanone | 209 | **210** | **100** | 65-124 | |
| 10061-02-6 | trans-1,3-Dichloropropene | 213 | **220** | **103** | 77-123 | |
| 79-00-5 | 1,1,2-Trichloroethane | 215 | **189** | **88** | 68-112 | |
| 108-88-3 | Toluene | 212 | **165** | **78** | 62-111 | |
| 591-78-6 | 2-Hexanone | 214 | **210** | **98** | 59-128 | |
| 124-48-1 | Dibromochloromethane | 213 | **169** | **79** | 67-123 | |
| 106-93-4 | 1,2-Dibromoethane | 216 | **177** | **82** | 66-122 | |
| 123-86-4 | n-Butyl Acetate | 219 | **221** | **101** | 64-128 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Evaluation Study / 089290-1817**

ALS Project ID: P1806990
ALS Sample ID: P190108-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/9/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 217 | **190** | **88** | 65-114 | |
| 127-18-4 | Tetrachloroethene | 213 | **148** | **69** | 55-120 | |
| 108-90-7 | Chlorobenzene | 215 | **164** | **76** | 61-114 | |
| 100-41-4 | Ethylbenzene | 212 | **167** | **79** | 64-113 | |
| 179601-23-1 | m,p-Xylenes | 426 | **344** | **81** | 64-114 | |
| 75-25-2 | Bromoform | 213 | **157** | **74** | 65-132 | |
| 100-42-5 | Styrene | 212 | **170** | **80** | 67-124 | |
| 95-47-6 | o-Xylene | 214 | **172** | **80** | 65-114 | |
| 111-84-2 | n-Nonane | 215 | **201** | **93** | 64-117 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 214 | **179** | **84** | 66-119 | |
| 98-82-8 | Cumene | 214 | **168** | **79** | 61-116 | |
| 80-56-8 | alpha-Pinene | 211 | **162** | **77** | 65-120 | |
| 103-65-1 | n-Propylbenzene | 218 | **179** | **82** | 63-117 | |
| 622-96-8 | 4-Ethyltoluene | 214 | **173** | **81** | 63-124 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 214 | **167** | **78** | 60-117 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 215 | **178** | **83** | 61-122 | |
| 100-44-7 | Benzyl Chloride | 217 | **195** | **90** | 77-142 | |
| 541-73-1 | 1,3-Dichlorobenzene | 216 | **176** | **81** | 61-125 | |
| 106-46-7 | 1,4-Dichlorobenzene | 216 | **177** | **82** | 59-123 | |
| 95-50-1 | 1,2-Dichlorobenzene | 216 | **178** | **82** | 61-126 | |
| 5989-27-5 | d-Limonene | 211 | **175** | **83** | 66-124 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | 209 | **170** | **81** | 67-138 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 214 | **194** | **91** | 62-141 | |
| 91-20-3 | Naphthalene | 203 | **202** | **100** | 62-145 | |
| 87-68-3 | Hexachlorobutadiene | 209 | **157** | **75** | 49-131 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

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# LABORATORY REPORT

January 23, 2019

Bryan Szalda
GHD Services Inc.
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, NY 14304

**RE: High Acres Waste Odor Study / 089290-1817**

Dear Bryan:

Enclosed are the results of the samples submitted to our laboratory on January 17, 2019. For your reference, these analyses have been assigned our service request number P1900225.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**ALS | Environmental**

Sue Anderson
By Sue Anderson at 1:23 pm, Jan 23, 2019

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
**T:** +1 805 526 7161
**www.alsglobal.com**

|  |  |  |  |
|---|---|---|---|
| Client: | GHD Services Inc. | Service Request No: | P1900225 |
| Project: | High Acres Waste Odor Study / 089290-1817 | New York Lab ID: | 11221 |

## CASE NARRATIVE

The samples were received intact under chain of custody on January 17, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

### Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per ASTM D 5504-12 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP accreditation.

### Volatile Organic Compound Analysis

The samples were also analyzed for volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

---

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## ALS Environmental - Simi Valley

## CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEC | http://dec.alaska.gov/eh/lab.aspx | 17-019 |
| Arizona DHS | http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home | AZ0694 |
| Florida DOH (NELAP) | http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html | E871020 |
| Louisiana DEQ (NELAP) | http://www.deq.louisiana.gov/page/la-lab-accreditation | 05071 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml | 2018027 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 1521096 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/enforcement/oqa.html | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-005 |
| Pennsylvania DEP | http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx | 68-03307 (Registration) |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html | T104704413-18-9 |
| Utah DOH (NELAP) | http://health.utah.gov/lab/lab_cert_env | CA01627201 8-9 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

# ALS ENVIRONMENTAL

## DETAIL SUMMARY REPORT

Client: GHD Services Inc.
Project ID: High Acres Waste Odor Study / 089290-1817

Service Request: P1900225

Date Received: 1/17/2019
Time Received: 09:30

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | Container ID | Pi1 (psig) | Pf1 (psig) | ASTM D 5504-12 - Sulfur Can | TO-15 - VOC Cans |
|---|---|---|---|---|---|---|---|---|---|
| WM-089290-011519-MAC-21 | P1900225-001 | Air | 1/15/2019 | 13:08 | SSC00006 | -0.09 | 3.63 | X | X |
| WM-089290-011519-MAC-22 | P1900225-002 | Air | 1/15/2019 | 13:10 | SSC00309 | 0.12 | 3.58 | X | X |

ALS

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Fax (805) 526-7270

# Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

P1900225

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. 95871

Company Name & Address (Reporting Information) GHD 2055 NF Blvd. NF, NY 14304

Project Name High Acres Waste Odor Study

Project Number 089290 - 1817

ALS Contact: Sue Anderson

Project Manager Bryan Szalda

P.O. # / Billing Information Order # 95871

Phone (716) 297-6150

Fax (716) 297-2265

Email Address for Result Reporting bryan.szalda@ghd.com

Sampler (Print & Sign) Michael Casullo

| Client Sample ID | Laboratory ID Number | Date Collected | Time Collected | Canister ID (Bar code # - AC, SC, etc.) | Flow Controller ID (Bar code # - FC #) | Canister Start Pressure "Hg | Canister End Pressure "Hg/psig | Sample Volume | Analysis Method | | Comments e.g. Actual Preservative or specific instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | TO-15 w/ TICs | ASTM D 5504 | |
| WM-089290-011519-MAC-21 | 1 | 1/15/19 | 1131-1308 | SSC 00006 | SOA00251 | -29.65 | -2.26 | 6L | X | X | 7-day hold |
| WM-089290-011519-MAC-22 | 2 | 1/15/19 | 1138-1310 | SSC 00309 | SOA 00346 | -29.79 | -1.82 | 6L | X | X | 7-day hold |
| | | | | | | | | | | | ~~7-day ho~~ (M) |
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Report Tier Levels - please select
Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle)
INTACT BROKEN [✓ ABSENT]

Project Requirements (MRLs, QAPP)

| | | | | | |
|---|---|---|---|---|---|
| Relinquished by: (Signature) | Date: 1/16/19 | Time: 17:00 | Received by: (Signature) | Date: | Time: |
| Relinquished by: (Signature) | Date: | Time: | Received by: (Signature) | Date: 1/17/19 | Time: 0930 |

Cooler / Blank Temperature ____°C

# ALS Environmental
## Sample Acceptance Check Form

Client: GHD Services Inc.
Work order: P1900225
Project: High Acres Waste Odor Study / 089290-1817
Sample(s) received on: 1/17/19
Date opened: 1/17/19
by: ADAVID

***Note:*** This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

| | | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Were **sample containers** properly marked with client sample ID? | ☒ | ☐ | ☐ |
| 2 | Did **sample containers** arrive in good condition? | ☒ | ☐ | ☐ |
| 3 | Were **chain-of-custody** papers used and filled out? | ☒ | ☐ | ☐ |
| 4 | Did **sample container labels** and/or tags agree with custody papers? | ☒ | ☐ | ☐ |
| 5 | Was **sample volume** received adequate for analysis? | ☒ | ☐ | ☐ |
| 6 | Are samples within specified holding times? | ☒ | ☐ | ☐ |
| 7 | Was proper **temperature** (thermal preservation) of cooler at receipt adhered to? | ☐ | ☐ | ☒ |
| 8 | Were **custody seals** on outside of cooler/Box/Container? | ☐ | ☒ | ☐ |
| | Location of seal(s)? Sealing Lid? | ☐ | ☐ | ☒ |
| | Were signature and date included? | ☐ | ☐ | ☒ |
| | Were seals intact? | ☐ | ☐ | ☒ |
| 9 | Do containers have appropriate **preservation,** according to method/SOP or Client specified information? | ☐ | ☐ | ☒ |
| | Is there a client indication that the submitted samples are **pH** preserved? | ☐ | ☐ | ☒ |
| | Were **VOA vials** checked for presence/absence of air bubbles? | ☐ | ☐ | ☒ |
| | Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it? | ☐ | ☐ | ☒ |
| 10 | **Tubes:** Are the tubes capped and intact? | ☐ | ☐ | ☒ |
| 11 | **Badges:** Are the badges properly capped and intact? | ☐ | ☐ | ☒ |
| | Are dual bed badges separated and individually capped and intact? | ☐ | ☐ | ☒ |

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P1900225-001.01 | 6.0 L Silonite Can | | | | | |
| P1900225-002.01 | 6.0 L Silonite Can | | | | | |
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Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-21**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-001

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00006

Date Collected: 1/15/19
Time Collected: 13:08
Date Received: 1/17/19
Date Analyzed: 1/18/19
Time Analyzed: 09:34
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.63

Container Dilution Factor: 1.25

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | **21** | 8.7 | 2.6 | **15** | 6.3 | 1.9 | |
| 463-58-1 | Carbonyl Sulfide | **14** | 15 | 5.8 | **5.7** | 6.3 | 2.4 | J |
| 74-93-1 | Methyl Mercaptan | **11** | 12 | 4.9 | **5.4** | 6.3 | 2.5 | J |
| 75-08-1 | Ethyl Mercaptan | ND | 16 | 6.4 | ND | 6.3 | 2.5 | |
| 75-18-3 | Dimethyl Sulfide | ND | 16 | 6.4 | ND | 6.3 | 2.5 | |
| 75-15-0 | Carbon Disulfide | **11** | 9.7 | 3.9 | **3.6** | 3.1 | 1.3 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 110-02-1 | Thiophene | ND | 21 | 8.6 | ND | 6.3 | 2.5 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 352-93-2 | Diethyl Sulfide | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 624-92-0 | Dimethyl Disulfide | **8.5** | 12 | 4.8 | **2.2** | 3.1 | 1.3 | J |
| 616-44-4 | 3-Methylthiophene | ND | 25 | 10 | ND | 6.3 | 2.5 | |
| 110-01-0 | Tetrahydrothiophene | ND | 23 | 9.0 | ND | 6.3 | 2.5 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 29 | 11 | ND | 6.3 | 2.5 | |
| 872-55-9 | 2-Ethylthiophene | ND | 29 | 11 | ND | 6.3 | 2.5 | |
| 110-81-6 | Diethyl Disulfide | ND | 16 | 12 | ND | 3.1 | 2.5 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-22**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-002

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00309

Date Collected: 1/15/19
Time Collected: 13:10
Date Received: 1/17/19
Date Analyzed: 1/18/19
Time Analyzed: 09:56
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.12    Final Pressure (psig): 3.58

Container Dilution Factor: 1.23

| CAS # | Compound | Result µg/m$^3$ | MRL µg/m$^3$ | MDL µg/m$^3$ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | **4.3** | 8.6 | 2.6 | **3.1** | 6.2 | 1.8 | J |
| 463-58-1 | Carbonyl Sulfide | **16** | 15 | 5.7 | **6.6** | 6.2 | 2.3 | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.8 | ND | 6.2 | 2.5 | |
| 75-08-1 | Ethyl Mercaptan | ND | 16 | 6.2 | ND | 6.2 | 2.5 | |
| 75-18-3 | Dimethyl Sulfide | **34** | 16 | 6.2 | **13** | 6.2 | 2.5 | |
| 75-15-0 | Carbon Disulfide | **22** | 9.6 | 3.8 | **7.1** | 3.1 | 1.2 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.7 | ND | 6.2 | 2.5 | |
| 110-02-1 | Thiophene | ND | 21 | 8.5 | ND | 6.2 | 2.5 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 352-93-2 | Diethyl Sulfide | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 23 | 9.1 | ND | 6.2 | 2.5 | |
| 624-92-0 | Dimethyl Disulfide | **59** | 12 | 4.7 | **15** | 3.1 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 25 | 9.9 | ND | 6.2 | 2.5 | |
| 110-01-0 | Tetrahydrothiophene | ND | 22 | 8.9 | ND | 6.2 | 2.5 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 28 | 11 | ND | 6.2 | 2.5 | |
| 872-55-9 | 2-Ethylthiophene | ND | 28 | 11 | ND | 6.2 | 2.5 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.1 | 2.5 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190118-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 1/18/19
Time Analyzed: 08:53
Volume(s) Analyzed: 1.0 ml(s)

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 7.0 | 2.1 | ND | 5.0 | 1.5 | |
| 463-58-1 | Carbonyl Sulfide | ND | 12 | 4.7 | ND | 5.0 | 1.9 | |
| 74-93-1 | Methyl Mercaptan | ND | 9.8 | 3.9 | ND | 5.0 | 2.0 | |
| 75-08-1 | Ethyl Mercaptan | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-18-3 | Dimethyl Sulfide | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-15-0 | Carbon Disulfide | ND | 7.8 | 3.1 | ND | 2.5 | 1.0 | |
| 75-33-2 | Isopropyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 110-02-1 | Thiophene | ND | 17 | 6.9 | ND | 5.0 | 2.0 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 352-93-2 | Diethyl Sulfide | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 624-92-0 | Dimethyl Disulfide | ND | 9.6 | 3.9 | ND | 2.5 | 1.0 | |
| 616-44-4 | 3-Methylthiophene | ND | 20 | 8.0 | ND | 5.0 | 2.0 | |
| 110-01-0 | Tetrahydrothiophene | ND | 18 | 7.2 | ND | 5.0 | 2.0 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 872-55-9 | 2-Ethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 110-81-6 | Diethyl Disulfide | ND | 12 | 10 | ND | 2.5 | 2.0 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190118-LCS

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/18/19
Volume(s) Analyzed: NA ml(s)

| CAS # | Compound | Spike Amount ppbV | Result ppbV | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | 989 | **913** | **92** | 81-141 | |
| 463-58-1 | Carbonyl Sulfide | 1,050 | **1,040** | **99** | 81-147 | |
| 74-93-1 | Methyl Mercaptan | 1,050 | **1,090** | **104** | 80-144 | |

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-21**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00006

Date Collected: 1/15/19
Date Received: 1/17/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.63

Container Dilution Factor: 1.25

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **5.4** | 11 | 2.7 | **3.2** | 6.3 | 1.6 | J |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **2.8** | 11 | 1.8 | **0.57** | 2.2 | 0.37 | J |
| 74-87-3 | Chloromethane | ND | 10 | 1.8 | ND | 5.0 | 0.87 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 11 | 1.8 | ND | 1.5 | 0.25 | |
| 75-01-4 | Vinyl Chloride | ND | 11 | 1.2 | ND | 4.3 | 0.46 | |
| 106-99-0 | 1,3-Butadiene | ND | 11 | 1.8 | ND | 4.9 | 0.83 | |
| 74-83-9 | Bromomethane | ND | 10 | 1.5 | ND | 2.7 | 0.40 | |
| 75-00-3 | Chloroethane | ND | 11 | 1.4 | ND | 4.0 | 0.52 | |
| 64-17-5 | Ethanol | **25,000** | 430 | 31 | **13,000** | 230 | 16 | B, D |
| 75-05-8 | Acetonitrile | ND | 11 | 2.7 | ND | 6.5 | 1.6 | |
| 107-02-8 | Acrolein | **5.4** | 21 | 3.1 | **2.3** | 9.1 | 1.4 | J |
| 67-64-1 | Acetone | ND | 110 | 25 | ND | 47 | 11 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **2.7** | 11 | 1.7 | **0.48** | 2.0 | 0.30 | J |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **990** | 44 | 4.6 | **400** | 18 | 1.9 | |
| 107-13-1 | Acrylonitrile | ND | 11 | 2.3 | ND | 5.0 | 1.1 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 11 | 1.5 | ND | 2.8 | 0.39 | |
| 75-09-2 | Methylene Chloride | **13** | 11 | 3.1 | **3.7** | 3.2 | 0.90 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 11 | 1.5 | ND | 3.5 | 0.48 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 11 | 1.6 | ND | 1.4 | 0.21 | |
| 75-15-0 | Carbon Disulfide | **10** | 23 | 3.3 | **3.2** | 7.4 | 1.1 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 11 | 1.5 | ND | 2.8 | 0.39 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 11 | 1.6 | ND | 2.7 | 0.40 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 11 | 1.3 | ND | 3.1 | 0.36 | |
| 108-05-4 | Vinyl Acetate | ND | 110 | 25 | ND | 31 | 7.1 | |
| 78-93-3 | 2-Butanone (MEK) | **270** | 21 | 2.3 | **90** | 7.1 | 0.78 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-21**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00006

Date Collected: 1/15/19
Date Received: 1/17/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.63

Container Dilution Factor: 1.25

| CAS # | Compound | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 11 | 1.6 | ND | 2.8 | 0.39 | |
| 141-78-6 | Ethyl Acetate | **570** | 23 | 5.8 | **160** | 6.4 | 1.6 | |
| 110-54-3 | n-Hexane | **6.3** | 11 | 2.3 | **1.8** | 3.2 | 0.65 | **J** |
| 67-66-3 | Chloroform | **1.6** | 11 | 1.5 | **0.34** | 2.3 | 0.30 | **J** |
| 109-99-9 | Tetrahydrofuran (THF) | **8.9** | 11 | 1.4 | **3.0** | 3.7 | 0.47 | **J** |
| 107-06-2 | 1,2-Dichloroethane | ND | 11 | 1.2 | ND | 2.7 | 0.30 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 11 | 1.4 | ND | 2.1 | 0.25 | |
| 71-43-2 | Benzene | ND | 11 | 1.6 | ND | 3.4 | 0.50 | |
| 56-23-5 | Carbon Tetrachloride | ND | 11 | 1.5 | ND | 1.7 | 0.25 | |
| 110-82-7 | Cyclohexane | ND | 21 | 3.1 | ND | 6.1 | 0.91 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 11 | 1.4 | ND | 2.4 | 0.30 | |
| 75-27-4 | Bromodichloromethane | ND | 11 | 1.6 | ND | 1.6 | 0.24 | |
| 79-01-6 | Trichloroethene | ND | 11 | 1.5 | ND | 2.1 | 0.28 | |
| 123-91-1 | 1,4-Dioxane | ND | 11 | 1.3 | ND | 3.1 | 0.36 | |
| 80-62-6 | Methyl Methacrylate | **7.5** | 23 | 4.0 | **1.8** | 5.6 | 0.97 | **J** |
| 142-82-5 | n-Heptane | **19** | 11 | 1.8 | **4.7** | 2.7 | 0.43 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 12 | 1.7 | ND | 2.6 | 0.38 | |
| 108-10-1 | 4-Methyl-2-pentanone | 4.4 | 11 | 1.5 | **1.1** | 2.7 | 0.37 | **J** |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 11 | 2.3 | ND | 2.4 | 0.50 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 11 | 1.1 | ND | 2.1 | 0.21 | |
| 108-88-3 | Toluene | **30** | 11 | 1.4 | **8.1** | 2.9 | 0.36 | |
| 591-78-6 | 2-Hexanone | ND | 11 | 1.4 | ND | 2.7 | 0.34 | |
| 124-48-1 | Dibromochloromethane | ND | 11 | 1.5 | ND | 1.3 | 0.17 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 11 | 1.3 | ND | 1.5 | 0.17 | |
| 123-86-4 | n-Butyl Acetate | **14** | 11 | 1.5 | **3.0** | 2.4 | 0.32 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-21**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00006

Date Collected: 1/15/19
Date Received: 1/17/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.63

Container Dilution Factor: 1.25

| CAS # | Compound | **Result µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **14** | 11 | 2.5 | **2.9** | 2.4 | 0.54 | |
| 127-18-4 | Tetrachloroethene | **2.0** | 11 | 1.4 | **0.29** | 1.6 | 0.21 | J |
| 108-90-7 | Chlorobenzene | ND | 11 | 1.5 | ND | 2.4 | 0.32 | |
| 100-41-4 | Ethylbenzene | **26** | 11 | 1.6 | **5.9** | 2.5 | 0.36 | |
| 179601-23-1 | m,p-Xylenes | **32** | 23 | 2.9 | **7.3** | 5.3 | 0.67 | |
| 75-25-2 | Bromoform | ND | 11 | 2.3 | ND | 1.1 | 0.22 | |
| 100-42-5 | Styrene | **20** | 11 | 1.8 | **4.6** | 2.6 | 0.42 | |
| 95-47-6 | o-Xylene | **12** | 11 | 1.6 | **2.8** | 2.5 | 0.37 | |
| 111-84-2 | n-Nonane | **15** | 11 | 1.9 | **2.8** | 2.1 | 0.35 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 11 | 1.5 | ND | 1.6 | 0.22 | |
| 98-82-8 | Cumene | **1.9** | 11 | 1.6 | **0.38** | 2.2 | 0.33 | J |
| 80-56-8 | alpha-Pinene | **82** | 11 | 1.7 | **15** | 1.9 | 0.31 | |
| 103-65-1 | n-Propylbenzene | **4.2** | 11 | 1.6 | **0.85** | 2.3 | 0.33 | J |
| 622-96-8 | 4-Ethyltoluene | **7.1** | 11 | 1.8 | **1.4** | 2.2 | 0.36 | J |
| 108-67-8 | 1,3,5-Trimethylbenzene | **6.6** | 11 | 1.6 | **1.3** | 2.2 | 0.33 | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | **24** | 11 | 1.5 | **5.0** | 2.2 | 0.31 | |
| 100-44-7 | Benzyl Chloride | ND | 23 | 2.5 | ND | 4.4 | 0.48 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 11 | 1.7 | ND | 1.9 | 0.28 | |
| 106-46-7 | 1,4-Dichlorobenzene | **14** | 11 | 1.7 | **2.3** | 1.9 | 0.28 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 11 | 1.6 | ND | 1.9 | 0.27 | |
| 5989-27-5 | d-Limonene | **710** | 11 | 2.3 | **130** | 1.9 | 0.41 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 11 | 2.1 | ND | 1.1 | 0.22 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 11 | 2.7 | ND | 1.5 | 0.36 | |
| 91-20-3 | Naphthalene | **10** | 11 | 2.7 | **1.9** | 2.0 | 0.52 | J |
| 87-68-3 | Hexachlorobutadiene | ND | 11 | 2.3 | ND | 1.0 | 0.21 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-21**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-001

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes: **T**
Container ID: SSC00006

Date Collected: 1/15/19
Date Received: 1/17/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.060 Liter(s)
0.015 Liter(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.63

Container Dilution Factor: 1.25

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.22 | Propane | **120** | |
| 4.88 | Isobutane | **1,200** | |
| 5.41 | n-Butane | **570** | |
| 7.15 | 2-Methylbutane | **950** | |
| 7.95 | n-Pentane | **280** | |
| 9.68 | 1-Propanol | **200** | |
| 11.03 | (R)-2-butanol | **750** | |
| 12.96 | 1-Butanol | **190** | |
| 20.15 | beta-Pinene | **71** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-22**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00309

Date Collected: 1/15/19
Date Received: 1/17/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0040 Liter(s)

Initial Pressure (psig): 0.12 Final Pressure (psig): 3.58

Container Dilution Factor: 1.23

| **CAS #** | **Compound** | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **11** | 43 | 11 | **6.6** | 25 | 6.2 | J |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 43 | 7.1 | ND | 8.6 | 1.4 | |
| 74-87-3 | Chloromethane | ND | 41 | 7.1 | ND | 20 | 3.4 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 42 | 6.9 | ND | 6.0 | 0.99 | |
| 75-01-4 | Vinyl Chloride | ND | 43 | 4.7 | ND | 17 | 1.8 | |
| 106-99-0 | 1,3-Butadiene | ND | 43 | 7.2 | ND | 19 | 3.3 | |
| 74-83-9 | Bromomethane | ND | 41 | 6.1 | ND | 11 | 1.6 | |
| 75-00-3 | Chloroethane | ND | 42 | 5.4 | ND | 16 | 2.1 | |
| 64-17-5 | Ethanol | **150,000** | 1,600 | 110 | **79,000** | 830 | 60 | B, D |
| 75-05-8 | Acetonitrile | ND | 43 | 11 | ND | 25 | 6.4 | |
| 107-02-8 | Acrolein | ND | 82 | 12 | ND | 36 | 5.4 | |
| 67-64-1 | Acetone | **1,500** | 440 | 98 | **620** | 190 | 41 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 43 | 6.6 | ND | 7.7 | 1.2 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **4,100** | 170 | 18 | **1,700** | 70 | 7.3 | |
| 107-13-1 | Acrylonitrile | ND | 43 | 9.0 | ND | 20 | 4.2 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 44 | 6.1 | ND | 11 | 1.5 | |
| 75-09-2 | Methylene Chloride | ND | 44 | 12 | ND | 13 | 3.5 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 43 | 5.9 | ND | 14 | 1.9 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 43 | 6.2 | ND | 5.7 | 0.81 | |
| 75-15-0 | Carbon Disulfide | **13** | 90 | 13 | **4.3** | 29 | 4.2 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 43 | 6.1 | ND | 11 | 1.5 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 43 | 6.4 | ND | 11 | 1.6 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 44 | 5.2 | ND | 12 | 1.4 | |
| 108-05-4 | Vinyl Acetate | ND | 430 | 98 | ND | 120 | 28 | |
| 78-93-3 | 2-Butanone (MEK) | **860** | 82 | 9.0 | **290** | 28 | 3.1 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-22**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00309

Date Collected: 1/15/19
Date Received: 1/17/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0040 Liter(s)

Initial Pressure (psig): 0.12 Final Pressure (psig): 3.58

Container Dilution Factor: 1.23

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 43 | 6.2 | ND | 11 | 1.6 | |
| 141-78-6 | Ethyl Acetate | **2,400** | 90 | 23 | **670** | 25 | 6.4 | |
| 110-54-3 | n-Hexane | **9.7** | 44 | 9.0 | **2.7** | 13 | 2.6 | J |
| 67-66-3 | Chloroform | ND | 44 | 5.8 | ND | 9.1 | 1.2 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 43 | 5.5 | ND | 15 | 1.9 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 43 | 4.8 | ND | 11 | 1.2 | |
| 71-55-6 | 1,1,1-Trichloroethane | **31** | 44 | 5.4 | **5.7** | 8.1 | 0.99 | J |
| 71-43-2 | Benzene | ND | 43 | 6.3 | ND | 13 | 2.0 | |
| 56-23-5 | Carbon Tetrachloride | ND | 43 | 6.1 | ND | 6.8 | 0.97 | |
| 110-82-7 | Cyclohexane | **13** | 82 | 12 | **3.7** | 24 | 3.6 | J |
| 78-87-5 | 1,2-Dichloropropane | ND | 44 | 5.4 | ND | 9.6 | 1.2 | |
| 75-27-4 | Bromodichloromethane | ND | 43 | 6.3 | ND | 6.5 | 0.94 | |
| 79-01-6 | Trichloroethene | ND | 43 | 5.9 | ND | 8.1 | 1.1 | |
| 123-91-1 | 1,4-Dioxane | ND | 43 | 5.2 | ND | 12 | 1.4 | |
| 80-62-6 | Methyl Methacrylate | **19** | 90 | 16 | **4.6** | 22 | 3.8 | J |
| 142-82-5 | n-Heptane | **23** | 44 | 7.0 | **5.6** | 11 | 1.7 | J |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 46 | 6.8 | ND | 10 | 1.5 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 43 | 6.0 | ND | 11 | 1.5 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 43 | 9.0 | ND | 9.6 | 2.0 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 44 | 4.4 | ND | 8.1 | 0.81 | |
| 108-88-3 | Toluene | **240** | 43 | 5.3 | **63** | 12 | 1.4 | |
| 591-78-6 | 2-Hexanone | ND | 44 | 5.4 | ND | 11 | 1.3 | |
| 124-48-1 | Dibromochloromethane | ND | 44 | 5.7 | ND | 5.2 | 0.67 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 44 | 5.1 | ND | 5.8 | 0.66 | |
| 123-86-4 | n-Butyl Acetate | ND | 44 | 6.0 | ND | 9.3 | 1.3 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-22**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00309

Date Collected: 1/15/19
Date Received: 1/17/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0040 Liter(s)

Initial Pressure (psig): 0.12 Final Pressure (psig): 3.58

Container Dilution Factor: 1.23

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 37 | 44 | 9.8 | 7.9 | 9.5 | 2.1 | J |
| 127-18-4 | Tetrachloroethene | ND | 43 | 5.7 | ND | 6.4 | 0.83 | |
| 108-90-7 | Chlorobenzene | ND | 43 | 5.8 | ND | 9.4 | 1.3 | |
| 100-41-4 | Ethylbenzene | 39 | 43 | 6.2 | 9.1 | 9.8 | 1.4 | J |
| 179601-23-1 | m,p-Xylenes | 86 | 90 | 11 | 20 | 21 | 2.6 | J |
| 75-25-2 | Bromoform | ND | 43 | 9.0 | ND | 4.2 | 0.87 | |
| 100-42-5 | Styrene | 56 | 43 | 7.1 | 13 | 10 | 1.7 | |
| 95-47-6 | o-Xylene | 34 | 43 | 6.3 | 7.7 | 10 | 1.5 | J |
| 111-84-2 | n-Nonane | 43 | 44 | 7.3 | 8.2 | 8.4 | 1.4 | J |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 43 | 6.1 | ND | 6.3 | 0.88 | |
| 98-82-8 | Cumene | ND | 43 | 6.3 | ND | 8.8 | 1.3 | |
| 80-56-8 | alpha-Pinene | 1,800 | 43 | 6.7 | 320 | 7.7 | 1.2 | |
| 103-65-1 | n-Propylbenzene | ND | 44 | 6.3 | ND | 9.0 | 1.3 | |
| 622-96-8 | 4-Ethyltoluene | 38 | 43 | 7.0 | 7.7 | 8.8 | 1.4 | J |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 43 | 6.3 | ND | 8.8 | 1.3 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 11 | 43 | 6.1 | 2.2 | 8.8 | 1.2 | J |
| 100-44-7 | Benzyl Chloride | ND | 90 | 9.8 | ND | 17 | 1.9 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 44 | 6.6 | ND | 7.4 | 1.1 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 44 | 6.7 | ND | 7.4 | 1.1 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 44 | 6.5 | ND | 7.4 | 1.1 | |
| 5989-27-5 | d-Limonene | 5,300 | 42 | 9.0 | 960 | 7.5 | 1.6 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 43 | 8.2 | ND | 4.4 | 0.85 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 43 | 11 | ND | 5.9 | 1.4 | |
| 91-20-3 | Naphthalene | ND | 42 | 11 | ND | 8.0 | 2.0 | |
| 87-68-3 | Hexachlorobutadiene | ND | 43 | 9.0 | ND | 4.1 | 0.85 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

RESULTS OF ASALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011519-MAC-22**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P1900225-002

### Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes: T
Container ID: SSC00309

Date Collected: 1/15/19
Date Received: 1/17/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0040 Liter(s)

Initial Pressure (psig): 0.12 Final Pressure (psig): 3.58

Container Dilution Factor: 1.23

| GC/MS Retention Time | Compound Identification | Concentration µg/m³ | Data Qualifier |
|---|---|---|---|
| 4.88 | Isobutane | **1,500** | |
| 5.41 | n-Butane | **620** | |
| 7.95 | n-Pentane | **540** | |
| 9.67 | 1-Propanol | **340** | |
| 11.02 | 2-Butanol | **1,200** | |
| 19.78 | Camphene | **900** | |
| 20.10 | .beta.-Myrcene | **170** | |
| 20.15 | beta-Pinene | **470** | |
| 20.52 | (+)-3-Carene | **1,100** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190122-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 0.52 | 0.13 | ND | 0.30 | 0.076 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 0.52 | 0.087 | ND | 0.11 | 0.018 | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.086 | ND | 0.24 | 0.042 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.51 | 0.084 | ND | 0.073 | 0.012 | |
| 75-01-4 | Vinyl Chloride | ND | 0.53 | 0.057 | ND | 0.21 | 0.022 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.52 | 0.088 | ND | 0.24 | 0.040 | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.074 | ND | 0.13 | 0.019 | |
| 75-00-3 | Chloroethane | ND | 0.51 | 0.066 | ND | 0.19 | 0.025 | |
| 64-17-5 | Ethanol | **0.78** | 5.1 | 0.37 | **0.42** | 2.7 | 0.20 | J |
| 75-05-8 | Acetonitrile | ND | 0.52 | 0.13 | ND | 0.31 | 0.077 | |
| 107-02-8 | Acrolein | ND | 1.0 | 0.15 | ND | 0.44 | 0.065 | |
| 67-64-1 | Acetone | ND | 5.4 | 1.2 | ND | 2.3 | 0.51 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 0.53 | 0.081 | ND | 0.094 | 0.014 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 2.1 | 0.22 | ND | 0.85 | 0.090 | |
| 107-13-1 | Acrylonitrile | ND | 0.52 | 0.11 | ND | 0.24 | 0.051 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.54 | 0.074 | ND | 0.14 | 0.019 | |
| 75-09-2 | Methylene Chloride | ND | 0.54 | 0.15 | ND | 0.16 | 0.043 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.53 | 0.072 | ND | 0.17 | 0.023 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 0.53 | 0.076 | ND | 0.069 | 0.0099 | |
| 75-15-0 | Carbon Disulfide | ND | 1.1 | 0.16 | ND | 0.35 | 0.051 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.53 | 0.074 | ND | 0.13 | 0.019 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.52 | 0.078 | ND | 0.13 | 0.019 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.54 | 0.063 | ND | 0.15 | 0.017 | |
| 108-05-4 | Vinyl Acetate | ND | 5.3 | 1.2 | ND | 1.5 | 0.34 | |
| 78-93-3 | 2-Butanone (MEK) | ND | 1.0 | 0.11 | ND | 0.34 | 0.037 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190122-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.53 | 0.075 | ND | 0.13 | 0.019 | |
| 141-78-6 | Ethyl Acetate | ND | 1.1 | 0.28 | ND | 0.31 | 0.078 | |
| 110-54-3 | n-Hexane | ND | 0.54 | 0.11 | ND | 0.15 | 0.031 | |
| 67-66-3 | Chloroform | ND | 0.54 | 0.071 | ND | 0.11 | 0.015 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.53 | 0.067 | ND | 0.18 | 0.023 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.53 | 0.059 | ND | 0.13 | 0.015 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.54 | 0.066 | ND | 0.099 | 0.012 | |
| 71-43-2 | Benzene | ND | 0.52 | 0.077 | ND | 0.16 | 0.024 | |
| 56-23-5 | Carbon Tetrachloride | ND | 0.52 | 0.074 | ND | 0.083 | 0.012 | |
| 110-82-7 | Cyclohexane | ND | 1.0 | 0.15 | ND | 0.29 | 0.044 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.54 | 0.066 | ND | 0.12 | 0.014 | |
| 75-27-4 | Bromodichloromethane | ND | 0.53 | 0.077 | ND | 0.079 | 0.011 | |
| 79-01-6 | Trichloroethene | ND | 0.53 | 0.072 | ND | 0.099 | 0.013 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.53 | 0.063 | ND | 0.15 | 0.017 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.1 | 0.19 | ND | 0.27 | 0.046 | |
| 142-82-5 | n-Heptane | ND | 0.54 | 0.085 | ND | 0.13 | 0.021 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.56 | 0.083 | ND | 0.12 | 0.018 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 0.53 | 0.073 | ND | 0.13 | 0.018 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.53 | 0.11 | ND | 0.12 | 0.024 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.54 | 0.054 | ND | 0.099 | 0.0099 | |
| 108-88-3 | Toluene | ND | 0.53 | 0.065 | ND | 0.14 | 0.017 | |
| 591-78-6 | 2-Hexanone | ND | 0.54 | 0.066 | ND | 0.13 | 0.016 | |
| 124-48-1 | Dibromochloromethane | ND | 0.54 | 0.070 | ND | 0.063 | 0.0082 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.54 | 0.062 | ND | 0.070 | 0.0081 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.54 | 0.073 | ND | 0.11 | 0.015 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190122-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | ND | 0.54 | 0.12 | ND | 0.12 | 0.026 | |
| 127-18-4 | Tetrachloroethene | ND | 0.53 | 0.069 | ND | 0.078 | 0.010 | |
| 108-90-7 | Chlorobenzene | ND | 0.53 | 0.071 | ND | 0.12 | 0.015 | |
| 100-41-4 | Ethylbenzene | ND | 0.52 | 0.075 | ND | 0.12 | 0.017 | |
| 179601-23-1 | m,p-Xylenes | ND | 1.1 | 0.14 | ND | 0.25 | 0.032 | |
| 75-25-2 | Bromoform | ND | 0.53 | 0.11 | ND | 0.051 | 0.011 | |
| 100-42-5 | Styrene | ND | 0.53 | 0.086 | ND | 0.12 | 0.020 | |
| 95-47-6 | o-Xylene | ND | 0.53 | 0.077 | ND | 0.12 | 0.018 | |
| 111-84-2 | n-Nonane | ND | 0.54 | 0.089 | ND | 0.10 | 0.017 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.53 | 0.074 | ND | 0.077 | 0.011 | |
| 98-82-8 | Cumene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 80-56-8 | alpha-Pinene | ND | 0.52 | 0.082 | ND | 0.093 | 0.015 | |
| 103-65-1 | n-Propylbenzene | ND | 0.54 | 0.077 | ND | 0.11 | 0.016 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.53 | 0.085 | ND | 0.11 | 0.017 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 0.53 | 0.074 | ND | 0.11 | 0.015 | |
| 100-44-7 | Benzyl Chloride | ND | 1.1 | 0.12 | ND | 0.21 | 0.023 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.54 | 0.080 | ND | 0.090 | 0.013 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.54 | 0.082 | ND | 0.090 | 0.014 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.54 | 0.079 | ND | 0.090 | 0.013 | |
| 5989-27-5 | d-Limonene | ND | 0.51 | 0.11 | ND | 0.092 | 0.020 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.52 | 0.10 | ND | 0.054 | 0.010 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.53 | 0.13 | ND | 0.071 | 0.018 | |
| 91-20-3 | Naphthalene | ND | 0.51 | 0.13 | ND | 0.097 | 0.025 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.53 | 0.11 | ND | 0.050 | 0.010 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190122-MB

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| | No Compounds Detected | | |

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190123-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 0.52 | 0.13 | ND | 0.30 | 0.076 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 0.52 | 0.087 | ND | 0.11 | 0.018 | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.086 | ND | 0.24 | 0.042 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.51 | 0.084 | ND | 0.073 | 0.012 | |
| 75-01-4 | Vinyl Chloride | ND | 0.53 | 0.057 | ND | 0.21 | 0.022 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.52 | 0.088 | ND | 0.24 | 0.040 | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.074 | ND | 0.13 | 0.019 | |
| 75-00-3 | Chloroethane | ND | 0.51 | 0.066 | ND | 0.19 | 0.025 | |
| 64-17-5 | Ethanol | ND | 5.1 | 0.37 | ND | 2.7 | 0.20 | |
| 75-05-8 | Acetonitrile | ND | 0.52 | 0.13 | ND | 0.31 | 0.077 | |
| 107-02-8 | Acrolein | ND | 1.0 | 0.15 | ND | 0.44 | 0.065 | |
| 67-64-1 | Acetone | ND | 5.4 | 1.2 | ND | 2.3 | 0.51 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 0.53 | 0.081 | ND | 0.094 | 0.014 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 2.1 | 0.22 | ND | 0.85 | 0.090 | |
| 107-13-1 | Acrylonitrile | ND | 0.52 | 0.11 | ND | 0.24 | 0.051 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.54 | 0.074 | ND | 0.14 | 0.019 | |
| 75-09-2 | Methylene Chloride | ND | 0.54 | 0.15 | ND | 0.16 | 0.043 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.53 | 0.072 | ND | 0.17 | 0.023 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 0.53 | 0.076 | ND | 0.069 | 0.0099 | |
| 75-15-0 | Carbon Disulfide | ND | 1.1 | 0.16 | ND | 0.35 | 0.051 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.53 | 0.074 | ND | 0.13 | 0.019 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.52 | 0.078 | ND | 0.13 | 0.019 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.54 | 0.063 | ND | 0.15 | 0.017 | |
| 108-05-4 | Vinyl Acetate | ND | 5.3 | 1.2 | ND | 1.5 | 0.34 | |
| 78-93-3 | 2-Butanone (MEK) | ND | 1.0 | 0.11 | ND | 0.34 | 0.037 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190123-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.53 | 0.075 | ND | 0.13 | 0.019 | |
| 141-78-6 | Ethyl Acetate | ND | 1.1 | 0.28 | ND | 0.31 | 0.078 | |
| 110-54-3 | n-Hexane | ND | 0.54 | 0.11 | ND | 0.15 | 0.031 | |
| 67-66-3 | Chloroform | ND | 0.54 | 0.071 | ND | 0.11 | 0.015 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.53 | 0.067 | ND | 0.18 | 0.023 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.53 | 0.059 | ND | 0.13 | 0.015 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.54 | 0.066 | ND | 0.099 | 0.012 | |
| 71-43-2 | Benzene | ND | 0.52 | 0.077 | ND | 0.16 | 0.024 | |
| 56-23-5 | Carbon Tetrachloride | ND | 0.52 | 0.074 | ND | 0.083 | 0.012 | |
| 110-82-7 | Cyclohexane | ND | 1.0 | 0.15 | ND | 0.29 | 0.044 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.54 | 0.066 | ND | 0.12 | 0.014 | |
| 75-27-4 | Bromodichloromethane | ND | 0.53 | 0.077 | ND | 0.079 | 0.011 | |
| 79-01-6 | Trichloroethene | ND | 0.53 | 0.072 | ND | 0.099 | 0.013 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.53 | 0.063 | ND | 0.15 | 0.017 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.1 | 0.19 | ND | 0.27 | 0.046 | |
| 142-82-5 | n-Heptane | ND | 0.54 | 0.085 | ND | 0.13 | 0.021 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.56 | 0.083 | ND | 0.12 | 0.018 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 0.53 | 0.073 | ND | 0.13 | 0.018 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.53 | 0.11 | ND | 0.12 | 0.024 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.54 | 0.054 | ND | 0.099 | 0.0099 | |
| 108-88-3 | Toluene | ND | 0.53 | 0.065 | ND | 0.14 | 0.017 | |
| 591-78-6 | 2-Hexanone | ND | 0.54 | 0.066 | ND | 0.13 | 0.016 | |
| 124-48-1 | Dibromochloromethane | ND | 0.54 | 0.070 | ND | 0.063 | 0.0082 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.54 | 0.062 | ND | 0.070 | 0.0081 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.54 | 0.073 | ND | 0.11 | 0.015 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190123-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | ND | 0.54 | 0.12 | ND | 0.12 | 0.026 | |
| 127-18-4 | Tetrachloroethene | ND | 0.53 | 0.069 | ND | 0.078 | 0.010 | |
| 108-90-7 | Chlorobenzene | ND | 0.53 | 0.071 | ND | 0.12 | 0.015 | |
| 100-41-4 | Ethylbenzene | ND | 0.52 | 0.075 | ND | 0.12 | 0.017 | |
| 179601-23-1 | m,p-Xylenes | ND | 1.1 | 0.14 | ND | 0.25 | 0.032 | |
| 75-25-2 | Bromoform | ND | 0.53 | 0.11 | ND | 0.051 | 0.011 | |
| 100-42-5 | Styrene | ND | 0.53 | 0.086 | ND | 0.12 | 0.020 | |
| 95-47-6 | o-Xylene | ND | 0.53 | 0.077 | ND | 0.12 | 0.018 | |
| 111-84-2 | n-Nonane | ND | 0.54 | 0.089 | ND | 0.10 | 0.017 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.53 | 0.074 | ND | 0.077 | 0.011 | |
| 98-82-8 | Cumene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 80-56-8 | alpha-Pinene | ND | 0.52 | 0.082 | ND | 0.093 | 0.015 | |
| 103-65-1 | n-Propylbenzene | ND | 0.54 | 0.077 | ND | 0.11 | 0.016 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.53 | 0.085 | ND | 0.11 | 0.017 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 0.53 | 0.074 | ND | 0.11 | 0.015 | |
| 100-44-7 | Benzyl Chloride | ND | 1.1 | 0.12 | ND | 0.21 | 0.023 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.54 | 0.080 | ND | 0.090 | 0.013 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.54 | 0.082 | ND | 0.090 | 0.014 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.54 | 0.079 | ND | 0.090 | 0.013 | |
| 5989-27-5 | d-Limonene | ND | 0.51 | 0.11 | ND | 0.092 | 0.020 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.52 | 0.10 | ND | 0.054 | 0.010 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.53 | 0.13 | ND | 0.071 | 0.018 | |
| 91-20-3 | Naphthalene | ND | 0.51 | 0.13 | ND | 0.097 | 0.025 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.53 | 0.11 | ND | 0.050 | 0.010 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **Method Blank** | ALS Project ID: | P1900225 |
| **Client Project ID:** | **High Acres Waste Odor Study / 089290-1817** | ALS Sample ID: | P190123-MB |

## Tentatively Identified Compounds

| | | | |
|---|---|---|---|
| Test Code: | EPA TO-15 | Date Collected: | NA |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | NA |
| Analyst: | Raneem Sahtah | Date Analyzed: | 1/23/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 1.00 Liter(s) |
| Test Notes: | | | |

Container Dilution Factor: 1.00

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| | No Compounds Detected | | |

# ALS ENVIRONMENTAL

## SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 1/15/19
Date(s) Received: 1/17/19
Date(s) Analyzed: 1/22 - 1/23/19

| | | **1,2-Dichloroethane-d4** | **Toluene-d8** | **Bromofluorobenzene** | | |
|---|---|---|---|---|---|---|
| **Client Sample ID** | **ALS Sample ID** | Percent Recovered | Percent Recovered | Percent Recovered | Acceptance Limits | **Data Qualifier** |
| Method Blank | P190122-MB | **84** | **101** | **107** | 70-130 | |
| Method Blank | P190123-MB | **85** | **100** | **110** | 70-130 | |
| Lab Control Sample | P190122-LCS | **82** | **102** | **108** | 70-130 | |
| Lab Control Sample | P190123-LCS | **82** | **100** | **110** | 70-130 | |
| WM-089290-011519-MAC-21 | P1900225-001 | **82** | **98** | **109** | 70-130 | |
| WM-089290-011519-MAC-22 | P1900225-002 | **83** | **101** | **109** | 70-130 | |

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190122-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 115-07-1 | Propene | 211 | **198** | **94** | 53-112 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | 210 | **165** | **79** | 62-103 | |
| 74-87-3 | Chloromethane | 211 | **148** | **70** | 51-121 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | 211 | **150** | **71** | 56-111 | |
| 75-01-4 | Vinyl Chloride | 214 | **156** | **73** | 57-117 | |
| 106-99-0 | 1,3-Butadiene | 210 | **171** | **81** | 53-134 | |
| 74-83-9 | Bromomethane | 212 | **209** | **99** | 65-110 | |
| 75-00-3 | Chloroethane | 214 | **214** | **100** | 64-111 | |
| 64-17-5 | Ethanol | 1,020 | **944** | **93** | 57-124 | |
| 75-05-8 | Acetonitrile | 206 | **218** | **106** | 57-126 | |
| 107-02-8 | Acrolein | 205 | **216** | **105** | 62-121 | |
| 67-64-1 | Acetone | 1,060 | **892** | **84** | 60-113 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 211 | **165** | **78** | 63-104 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | 413 | **386** | **93** | 60-124 | |
| 107-13-1 | Acrylonitrile | 207 | **212** | **102** | 66-125 | |
| 75-35-4 | 1,1-Dichloroethene | 218 | **202** | **93** | 68-107 | |
| 75-09-2 | Methylene Chloride | 217 | **196** | **90** | 66-105 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | 216 | **207** | **96** | 63-127 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 216 | **198** | **92** | 59-109 | |
| 75-15-0 | Carbon Disulfide | 218 | **190** | **87** | 67-109 | |
| 156-60-5 | trans-1,2-Dichloroethene | 214 | **197** | **92** | 70-115 | |
| 75-34-3 | 1,1-Dichloroethane | 216 | **192** | **89** | 66-106 | |
| 1634-04-4 | Methyl tert-Butyl Ether | 214 | **222** | **104** | 67-109 | |
| 108-05-4 | Vinyl Acetate | 1,060 | **888** | **84** | 68-136 | |
| 78-93-3 | 2-Butanone (MEK) | 208 | **199** | **96** | 71-116 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190122-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | 211 | 181 | 86 | 67-110 | |
| 141-78-6 | Ethyl Acetate | 436 | 405 | 93 | 64-127 | |
| 110-54-3 | n-Hexane | 216 | 179 | 83 | 60-115 | |
| 67-66-3 | Chloroform | 217 | 174 | 80 | 66-105 | |
| 109-99-9 | Tetrahydrofuran (THF) | 216 | 211 | 98 | 65-110 | |
| 107-06-2 | 1,2-Dichloroethane | 215 | 156 | 73 | 60-110 | |
| 71-55-6 | 1,1,1-Trichloroethane | 215 | 168 | 78 | 64-108 | |
| 71-43-2 | Benzene | 211 | 177 | 84 | 67-106 | |
| 56-23-5 | Carbon Tetrachloride | 212 | 162 | 76 | 64-112 | |
| 110-82-7 | Cyclohexane | 416 | 353 | 85 | 67-110 | |
| 78-87-5 | 1,2-Dichloropropane | 216 | 196 | 91 | 66-112 | |
| 75-27-4 | Bromodichloromethane | 215 | 182 | 85 | 67-113 | |
| 79-01-6 | Trichloroethene | 213 | 183 | 86 | 66-108 | |
| 123-91-1 | 1,4-Dioxane | 214 | 222 | 104 | 70-116 | |
| 80-62-6 | Methyl Methacrylate | 431 | 421 | 98 | 73-118 | |
| 142-82-5 | n-Heptane | 215 | 194 | 90 | 66-110 | |
| 10061-01-5 | cis-1,3-Dichloropropene | 214 | 200 | 93 | 75-120 | |
| 108-10-1 | 4-Methyl-2-pentanone | 209 | 215 | 103 | 65-124 | |
| 10061-02-6 | trans-1,3-Dichloropropene | 213 | 211 | 99 | 77-123 | |
| 79-00-5 | 1,1,2-Trichloroethane | 215 | 196 | 91 | 68-112 | |
| 108-88-3 | Toluene | 212 | 195 | 92 | 62-111 | |
| 591-78-6 | 2-Hexanone | 214 | 222 | 104 | 59-128 | |
| 124-48-1 | Dibromochloromethane | 213 | 212 | 100 | 67-123 | |
| 106-93-4 | 1,2-Dibromoethane | 216 | 216 | 100 | 66-122 | |
| 123-86-4 | n-Butyl Acetate | 219 | 223 | 102 | 64-128 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190122-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 217 | **210** | **97** | 65-114 | |
| 127-18-4 | Tetrachloroethene | 213 | **196** | **92** | 55-120 | |
| 108-90-7 | Chlorobenzene | 215 | **194** | **90** | 61-114 | |
| 100-41-4 | Ethylbenzene | 212 | **191** | **90** | 64-113 | |
| 179601-23-1 | m,p-Xylenes | 426 | **375** | **88** | 64-114 | |
| 75-25-2 | Bromoform | 213 | **230** | **108** | 65-132 | |
| 100-42-5 | Styrene | 212 | **218** | **103** | 67-124 | |
| 95-47-6 | o-Xylene | 214 | **189** | **88** | 65-114 | |
| 111-84-2 | n-Nonane | 215 | **195** | **91** | 64-117 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 214 | **202** | **94** | 66-119 | |
| 98-82-8 | Cumene | 214 | **193** | **90** | 61-116 | |
| 80-56-8 | alpha-Pinene | 211 | **196** | **93** | 65-120 | |
| 103-65-1 | n-Propylbenzene | 218 | **199** | **91** | 63-117 | |
| 622-96-8 | 4-Ethyltoluene | 214 | **194** | **91** | 63-124 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 214 | **191** | **89** | 60-117 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 215 | **189** | **88** | 61-122 | |
| 100-44-7 | Benzyl Chloride | 217 | **202** | **93** | 77-142 | |
| 541-73-1 | 1,3-Dichlorobenzene | 216 | **197** | **91** | 61-125 | |
| 106-46-7 | 1,4-Dichlorobenzene | 216 | **203** | **94** | 59-123 | |
| 95-50-1 | 1,2-Dichlorobenzene | 216 | **198** | **92** | 61-126 | |
| 5989-27-5 | d-Limonene | 211 | **204** | **97** | 66-124 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | 209 | **210** | **100** | 67-138 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 214 | **201** | **94** | 62-141 | |
| 91-20-3 | Naphthalene | 203 | **177** | **87** | 62-145 | |
| 87-68-3 | Hexachlorobutadiene | 209 | **195** | **93** | 49-131 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **Lab Control Sample** | ALS Project ID: | P1900225 |
| **Client Project ID:** | **High Acres Waste Odor Study / 089290-1817** | ALS Sample ID: | P190123-LCS |
| Test Code: | EPA TO-15 | Date Collected: | NA |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | NA |
| Analyst: | Raneem Sahtah | Date Analyzed: | 1/23/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.125 Liter(s) |
| Test Notes: | | | |

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 115-07-1 | Propene | 211 | **207** | **98** | 53-112 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | 210 | **172** | **82** | 62-103 | |
| 74-87-3 | Chloromethane | 211 | **152** | **72** | 51-121 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | 211 | **155** | **73** | 56-111 | |
| 75-01-4 | Vinyl Chloride | 214 | **159** | **74** | 57-117 | |
| 106-99-0 | 1,3-Butadiene | 210 | **175** | **83** | 53-134 | |
| 74-83-9 | Bromomethane | 212 | **213** | **100** | 65-110 | |
| 75-00-3 | Chloroethane | 214 | **220** | **103** | 64-111 | |
| 64-17-5 | Ethanol | 1,020 | **977** | **96** | 57-124 | |
| 75-05-8 | Acetonitrile | 206 | **227** | **110** | 57-126 | |
| 107-02-8 | Acrolein | 205 | **225** | **110** | 62-121 | |
| 67-64-1 | Acetone | 1,060 | **923** | **87** | 60-113 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 211 | **170** | **81** | 63-104 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | 413 | **400** | **97** | 60-124 | |
| 107-13-1 | Acrylonitrile | 207 | **221** | **107** | 66-125 | |
| 75-35-4 | 1,1-Dichloroethene | 218 | **210** | **96** | 68-107 | |
| 75-09-2 | Methylene Chloride | 217 | **203** | **94** | 66-105 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | 216 | **215** | **100** | 63-127 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 216 | **206** | **95** | 59-109 | |
| 75-15-0 | Carbon Disulfide | 218 | **198** | **91** | 67-109 | |
| 156-60-5 | trans-1,2-Dichloroethene | 214 | **204** | **95** | 70-115 | |
| 75-34-3 | 1,1-Dichloroethane | 216 | **199** | **92** | 66-106 | |
| 1634-04-4 | Methyl tert-Butyl Ether | 214 | **228** | **107** | 67-109 | |
| 108-05-4 | Vinyl Acetate | 1,060 | **913** | **86** | 68-136 | |
| 78-93-3 | 2-Butanone (MEK) | 208 | **206** | **99** | 71-116 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

## ALS ENVIRONMENTAL

### LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190123-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | 211 | **187** | **89** | 67-110 | |
| 141-78-6 | Ethyl Acetate | 436 | **418** | **96** | 64-127 | |
| 110-54-3 | n-Hexane | 216 | **185** | **86** | 60-115 | |
| 67-66-3 | Chloroform | 217 | **180** | **83** | 66-105 | |
| 109-99-9 | Tetrahydrofuran (THF) | 216 | **220** | **102** | 65-110 | |
| 107-06-2 | 1,2-Dichloroethane | 215 | **161** | **75** | 60-110 | |
| 71-55-6 | 1,1,1-Trichloroethane | 215 | **176** | **82** | 64-108 | |
| 71-43-2 | Benzene | 211 | **185** | **88** | 67-106 | |
| 56-23-5 | Carbon Tetrachloride | 212 | **169** | **80** | 64-112 | |
| 110-82-7 | Cyclohexane | 416 | **369** | **89** | 67-110 | |
| 78-87-5 | 1,2-Dichloropropane | 216 | **204** | **94** | 66-112 | |
| 75-27-4 | Bromodichloromethane | 215 | **190** | **88** | 67-113 | |
| 79-01-6 | Trichloroethene | 213 | **192** | **90** | 66-108 | |
| 123-91-1 | 1,4-Dioxane | 214 | **230** | **107** | 70-116 | |
| 80-62-6 | Methyl Methacrylate | 431 | **438** | **102** | 73-118 | |
| 142-82-5 | n-Heptane | 215 | **201** | **93** | 66-110 | |
| 10061-01-5 | cis-1,3-Dichloropropene | 214 | **210** | **98** | 75-120 | |
| 108-10-1 | 4-Methyl-2-pentanone | 209 | **224** | **107** | 65-124 | |
| 10061-02-6 | trans-1,3-Dichloropropene | 213 | **221** | **104** | 77-123 | |
| 79-00-5 | 1,1,2-Trichloroethane | 215 | **206** | **96** | 68-112 | |
| 108-88-3 | Toluene | 212 | **196** | **92** | 62-111 | |
| 591-78-6 | 2-Hexanone | 214 | **222** | **104** | 59-128 | |
| 124-48-1 | Dibromochloromethane | 213 | **216** | **101** | 67-123 | |
| 106-93-4 | 1,2-Dibromoethane | 216 | **218** | **101** | 66-122 | |
| 123-86-4 | n-Butyl Acetate | 219 | **224** | **102** | 64-128 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900225
ALS Sample ID: P190123-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 217 | **210** | **97** | 65-114 | |
| 127-18-4 | Tetrachloroethene | 213 | **198** | **93** | 55-120 | |
| 108-90-7 | Chlorobenzene | 215 | **196** | **91** | 61-114 | |
| 100-41-4 | Ethylbenzene | 212 | **194** | **92** | 64-113 | |
| 179601-23-1 | m,p-Xylenes | 426 | **379** | **89** | 64-114 | |
| 75-25-2 | Bromoform | 213 | **234** | **110** | 65-132 | |
| 100-42-5 | Styrene | 212 | **220** | **104** | 67-124 | |
| 95-47-6 | o-Xylene | 214 | **191** | **89** | 65-114 | |
| 111-84-2 | n-Nonane | 215 | **198** | **92** | 64-117 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 214 | **204** | **95** | 66-119 | |
| 98-82-8 | Cumene | 214 | **196** | **92** | 61-116 | |
| 80-56-8 | alpha-Pinene | 211 | **193** | **91** | 65-120 | |
| 103-65-1 | n-Propylbenzene | 218 | **201** | **92** | 63-117 | |
| 622-96-8 | 4-Ethyltoluene | 214 | **210** | **98** | 63-124 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 214 | **194** | **91** | 60-117 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 215 | **192** | **89** | 61-122 | |
| 100-44-7 | Benzyl Chloride | 217 | **204** | **94** | 77-142 | |
| 541-73-1 | 1,3-Dichlorobenzene | 216 | **200** | **93** | 61-125 | |
| 106-46-7 | 1,4-Dichlorobenzene | 216 | **206** | **95** | 59-123 | |
| 95-50-1 | 1,2-Dichlorobenzene | 216 | **199** | **92** | 61-126 | |
| 5989-27-5 | d-Limonene | 211 | **203** | **96** | 66-124 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | 209 | **214** | **102** | 67-138 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 214 | **204** | **95** | 62-141 | |
| 91-20-3 | Naphthalene | 203 | **181** | **89** | 62-145 | |
| 87-68-3 | Hexachlorobutadiene | 209 | **198** | **95** | 49-131 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

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Simi Valley, CA 93065
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# LABORATORY REPORT

January 28, 2019

Bryan Szalda
GHD Services Inc.
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, NY 14304

**RE: High Acres Waste Odor Study / 089290-1817**

Dear Bryan:

Enclosed are the results of the samples submitted to our laboratory on January 14, 2019. For your reference, these analyses have been assigned our service request number P1900139.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**ALS | Environmental**

Sue Anderson

*By Sue Anderson at 4:24 pm, Jan 28, 2019*

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
**T:** +1 805 526 7161
www.alsglobal.com

| | | | |
|---|---|---|---|
| Client: | GHD Services Inc. | Service Request No: | P1900139 |
| Project: | High Acres Waste Odor Study / 089290-1817 | New York Lab ID: | 11221 |

## CASE NARRATIVE

The samples were received intact under chain of custody on January 14, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

### Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per ASTM D 5504-12 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP accreditation.

### Volatile Organic Compound Analysis

The samples were also analyzed for volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

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## ALS Environmental – Simi Valley

## CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEC | http://dec.alaska.gov/eh/lab.aspx | 17-019 |
| Arizona DHS | http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home | AZ0694 |
| Florida DOH (NELAP) | http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html | E871020 |
| Louisiana DEQ (NELAP) | http://www.deq.louisiana.gov/page/la-lab-accreditation | 05071 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml | 2018027 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 1521096 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/enforcement/oqa.html | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-005 |
| Pennsylvania DEP | http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx | 68-03307 (Registration) |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html | T104704413-18-9 |
| Utah DOH (NELAP) | http://health.utah.gov/lab/lab_cert_env | CA016272018-9 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

# ALS ENVIRONMENTAL

## DETAIL SUMMARY REPORT

Client: GHD Services Inc.
Project ID: High Acres Waste Odor Study / 089290-1817

Service Request: P1900139

Date Received: 1/14/2019
Time Received: 09:30

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | Container ID | Pi1 (psig) | Pf1 (psig) | ASTM D 5504-12 - Sulfur Can | TO-15 - VOC Cans |
|---|---|---|---|---|---|---|---|---|---|
| WM-089290-010819-MAC-13 | P1900139-001 | Air | 1/8/2019 | 13:48 | SSC00030 | -0.46 | 3.80 | X | X |
| WM-089290-010919-MAC-14 | P1900139-002 | Air | 1/9/2019 | 11:18 | SSC00144 | -0.09 | 3.49 | X | X |
| WM-089290-011019-MAC-15 | P1900139-003 | Air | 1/10/2019 | 11:35 | SSC00133 | 0.22 | 3.56 | X | X |
| WM-089290-011119-MAC-16 | P1900139-004 | Air | 1/11/2019 | 12:08 | SSC00307 | 0.78 | 3.62 | X | X |

ALS

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

# Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

P1900139

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No 95871

Company Name & Address (Reporting Information)
GHD
2055 NF Blvd
NF, NY 14304

Project Name: High Acres Waste Odor Study

Project Number: 089290-1817

ALS Contact: Sue Anderson

Project Manager: Bryan Szalda

P.O. # / Billing Information: Order # 95871

Phone: (716) 297-6150

Fax: 716-297-2265

Email Address for Result Reporting: bryan.szalda@ghd.com

Sampler (Print & Sign): Michael Coscio

| | | | | | | | | | Analysis Method | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Sample ID | Laboratory ID Number | Date Collected | Time Collected | Canister ID (Bar code # - AC, SC, etc.) | Flow Controller ID (Bar code # - FC #) | Canister Start Pressure "Hg | Canister End Pressure "Hg/psig | Sample Volume | TO-15 (w/ TICs) | ASTM D 5504 | Comments e.g. Actual Preservative or specific instructions |
| WM-089290-010819-MAC-13 | 1 | 01/08/19 | 1348 | SSC-00030 | SOA-00306 | -29.51 | -2.12 | 6L | X | X | 7-day hold |
| WM-089290-010919-MAC-14 | 2 | 01/09/19 | 11:18 | SSC-00144 | SOA 00216 | -29.85 | -2.08 | 6L | X | X | 7-day hold |
| WM-089290-011019-MAC-15 | 3 | 01/10/19 | 11:35 | SSC 00133 | SOA 00264 | -29.85 | -2.06 | 6L | X | X | 7-day hold |
| WM-089290-011119-MAC-16 | 4 | 01/11/19 | 12:08 | SSC 00307 | SOA 00229 | -29.94 | -1.80 | 6L | X | X | 7-day hold |
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Report Tier Levels - please select
Tier I - Results (Default in not specified) ______
Tier II (Results + QC Summaries ______
Tier III (Results + QC & Calibration Summaries) ______
Tier IV (Date Validation Package) 10% Surcharge ______

EDD required YES / No
Type: ________ Units: ________

Chain of Custody Seal (Circle)
INTACT BROKEN [✓ ABSENT]

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature) Date: 1/11/19 Time: 1630
Received by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:
Received by: (Signature) Date: 1/14/19 Time: 0930

Cooler / Blank Temperature ____ °C

# ALS Environmental
## Sample Acceptance Check Form

Client: GHD Services Inc.
Work order: P1900139
Project: High Acres Waste Odor Study / 089290-1817
Sample(s) received on: 1/14/19
Date opened: 1/14/19
by: ADAVID

*__Note:__* This form is used for __all__ samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

| | | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Were **sample containers** properly marked with client sample ID? | ☒ | ☐ | ☐ |
| 2 | Did **sample containers** arrive in good condition? | ☒ | ☐ | ☐ |
| 3 | Were **chain-of-custody** papers used and filled out? | ☒ | ☐ | ☐ |
| 4 | Did **sample container labels** and/or tags agree with custody papers? | ☒ | ☐ | ☐ |
| 5 | Was **sample volume** received adequate for analysis? | ☒ | ☐ | ☐ |
| 6 | Are samples within specified holding times? | ☒ | ☐ | ☐ |
| 7 | Was proper **temperature** (thermal preservation) of cooler at receipt adhered to? | ☐ | ☐ | ☒ |
| 8 | Were **custody seals** on outside of cooler/Box/Container? | ☐ | ☒ | ☐ |
| | Location of seal(s)? ____________ Sealing Lid? | ☐ | ☐ | ☒ |
| | Were signature and date included? | ☐ | ☐ | ☒ |
| | Were seals intact? | ☐ | ☐ | ☒ |
| 9 | Do containers have appropriate **preservation**, according to method/SOP or Client specified information? | ☐ | ☐ | ☒ |
| | Is there a client indication that the submitted samples are **pH** preserved? | ☐ | ☐ | ☒ |
| | Were __**VOA vials**__ checked for presence/absence of air bubbles? | ☐ | ☐ | ☒ |
| | Does the client/method/SOP require that the analyst check the sample pH and __if necessary__ alter it? | ☐ | ☐ | ☒ |
| 10 | **Tubes:** Are the tubes capped and intact? | ☐ | ☐ | ☒ |
| 11 | **Badges:** Are the badges properly capped and intact? | ☐ | ☐ | ☒ |
| | Are dual bed badges separated and individually capped and intact? | ☐ | ☐ | ☒ |

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P1900139-001.01 | 6.0 L Silonite Can | | | | | |
| P1900139-002.01 | 6.0 L Silonite Can | | | | | |
| P1900139-003.01 | 6.0 L Silonite Can | | | | | |
| P1900139-004.01 | 6.0 L Silonite Can | | | | | |
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Explain any discrepancies: (include lab sample ID numbers): ____________

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-010819-MAC-13**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-001

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00030

Date Collected: 1/8/19
Time Collected: 13:48
Date Received: 1/14/19
Date Analyzed: 1/15/19
Time Analyzed: 09:35
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.46 Final Pressure (psig): 3.80

Container Dilution Factor: 1.30

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | **16** | 9.1 | 2.7 | **12** | 6.5 | 2.0 | |
| 463-58-1 | Carbonyl Sulfide | **130** | 16 | NA | **51** | 6.5 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 13 | 5.1 | ND | 6.5 | 2.6 | |
| 75-08-1 | Ethyl Mercaptan | ND | 17 | 6.6 | ND | 6.5 | 2.6 | |
| 75-18-3 | Dimethyl Sulfide | **110** | 17 | 6.6 | **43** | 6.5 | 2.6 | |
| 75-15-0 | Carbon Disulfide | **130** | 10 | NA | **40** | 3.3 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 20 | 8.1 | ND | 6.5 | 2.6 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 24 | 9.6 | ND | 6.5 | 2.6 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 20 | 8.1 | ND | 6.5 | 2.6 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 20 | 8.1 | ND | 6.5 | 2.6 | |
| 110-02-1 | Thiophene | ND | 22 | 8.9 | ND | 6.5 | 2.6 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 24 | 9.6 | ND | 6.5 | 2.6 | |
| 352-93-2 | Diethyl Sulfide | ND | 24 | 9.6 | ND | 6.5 | 2.6 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 24 | 9.6 | ND | 6.5 | 2.6 | |
| 624-92-0 | Dimethyl Disulfide | **130** | 13 | 5.0 | **34** | 3.3 | 1.3 | |
| 616-44-4 | 3-Methylthiophene | ND | 26 | 10 | ND | 6.5 | 2.6 | |
| 110-01-0 | Tetrahydrothiophene | ND | 23 | 9.4 | ND | 6.5 | 2.6 | |
| 638-02-8 | 2,5-Dimethylthiophene | **27** | 30 | 12 | **5.8** | 6.5 | 2.6 | **J** |
| 872-55-9 | 2-Ethylthiophene | ND | 30 | 12 | ND | 6.5 | 2.6 | |
| 110-81-6 | Diethyl Disulfide | **18** | 16 | 13 | **3.5** | 3.3 | 2.6 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-010919-MAC-14**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-002

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00144

Date Collected: 1/9/19
Time Collected: 11:18
Date Received: 1/14/19
Date Analyzed: 1/15/19
Time Analyzed: 09:52
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.49

Container Dilution Factor: 1.25

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | **23** | 8.7 | 2.6 | **16** | 6.3 | 1.9 | |
| 463-58-1 | Carbonyl Sulfide | ND | 15 | NA | ND | 6.3 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.9 | ND | 6.3 | 2.5 | |
| 75-08-1 | Ethyl Mercaptan | ND | 16 | 6.4 | ND | 6.3 | 2.5 | |
| 75-18-3 | Dimethyl Sulfide | **14** | 16 | 6.4 | **5.4** | 6.3 | 2.5 | **J** |
| 75-15-0 | Carbon Disulfide | **14** | 9.7 | NA | **4.6** | 3.1 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.8 | ND | 6.3 | 2.5 | |
| 110-02-1 | Thiophene | ND | 21 | 8.6 | ND | 6.3 | 2.5 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 352-93-2 | Diethyl Sulfide | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 23 | 9.2 | ND | 6.3 | 2.5 | |
| 624-92-0 | Dimethyl Disulfide | **21** | 12 | 4.8 | **5.4** | 3.1 | 1.3 | |
| 616-44-4 | 3-Methylthiophene | ND | 25 | 10 | ND | 6.3 | 2.5 | |
| 110-01-0 | Tetrahydrothiophene | ND | 23 | 9.0 | ND | 6.3 | 2.5 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 29 | 11 | ND | 6.3 | 2.5 | |
| 872-55-9 | 2-Ethylthiophene | ND | 29 | 11 | ND | 6.3 | 2.5 | |
| 110-81-6 | Diethyl Disulfide | ND | 16 | 12 | ND | 3.1 | 2.5 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011019-MAC-15**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-003

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00133

Date Collected: 1/10/19
Time Collected: 11:35
Date Received: 1/14/19
Date Analyzed: 1/15/19
Time Analyzed: 10:11
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.22 Final Pressure (psig): 3.56

Container Dilution Factor: 1.22

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | **21** | 8.5 | 2.5 | **15** | 6.1 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | **40** | 15 | NA | **16** | 6.1 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.8 | ND | 6.1 | 2.4 | |
| 75-08-1 | Ethyl Mercaptan | ND | 15 | 6.2 | ND | 6.1 | 2.4 | |
| 75-18-3 | Dimethyl Sulfide | **55** | 15 | 6.2 | **22** | 6.1 | 2.4 | |
| 75-15-0 | Carbon Disulfide | **43** | 9.5 | NA | **14** | 3.1 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 19 | 7.6 | ND | 6.1 | 2.4 | |
| 110-02-1 | Thiophene | ND | 21 | 8.4 | ND | 6.1 | 2.4 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 352-93-2 | Diethyl Sulfide | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 22 | 9.0 | ND | 6.1 | 2.4 | |
| 624-92-0 | Dimethyl Disulfide | **72** | 12 | 4.7 | **19** | 3.1 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 24 | 9.8 | ND | 6.1 | 2.4 | |
| 110-01-0 | Tetrahydrothiophene | ND | 22 | 8.8 | ND | 6.1 | 2.4 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 28 | 11 | ND | 6.1 | 2.4 | |
| 872-55-9 | 2-Ethylthiophene | ND | 28 | 11 | ND | 6.1 | 2.4 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.1 | 2.4 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011119-MAC-16**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-004

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00307

Date Collected: 1/11/19
Time Collected: 12:08
Date Received: 1/14/19
Date Analyzed: 1/15/19
Time Analyzed: 10:31
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.78 Final Pressure (psig): 3.62

Container Dilution Factor: 1.18

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | **20** | 8.2 | 2.5 | **14** | 5.9 | 1.8 | |
| 463-58-1 | Carbonyl Sulfide | ND | 14 | NA | ND | 5.9 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 12 | 4.6 | ND | 5.9 | 2.4 | |
| 75-08-1 | Ethyl Mercaptan | ND | 15 | 6.0 | ND | 5.9 | 2.4 | |
| 75-18-3 | Dimethyl Sulfide | ND | 15 | 6.0 | ND | 5.9 | 2.4 | |
| 75-15-0 | Carbon Disulfide | ND | 9.2 | NA | ND | 3.0 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 18 | 7.3 | ND | 5.9 | 2.4 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 22 | 8.7 | ND | 5.9 | 2.4 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 18 | 7.3 | ND | 5.9 | 2.4 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 18 | 7.3 | ND | 5.9 | 2.4 | |
| 110-02-1 | Thiophene | ND | 20 | 8.1 | ND | 5.9 | 2.4 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 22 | 8.7 | ND | 5.9 | 2.4 | |
| 352-93-2 | Diethyl Sulfide | ND | 22 | 8.7 | ND | 5.9 | 2.4 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 22 | 8.7 | ND | 5.9 | 2.4 | |
| 624-92-0 | Dimethyl Disulfide | ND | 11 | 4.5 | ND | 3.0 | 1.2 | |
| 616-44-4 | 3-Methylthiophene | ND | 24 | 9.5 | ND | 5.9 | 2.4 | |
| 110-01-0 | Tetrahydrothiophene | ND | 21 | 8.5 | ND | 5.9 | 2.4 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 27 | 11 | ND | 5.9 | 2.4 | |
| 872-55-9 | 2-Ethylthiophene | ND | 27 | 11 | ND | 5.9 | 2.4 | |
| 110-81-6 | Diethyl Disulfide | ND | 15 | 12 | ND | 3.0 | 2.4 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190115-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 1/15/19
Time Analyzed: 09:09
Volume(s) Analyzed: 1.0 ml(s)

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | ND | 7.0 | 2.1 | ND | 5.0 | 1.5 | |
| 463-58-1 | Carbonyl Sulfide | ND | 12 | NA | ND | 5.0 | NA | |
| 74-93-1 | Methyl Mercaptan | ND | 9.8 | 3.9 | ND | 5.0 | 2.0 | |
| 75-08-1 | Ethyl Mercaptan | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-18-3 | Dimethyl Sulfide | ND | 13 | 5.1 | ND | 5.0 | 2.0 | |
| 75-15-0 | Carbon Disulfide | ND | 7.8 | NA | ND | 2.5 | NA | |
| 75-33-2 | Isopropyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 75-66-1 | tert-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 107-03-9 | n-Propyl Mercaptan | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 624-89-5 | Ethyl Methyl Sulfide | ND | 16 | 6.2 | ND | 5.0 | 2.0 | |
| 110-02-1 | Thiophene | ND | 17 | 6.9 | ND | 5.0 | 2.0 | |
| 513-44-0 | Isobutyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 352-93-2 | Diethyl Sulfide | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 109-79-5 | n-Butyl Mercaptan | ND | 18 | 7.4 | ND | 5.0 | 2.0 | |
| 624-92-0 | Dimethyl Disulfide | ND | 9.6 | 3.9 | ND | 2.5 | 1.0 | |
| 616-44-4 | 3-Methylthiophene | ND | 20 | 8.0 | ND | 5.0 | 2.0 | |
| 110-01-0 | Tetrahydrothiophene | ND | 18 | 7.2 | ND | 5.0 | 2.0 | |
| 638-02-8 | 2,5-Dimethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 872-55-9 | 2-Ethylthiophene | ND | 23 | 9.2 | ND | 5.0 | 2.0 | |
| 110-81-6 | Diethyl Disulfide | ND | 12 | 10 | ND | 2.5 | 2.0 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190115-LCS

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Magaly Rodriguez
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/15/19
Volume(s) Analyzed: NA ml(s)

| **CAS #** | **Compound** | Spike Amount ppbV | **Result ppbV** | **% Recovery** | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 7783-06-4 | Hydrogen Sulfide | 989 | **916** | **93** | 81-141 | |
| 463-58-1 | Carbonyl Sulfide | 1,050 | **1,030** | **98** | 81-147 | |
| 74-93-1 | Methyl Mercaptan | 1,050 | **1,080** | **103** | 80-144 | |

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-010819-MAC-13**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00030

Date Collected: 1/8/19
Date Received: 1/14/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.010 Liter(s)
0.0015 Liter(s)

Initial Pressure (psig): -0.46 Final Pressure (psig): 3.80

Container Dilution Factor: 1.30

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **19** | 68 | 17 | **11** | 39 | 9.8 | J |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 68 | 11 | ND | 14 | 2.3 | |
| 74-87-3 | Chloromethane | ND | 65 | 11 | ND | 31 | 5.4 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 66 | 11 | ND | 9.5 | 1.6 | |
| 75-01-4 | Vinyl Chloride | ND | 69 | 7.4 | ND | 27 | 2.9 | |
| 106-99-0 | 1,3-Butadiene | ND | 68 | 11 | ND | 31 | 5.2 | |
| 74-83-9 | Bromomethane | ND | 65 | 9.6 | ND | 17 | 2.5 | |
| 75-00-3 | Chloroethane | ND | 66 | 8.6 | ND | 25 | 3.3 | |
| 64-17-5 | Ethanol | **290,000** | 4,400 | 320 | **150,000** | 2,300 | 170 | B, D |
| 75-05-8 | Acetonitrile | ND | 68 | 17 | ND | 40 | 10 | |
| 107-02-8 | Acrolein | ND | 130 | 20 | ND | 57 | 8.5 | |
| 67-64-1 | Acetone | **1,500** | 700 | 160 | **620** | 300 | 66 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 69 | 11 | ND | 12 | 1.9 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **1,700** | 270 | 29 | **700** | 110 | 12 | |
| 107-13-1 | Acrylonitrile | ND | 68 | 14 | ND | 31 | 6.6 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 70 | 9.6 | ND | 18 | 2.4 | |
| 75-09-2 | Methylene Chloride | ND | 70 | 20 | ND | 20 | 5.6 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 69 | 9.4 | ND | 22 | 3.0 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 69 | 9.9 | ND | 9.0 | 1.3 | |
| 75-15-0 | Carbon Disulfide | 44 | 140 | 21 | **14** | 46 | 6.7 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 69 | 9.6 | ND | 17 | 2.4 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 68 | 10 | ND | 17 | 2.5 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 70 | 8.2 | ND | 19 | 2.3 | |
| 108-05-4 | Vinyl Acetate | **170** | 690 | 160 | 47 | 200 | 44 | J |
| 78-93-3 | 2-Butanone (MEK) | **5,300** | 130 | 14 | **1,800** | 44 | 4.9 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-010819-MAC-13**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00030

Date Collected: 1/8/19
Date Received: 1/14/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.010 Liter(s)
0.0015 Liter(s)

Initial Pressure (psig): -0.46 Final Pressure (psig): 3.80

Container Dilution Factor: 1.30

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 69 | 9.8 | ND | 17 | 2.5 | |
| 141-78-6 | Ethyl Acetate | **13,000** | 140 | 36 | **3,600** | 40 | 10 | |
| 110-54-3 | n-Hexane | ND | 70 | 14 | ND | 20 | 4.1 | |
| 67-66-3 | Chloroform | ND | 70 | 9.2 | ND | 14 | 1.9 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 69 | 8.7 | ND | 23 | 3.0 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 69 | 7.7 | ND | 17 | 1.9 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 70 | 8.6 | ND | 13 | 1.6 | |
| 71-43-2 | Benzene | ND | 68 | 10 | ND | 21 | 3.1 | |
| 56-23-5 | Carbon Tetrachloride | ND | 68 | 9.6 | ND | 11 | 1.5 | |
| 110-82-7 | Cyclohexane | ND | 130 | 20 | ND | 38 | 5.7 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 70 | 8.6 | ND | 15 | 1.9 | |
| 75-27-4 | Bromodichloromethane | ND | 69 | 10 | ND | 10 | 1.5 | |
| 79-01-6 | Trichloroethene | ND | 69 | 9.4 | ND | 13 | 1.7 | |
| 123-91-1 | 1,4-Dioxane | ND | 69 | 8.2 | ND | 19 | 2.3 | |
| 80-62-6 | Methyl Methacrylate | ND | 140 | 25 | ND | 35 | 6.0 | |
| 142-82-5 | n-Heptane | **81** | 70 | 11 | **20** | 17 | 2.7 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 73 | 11 | ND | 16 | 2.4 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 69 | 9.5 | ND | 17 | 2.3 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 69 | 14 | ND | 15 | 3.2 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 70 | 7.0 | ND | 13 | 1.3 | |
| 108-88-3 | Toluene | **110** | 69 | 8.5 | **28** | 18 | 2.2 | |
| 591-78-6 | 2-Hexanone | ND | 70 | 8.6 | ND | 17 | 2.1 | |
| 124-48-1 | Dibromochloromethane | ND | 70 | 9.1 | ND | 8.2 | 1.1 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 70 | 8.1 | ND | 9.1 | 1.0 | |
| 123-86-4 | n-Butyl Acetate | **35** | 70 | 9.5 | **7.4** | 15 | 2.0 | J |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-010819-MAC-13**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00030

Date Collected: 1/8/19
Date Received: 1/14/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.010 Liter(s)
0.0015 Liter(s)

Initial Pressure (psig): -0.46 Final Pressure (psig): 3.80

Container Dilution Factor: 1.30

| CAS # | Compound | **Result µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **110** | 70 | 16 | **23** | 15 | 3.3 | |
| 127-18-4 | Tetrachloroethene | ND | 69 | 9.0 | ND | 10 | 1.3 | |
| 108-90-7 | Chlorobenzene | ND | 69 | 9.2 | ND | 15 | 2.0 | |
| 100-41-4 | Ethylbenzene | **120** | 68 | 9.8 | **28** | 16 | 2.2 | |
| 179601-23-1 | m,p-Xylenes | **380** | 140 | 18 | **88** | 33 | 4.2 | |
| 75-25-2 | Bromoform | ND | 69 | 14 | ND | 6.7 | 1.4 | |
| 100-42-5 | Styrene | **74** | 69 | 11 | **17** | 16 | 2.6 | |
| 95-47-6 | o-Xylene | **110** | 69 | 10 | **25** | 16 | 2.3 | |
| 111-84-2 | n-Nonane | **230** | 70 | 12 | **44** | 13 | 2.2 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 69 | 9.6 | ND | 10 | 1.4 | |
| 98-82-8 | Cumene | ND | 69 | 10 | ND | 14 | 2.0 | |
| 80-56-8 | alpha-Pinene | **690** | 68 | 11 | **120** | 12 | 1.9 | |
| 103-65-1 | n-Propylbenzene | ND | 70 | 10 | ND | 14 | 2.0 | |
| 622-96-8 | 4-Ethyltoluene | ND | 69 | 11 | ND | 14 | 2.2 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 69 | 10 | ND | 14 | 2.0 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 69 | 9.6 | ND | 14 | 2.0 | |
| 100-44-7 | Benzyl Chloride | ND | 140 | 16 | ND | 28 | 3.0 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 70 | 10 | ND | 12 | 1.7 | |
| 106-46-7 | 1,4-Dichlorobenzene | **23** | 70 | 11 | **3.8** | 12 | 1.8 | **J** |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 70 | 10 | ND | 12 | 1.7 | |
| 5989-27-5 | d-Limonene | **7,800** | 66 | 14 | **1,400** | 12 | 2.6 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 68 | 13 | ND | 7.0 | 1.3 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 69 | 17 | ND | 9.3 | 2.3 | |
| 91-20-3 | Naphthalene | ND | 66 | 17 | ND | 13 | 3.2 | |
| 87-68-3 | Hexachlorobutadiene | ND | 69 | 14 | ND | 6.5 | 1.3 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-010819-MAC-13** | ALS Project ID: | P1900139 |
| **Client Project ID:** | **High Acres Waste Odor Study / 089290-1817** | ALS Sample ID: | P1900139-001 |

### Tentatively Identified Compounds

| | | | |
|---|---|---|---|
| Test Code: | EPA TO-15 | Date Collected: | 1/8/19 |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | 1/14/19 |
| Analyst: | Raneem Sahtah | Date Analyzed: | 1/22 - 1/23/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.010 Liter(s) |
| Test Notes: | **T** | | 0.0015 Liter(s) |
| Container ID: | SSC00030 | | |

Initial Pressure (psig): -0.46 Final Pressure (psig): 3.80

Container Dilution Factor: 1.30

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.88 | Isobutane | **5,800** | |
| 5.41 | n-Butane | **980** | |
| 7.95 | n-Pentane | **2,000** | |
| 8.54 | Methyl Acetate | **800** | |
| 11.02 | 2-Butanol | **1,200** | |
| 11.91 | Isobutanol | **460** | |
| 19.78 | Camphene | **280** | |
| 20.15 | beta-Pinene | **430** | |
| 20.99 | .gamma.-Terpinene | **320** | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-010919-MAC-14**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00144

Date Collected: 1/9/19
Date Received: 1/14/19
Date Analyzed: 1/23/19
Volume(s) Analyzed: 0.060 Liter(s)
0.0050 Liter(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.49

Container Dilution Factor: 1.25

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **3.2** | 11 | 2.7 | **1.9** | 6.3 | 1.6 | J |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **3.4** | 11 | 1.8 | **0.69** | 2.2 | 0.37 | J |
| 74-87-3 | Chloromethane | ND | 10 | 1.8 | ND | 5.0 | 0.87 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 11 | 1.8 | ND | 1.5 | 0.25 | |
| 75-01-4 | Vinyl Chloride | ND | 11 | 1.2 | ND | 4.3 | 0.46 | |
| 106-99-0 | 1,3-Butadiene | ND | 11 | 1.8 | ND | 4.9 | 0.83 | |
| 74-83-9 | Bromomethane | ND | 10 | 1.5 | ND | 2.7 | 0.40 | |
| 75-00-3 | Chloroethane | ND | 11 | 1.4 | ND | 4.0 | 0.52 | |
| 64-17-5 | Ethanol | **100,000** | 1,300 | 93 | **54,000** | 680 | 49 | D |
| 75-05-8 | Acetonitrile | ND | 11 | 2.7 | ND | 6.5 | 1.6 | |
| 107-02-8 | Acrolein | ND | 21 | 3.1 | ND | 9.1 | 1.4 | |
| 67-64-1 | Acetone | **1,000** | 110 | 25 | **420** | 47 | 11 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **31** | 11 | 1.7 | **5.4** | 2.0 | 0.30 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **870** | 44 | 4.6 | **350** | 18 | 1.9 | |
| 107-13-1 | Acrylonitrile | ND | 11 | 2.3 | ND | 5.0 | 1.1 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 11 | 1.5 | ND | 2.8 | 0.39 | |
| 75-09-2 | Methylene Chloride | ND | 11 | 3.1 | ND | 3.2 | 0.90 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 11 | 1.5 | ND | 3.5 | 0.48 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 11 | 1.6 | ND | 1.4 | 0.21 | |
| 75-15-0 | Carbon Disulfide | **11** | 23 | 3.3 | **3.7** | 7.4 | 1.1 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 11 | 1.5 | ND | 2.8 | 0.39 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 11 | 1.6 | ND | 2.7 | 0.40 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 11 | 1.3 | ND | 3.1 | 0.36 | |
| 108-05-4 | Vinyl Acetate | ND | 110 | 25 | ND | 31 | 7.1 | |
| 78-93-3 | 2-Butanone (MEK) | **1,700** | 21 | 2.3 | **590** | 7.1 | 0.78 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-010919-MAC-14**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00144

Date Collected: 1/9/19
Date Received: 1/14/19
Date Analyzed: 1/23/19
Volume(s) Analyzed: 0.060 Liter(s)
0.0050 Liter(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.49

Container Dilution Factor: 1.25

| CAS # | Compound | **Result µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 11 | 1.6 | ND | 2.8 | 0.39 | |
| 141-78-6 | Ethyl Acetate | **4,000** | 23 | 5.8 | **1,100** | 6.4 | 1.6 | |
| 110-54-3 | n-Hexane | **4.3** | 11 | 2.3 | **1.2** | 3.2 | 0.65 | **J** |
| 67-66-3 | Chloroform | **2.8** | 11 | 1.5 | **0.58** | 2.3 | 0.30 | **J** |
| 109-99-9 | Tetrahydrofuran (THF) | **320** | 11 | 1.4 | **110** | 3.7 | 0.47 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 11 | 1.2 | ND | 2.7 | 0.30 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 11 | 1.4 | ND | 2.1 | 0.25 | |
| 71-43-2 | Benzene | ND | 11 | 1.6 | ND | 3.4 | 0.50 | |
| 56-23-5 | Carbon Tetrachloride | ND | 11 | 1.5 | ND | 1.7 | 0.25 | |
| 110-82-7 | Cyclohexane | **3.2** | 21 | 3.1 | **0.94** | 6.1 | 0.91 | **J** |
| 78-87-5 | 1,2-Dichloropropane | ND | 11 | 1.4 | ND | 2.4 | 0.30 | |
| 75-27-4 | Bromodichloromethane | ND | 11 | 1.6 | ND | 1.6 | 0.24 | |
| 79-01-6 | Trichloroethene | ND | 11 | 1.5 | ND | 2.1 | 0.28 | |
| 123-91-1 | 1,4-Dioxane | ND | 11 | 1.3 | ND | 3.1 | 0.36 | |
| 80-62-6 | Methyl Methacrylate | ND | 23 | 4.0 | ND | 5.6 | 0.97 | |
| 142-82-5 | n-Heptane | **12** | 11 | 1.8 | **2.9** | 2.7 | 0.43 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 12 | 1.7 | ND | 2.6 | 0.38 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 11 | 1.5 | ND | 2.7 | 0.37 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 11 | 2.3 | ND | 2.4 | 0.50 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 11 | 1.1 | ND | 2.1 | 0.21 | |
| 108-88-3 | Toluene | **24** | 11 | 1.4 | **6.3** | 2.9 | 0.36 | |
| 591-78-6 | 2-Hexanone | ND | 11 | 1.4 | ND | 2.7 | 0.34 | |
| 124-48-1 | Dibromochloromethane | ND | 11 | 1.5 | ND | 1.3 | 0.17 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 11 | 1.3 | ND | 1.5 | 0.17 | |
| 123-86-4 | n-Butyl Acetate | **5.7** | 11 | 1.5 | **1.2** | 2.4 | 0.32 | **J** |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 4

| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **WM-089290-010919-MAC-14** | ALS Project ID: | P1900139 |
| **Client Project ID:** | **High Acres Waste Odor Study / 089290-1817** | ALS Sample ID: | P1900139-002 |
| Test Code: | EPA TO-15 | Date Collected: | 1/9/19 |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | 1/14/19 |
| Analyst: | Raneem Sahtah | Date Analyzed: | 1/23/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 0.060 Liter(s) |
| Test Notes: | | | 0.0050 Liter(s) |
| Container ID: | SSC00144 | | |

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.49

Container Dilution Factor: 1.25

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **21** | 11 | 2.5 | **4.5** | 2.4 | 0.54 | |
| 127-18-4 | Tetrachloroethene | **1.8** | 11 | 1.4 | **0.27** | 1.6 | 0.21 | J |
| 108-90-7 | Chlorobenzene | ND | 11 | 1.5 | ND | 2.4 | 0.32 | |
| 100-41-4 | Ethylbenzene | **20** | 11 | 1.6 | **4.5** | 2.5 | 0.36 | |
| 179601-23-1 | m,p-Xylenes | **23** | 23 | 2.9 | **5.3** | 5.3 | 0.67 | |
| 75-25-2 | Bromoform | ND | 11 | 2.3 | ND | 1.1 | 0.22 | |
| 100-42-5 | Styrene | **52** | 11 | 1.8 | **12** | 2.6 | 0.42 | |
| 95-47-6 | o-Xylene | **9.9** | 11 | 1.6 | **2.3** | 2.5 | 0.37 | J |
| 111-84-2 | n-Nonane | **31** | 11 | 1.9 | **6.0** | 2.1 | 0.35 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 11 | 1.5 | ND | 1.6 | 0.22 | |
| 98-82-8 | Cumene | **2.0** | 11 | 1.6 | **0.41** | 2.2 | 0.33 | J |
| 80-56-8 | alpha-Pinene | **240** | 11 | 1.7 | **44** | 1.9 | 0.31 | |
| 103-65-1 | n-Propylbenzene | **2.3** | 11 | 1.6 | **0.47** | 2.3 | 0.33 | J |
| 622-96-8 | 4-Ethyltoluene | ND | 11 | 1.8 | ND | 2.2 | 0.36 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | **2.7** | 11 | 1.6 | **0.54** | 2.2 | 0.33 | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | **5.6** | 11 | 1.5 | **1.1** | 2.2 | 0.31 | J |
| 100-44-7 | Benzyl Chloride | ND | 23 | 2.5 | ND | 4.4 | 0.48 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 11 | 1.7 | ND | 1.9 | 0.28 | |
| 106-46-7 | 1,4-Dichlorobenzene | **3.1** | 11 | 1.7 | **0.51** | 1.9 | 0.28 | J |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 11 | 1.6 | ND | 1.9 | 0.27 | |
| 5989-27-5 | d-Limonene | **2,200** | 130 | 28 | **390** | 23 | 4.9 | D |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 11 | 2.1 | ND | 1.1 | 0.22 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 11 | 2.7 | ND | 1.5 | 0.36 | |
| 91-20-3 | Naphthalene | ND | 11 | 2.7 | ND | 2.0 | 0.52 | |
| 87-68-3 | Hexachlorobutadiene | ND | 11 | 2.3 | ND | 1.0 | 0.21 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-010919-MAC-14**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-002

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes: T
Container ID: SSC00144

Date Collected: 1/9/19
Date Received: 1/14/19
Date Analyzed: 1/23/19
Volume(s) Analyzed: 0.060 Liter(s)
0.0050 Liter(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 3.49

Container Dilution Factor: 1.25

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| 4.07 | 1,1-Difluoroethane | 120 | |
| 4.22 | Propane | 46 | |
| 4.60 | Dimethyl Ether | 67 | |
| 4.88 | Isobutane | 750 | |
| 4.93 | Acetaldehyde | 1,500 | |
| 5.41 | n-Butane | 250 | |
| 7.95 | n-Pentane | 260 | |
| 8.57 | Methyl Acetate | 200 | |
| 9.74 | 1-Propanol | 260 | |
| 10.32 | 2-Methylpentane | 85 | |
| 11.07 | 2-Butanol | 900 | |
| 11.94 | Isobutanol | 230 | |
| 14.94 | 3-Methyl-1-butanol | 100 | |
| 19.78 | Camphene | 90 | |
| 20.10 | .beta.-Myrcene | 68 | |
| 20.15 | beta-Pinene | 220 | |
| 20.53 | 3-Carene | 140 | |
| 20.99 | .gamma.-Terpinene | 120 | |
| 21.33 | 4-Carene | 58 | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011019-MAC-15**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00133

Date Collected: 1/10/19
Date Received: 1/14/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0040 Liter(s)

Initial Pressure (psig): 0.22 Final Pressure (psig): 3.56

Container Dilution Factor: 1.22

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **16** | 42 | 11 | **9.1** | 25 | 6.1 | **J** |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 42 | 7.1 | ND | 8.6 | 1.4 | |
| 74-87-3 | Chloromethane | ND | 41 | 7.0 | ND | 20 | 3.4 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 41 | 6.8 | ND | 5.9 | 0.98 | |
| 75-01-4 | Vinyl Chloride | ND | 43 | 4.6 | ND | 17 | 1.8 | |
| 106-99-0 | 1,3-Butadiene | ND | 42 | 7.2 | ND | 19 | 3.2 | |
| 74-83-9 | Bromomethane | ND | 41 | 6.0 | ND | 10 | 1.6 | |
| 75-00-3 | Chloroethane | ND | 41 | 5.4 | ND | 16 | 2.0 | |
| 64-17-5 | Ethanol | **120,000** | 1,600 | 110 | **64,000** | 830 | 60 | **B, D** |
| 75-05-8 | Acetonitrile | ND | 42 | 11 | ND | 25 | 6.3 | |
| 107-02-8 | Acrolein | ND | 81 | 12 | ND | 35 | 5.3 | |
| 67-64-1 | Acetone | **10,000** | 440 | 98 | **4,300** | 180 | 41 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 43 | 6.6 | ND | 7.7 | 1.2 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **4,800** | 170 | 18 | **2,000** | 70 | 7.3 | |
| 107-13-1 | Acrylonitrile | ND | 42 | 8.9 | ND | 19 | 4.1 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 44 | 6.0 | ND | 11 | 1.5 | |
| 75-09-2 | Methylene Chloride | ND | 44 | 12 | ND | 13 | 3.5 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 43 | 5.9 | ND | 14 | 1.9 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 43 | 6.2 | ND | 5.6 | 0.81 | |
| 75-15-0 | Carbon Disulfide | **28** | 89 | 13 | **9.0** | 29 | 4.2 | **J** |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 43 | 6.0 | ND | 11 | 1.5 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 42 | 6.3 | ND | 10 | 1.6 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 44 | 5.1 | ND | 12 | 1.4 | |
| 108-05-4 | Vinyl Acetate | **110** | 430 | 98 | **32** | 120 | 28 | **J** |
| 78-93-3 | 2-Butanone (MEK) | **2,000** | 81 | 8.9 | **680** | 28 | 3.0 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011019-MAC-15**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00133

Date Collected: 1/10/19
Date Received: 1/14/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0040 Liter(s)

Initial Pressure (psig): 0.22 Final Pressure (psig): 3.56

Container Dilution Factor: 1.22

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 43 | 6.1 | ND | 11 | 1.5 | |
| 141-78-6 | Ethyl Acetate | **8,200** | 89 | 23 | **2,300** | 25 | 6.3 | |
| 110-54-3 | n-Hexane | ND | 44 | 8.9 | ND | 12 | 2.5 | |
| 67-66-3 | Chloroform | **8.4** | 44 | 5.8 | **1.7** | 9.0 | 1.2 | J |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 43 | 5.4 | ND | 15 | 1.8 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 43 | 4.8 | ND | 11 | 1.2 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 44 | 5.4 | ND | 8.1 | 0.98 | |
| 71-43-2 | Benzene | ND | 42 | 6.3 | ND | 13 | 2.0 | |
| 56-23-5 | Carbon Tetrachloride | ND | 42 | 6.0 | ND | 6.7 | 0.96 | |
| 110-82-7 | Cyclohexane | ND | 81 | 12 | ND | 24 | 3.5 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 44 | 5.4 | ND | 9.5 | 1.2 | |
| 75-27-4 | Bromodichloromethane | ND | 43 | 6.3 | ND | 6.4 | 0.94 | |
| 79-01-6 | Trichloroethene | ND | 43 | 5.9 | ND | 8.0 | 1.1 | |
| 123-91-1 | 1,4-Dioxane | ND | 43 | 5.1 | ND | 12 | 1.4 | |
| 80-62-6 | Methyl Methacrylate | ND | 89 | 15 | ND | 22 | 3.8 | |
| 142-82-5 | n-Heptane | **20** | 44 | 6.9 | **5.0** | 11 | 1.7 | J |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 46 | 6.8 | ND | 10 | 1.5 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 43 | 5.9 | ND | 11 | 1.4 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 43 | 8.9 | ND | 9.5 | 2.0 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 44 | 4.4 | ND | 8.1 | 0.81 | |
| 108-88-3 | Toluene | **720** | 43 | 5.3 | **190** | 11 | 1.4 | |
| 591-78-6 | 2-Hexanone | ND | 44 | 5.4 | ND | 11 | 1.3 | |
| 124-48-1 | Dibromochloromethane | ND | 44 | 5.7 | ND | 5.2 | 0.67 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 44 | 5.0 | ND | 5.7 | 0.66 | |
| 123-86-4 | n-Butyl Acetate | **94** | 44 | 5.9 | **20** | 9.2 | 1.3 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011019-MAC-15**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00133

Date Collected: 1/10/19
Date Received: 1/14/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0040 Liter(s)

Initial Pressure (psig): 0.22 Final Pressure (psig): 3.56

Container Dilution Factor: 1.22

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **71** | 44 | 9.8 | **15** | 9.4 | 2.1 | |
| 127-18-4 | Tetrachloroethene | ND | 43 | 5.6 | ND | 6.4 | 0.83 | |
| 108-90-7 | Chlorobenzene | ND | 43 | 5.8 | ND | 9.4 | 1.3 | |
| 100-41-4 | Ethylbenzene | **29** | 42 | 6.1 | **6.7** | 9.7 | 1.4 | J |
| 179601-23-1 | m,p-Xylenes | 60 | 89 | 11 | 14 | 21 | 2.6 | J |
| 75-25-2 | Bromoform | ND | 43 | 8.9 | ND | 4.2 | 0.87 | |
| 100-42-5 | Styrene | **58** | 43 | 7.0 | **14** | 10 | 1.6 | |
| 95-47-6 | o-Xylene | **23** | 43 | 6.3 | **5.3** | 9.9 | 1.4 | J |
| 111-84-2 | n-Nonane | **82** | 44 | 7.2 | **16** | 8.4 | 1.4 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 43 | 6.0 | ND | 6.3 | 0.88 | |
| 98-82-8 | Cumene | ND | 43 | 6.3 | ND | 8.8 | 1.3 | |
| 80-56-8 | alpha-Pinene | **690** | 42 | 6.7 | **120** | 7.6 | 1.2 | |
| 103-65-1 | n-Propylbenzene | ND | 44 | 6.3 | ND | 8.9 | 1.3 | |
| 622-96-8 | 4-Ethyltoluene | ND | 43 | 6.9 | ND | 8.8 | 1.4 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 43 | 6.3 | ND | 8.8 | 1.3 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | **17** | 43 | 6.0 | **3.5** | 8.8 | 1.2 | J |
| 100-44-7 | Benzyl Chloride | ND | 89 | 9.8 | ND | 17 | 1.9 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 44 | 6.5 | ND | 7.3 | 1.1 | |
| 106-46-7 | 1,4-Dichlorobenzene | **28** | 44 | 6.7 | **4.7** | 7.3 | 1.1 | J |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 44 | 6.4 | ND | 7.3 | 1.1 | |
| 5989-27-5 | d-Limonene | **5,200** | 41 | 8.9 | **940** | 7.4 | 1.6 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 42 | 8.1 | ND | 4.4 | 0.84 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 43 | 11 | ND | 5.8 | 1.4 | |
| 91-20-3 | Naphthalene | ND | 41 | 11 | ND | 7.9 | 2.0 | |
| 87-68-3 | Hexachlorobutadiene | ND | 43 | 8.9 | ND | 4.0 | 0.84 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011019-MAC-15**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-003

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes: T
Container ID: SSC00133

Date Collected: 1/10/19
Date Received: 1/14/19
Date Analyzed: 1/22 - 1/23/19
Volume(s) Analyzed: 0.015 Liter(s)
0.0040 Liter(s)

Initial Pressure (psig): 0.22 Final Pressure (psig): 3.56

Container Dilution Factor: 1.22

| GC/MS Retention Time | Compound Identification | Concentration µg/m³ | Data Qualifier |
|---|---|---|---|
| 4.60 | Dimethyl Ether | 190 | |
| 4.88 | Isobutane | 1,500 | |
| 4.91 | Acetaldehyde | 1,900 | |
| 5.41 | n-Butane | 750 | |
| 7.95 | n-Pentane | 1,200 | |
| 8.56 | Methyl Acetate | 560 | |
| 9.67 | 1-Propanol | 230 | |
| 11.03 | 2-Butanol | 640 | |
| 11.92 | Isobutanol | 200 | |
| 19.78 | Camphene | 390 | |
| 20.15 | beta-Pinene | 520 | |
| 20.52 | 3-Carene | 640 | |
| 20.99 | .gamma.-Terpinene | 200 | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011119-MAC-16**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00307

Date Collected: 1/11/19
Date Received: 1/14/19
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.78 Final Pressure (psig): 3.62

Container Dilution Factor: 1.18

| CAS # | Compound | Result µg/m$^3$ | MRL µg/m$^3$ | MDL µg/m$^3$ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | **0.93** | 3.1 | 0.77 | **0.54** | 1.8 | 0.45 | J |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | **2.2** | 3.1 | 0.51 | **0.44** | 0.62 | 0.10 | J |
| 74-87-3 | Chloromethane | **0.80** | 3.0 | 0.51 | **0.39** | 1.4 | 0.25 | J |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 3.0 | 0.50 | ND | 0.43 | 0.071 | |
| 75-01-4 | Vinyl Chloride | ND | 3.1 | 0.34 | ND | 1.2 | 0.13 | |
| 106-99-0 | 1,3-Butadiene | ND | 3.1 | 0.52 | ND | 1.4 | 0.23 | |
| 74-83-9 | Bromomethane | ND | 3.0 | 0.44 | ND | 0.76 | 0.11 | |
| 75-00-3 | Chloroethane | ND | 3.0 | 0.39 | ND | 1.1 | 0.15 | |
| 64-17-5 | Ethanol | **15,000** | 300 | 22 | **8,100** | 160 | 12 | D |
| 75-05-8 | Acetonitrile | ND | 3.1 | 0.77 | ND | 1.8 | 0.46 | |
| 107-02-8 | Acrolein | ND | 5.9 | 0.89 | ND | 2.6 | 0.39 | |
| 67-64-1 | Acetone | **130** | 32 | 7.1 | **55** | 13 | 3.0 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | **4.1** | 3.1 | 0.48 | **0.72** | 0.56 | 0.085 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | **69** | 12 | 1.3 | **28** | 5.0 | 0.53 | |
| 107-13-1 | Acrylonitrile | ND | 3.1 | 0.65 | ND | 1.4 | 0.30 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 3.2 | 0.44 | ND | 0.80 | 0.11 | |
| 75-09-2 | Methylene Chloride | ND | 3.2 | 0.89 | ND | 0.92 | 0.25 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 3.1 | 0.42 | ND | 1.0 | 0.14 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | **0.47** | 3.1 | 0.45 | **0.062** | 0.41 | 0.059 | J |
| 75-15-0 | Carbon Disulfide | **1.4** | 6.5 | 0.94 | **0.46** | 2.1 | 0.30 | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 3.1 | 0.44 | ND | 0.79 | 0.11 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 3.1 | 0.46 | ND | 0.76 | 0.11 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 3.2 | 0.37 | ND | 0.88 | 0.10 | |
| 108-05-4 | Vinyl Acetate | ND | 31 | 7.1 | ND | 8.9 | 2.0 | |
| 78-93-3 | 2-Butanone (MEK) | **43** | 5.9 | 0.65 | **15** | 2.0 | 0.22 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011119-MAC-16**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00307

Date Collected: 1/11/19
Date Received: 1/14/19
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.78 Final Pressure (psig): 3.62

Container Dilution Factor: 1.18

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 3.1 | 0.44 | ND | 0.79 | 0.11 | |
| 141-78-6 | Ethyl Acetate | **400** | 6.5 | 1.7 | **110** | 1.8 | 0.46 | |
| 110-54-3 | n-Hexane | **0.99** | 3.2 | 0.65 | **0.28** | 0.90 | 0.18 | J |
| 67-66-3 | Chloroform | ND | 3.2 | 0.42 | ND | 0.65 | 0.086 | |
| 109-99-9 | Tetrahydrofuran (THF) | **6.4** | 3.1 | 0.40 | **2.2** | 1.1 | 0.13 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 3.1 | 0.35 | ND | 0.77 | 0.086 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 3.2 | 0.39 | ND | 0.58 | 0.071 | |
| 71-43-2 | Benzene | **0.55** | 3.1 | 0.45 | **0.17** | 0.96 | 0.14 | J |
| 56-23-5 | Carbon Tetrachloride | ND | 3.1 | 0.44 | ND | 0.49 | 0.069 | |
| 110-82-7 | Cyclohexane | **1.2** | 5.9 | 0.89 | **0.36** | 1.7 | 0.26 | J |
| 78-87-5 | 1,2-Dichloropropane | ND | 3.2 | 0.39 | ND | 0.69 | 0.084 | |
| 75-27-4 | Bromodichloromethane | ND | 3.1 | 0.45 | ND | 0.47 | 0.068 | |
| 79-01-6 | Trichloroethene | ND | 3.1 | 0.42 | ND | 0.58 | 0.079 | |
| 123-91-1 | 1,4-Dioxane | ND | 3.1 | 0.37 | ND | 0.87 | 0.10 | |
| 80-62-6 | Methyl Methacrylate | ND | 6.5 | 1.1 | ND | 1.6 | 0.27 | |
| 142-82-5 | n-Heptane | **15** | 3.2 | 0.50 | **3.7** | 0.78 | 0.12 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 3.3 | 0.49 | ND | 0.73 | 0.11 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 3.1 | 0.43 | ND | 0.76 | 0.11 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 3.1 | 0.65 | ND | 0.69 | 0.14 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 3.2 | 0.32 | ND | 0.58 | 0.058 | |
| 108-88-3 | Toluene | **6.0** | 3.1 | 0.38 | **1.6** | 0.83 | 0.10 | |
| 591-78-6 | 2-Hexanone | ND | 3.2 | 0.39 | ND | 0.78 | 0.095 | |
| 124-48-1 | Dibromochloromethane | ND | 3.2 | 0.41 | ND | 0.37 | 0.048 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 3.2 | 0.37 | ND | 0.41 | 0.048 | |
| 123-86-4 | n-Butyl Acetate | **0.64** | 3.2 | 0.43 | **0.14** | 0.67 | 0.091 | J |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **WM-089290-011119-MAC-16**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P1900139-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00307

Date Collected: 1/11/19
Date Received: 1/14/19
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.20 Liter(s)
0.020 Liter(s)

Initial Pressure (psig): 0.78 Final Pressure (psig): 3.62

Container Dilution Factor: 1.18

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | **2.5** | 3.2 | 0.71 | **0.54** | 0.68 | 0.15 | J |
| 127-18-4 | Tetrachloroethene | ND | 3.1 | 0.41 | ND | 0.46 | 0.060 | |
| 108-90-7 | Chlorobenzene | ND | 3.1 | 0.42 | ND | 0.68 | 0.091 | |
| 100-41-4 | Ethylbenzene | **5.5** | 3.1 | 0.44 | **1.3** | 0.71 | 0.10 | |
| 179601-23-1 | m,p-Xylenes | **36** | 6.5 | 0.83 | **8.3** | 1.5 | 0.19 | |
| 75-25-2 | Bromoform | ND | 3.1 | 0.65 | ND | 0.30 | 0.063 | |
| 100-42-5 | Styrene | **2.9** | 3.1 | 0.51 | **0.68** | 0.73 | 0.12 | J |
| 95-47-6 | o-Xylene | **19** | 3.1 | 0.45 | **4.4** | 0.72 | 0.10 | |
| 111-84-2 | n-Nonane | **3.7** | 3.2 | 0.53 | **0.71** | 0.61 | 0.10 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 3.1 | 0.44 | ND | 0.46 | 0.064 | |
| 98-82-8 | Cumene | ND | 3.1 | 0.45 | ND | 0.64 | 0.092 | |
| 80-56-8 | alpha-Pinene | **19** | 3.1 | 0.48 | **3.3** | 0.55 | 0.087 | |
| 103-65-1 | n-Propylbenzene | ND | 3.2 | 0.45 | ND | 0.65 | 0.092 | |
| 622-96-8 | 4-Ethyltoluene | **0.55** | 3.1 | 0.50 | **0.11** | 0.64 | 0.10 | J |
| 108-67-8 | 1,3,5-Trimethylbenzene | **0.56** | 3.1 | 0.45 | **0.11** | 0.64 | 0.092 | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | **1.2** | 3.1 | 0.44 | **0.25** | 0.64 | 0.089 | J |
| 100-44-7 | Benzyl Chloride | ND | 6.5 | 0.71 | ND | 1.3 | 0.14 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 3.2 | 0.47 | ND | 0.53 | 0.079 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 3.2 | 0.48 | ND | 0.53 | 0.081 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 3.2 | 0.47 | ND | 0.53 | 0.078 | |
| 5989-27-5 | d-Limonene | **240** | 3.0 | 0.65 | **43** | 0.54 | 0.12 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 3.1 | 0.59 | ND | 0.32 | 0.061 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 3.1 | 0.77 | ND | 0.42 | 0.10 | |
| 91-20-3 | Naphthalene | ND | 3.0 | 0.77 | ND | 0.57 | 0.15 | |
| 87-68-3 | Hexachlorobutadiene | ND | 3.1 | 0.65 | ND | 0.29 | 0.061 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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**Client:** **GHD Services Inc.**

**Client Sample ID:** **WM-089290-011119-MAC-16**

**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139

ALS Sample ID: P1900139-004

## Tentatively Identified Compounds

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Anusha Bayyarapu

Sample Type: 6.0 L Silonite Canister

Test Notes: T

Container ID: SSC00307

Date Collected: 1/11/19

Date Received: 1/14/19

Date Analyzed: 1/22/19

Volume(s) Analyzed: 0.20 Liter(s)<br>
0.020 Liter(s)

Initial Pressure (psig): 0.78 Final Pressure (psig): 3.62

Container Dilution Factor: 1.18

| GC/MS Retention Time | Compound Identification | Concentration µg/m³ | Data Qualifier |
|---|---|---|---|
| 4.88 | Isobutane | 170 | |
| 5.41 | n-Butane | 64 | |
| 7.96 | n-Pentane | 63 | |
| 8.56 | Methyl Acetate | 17 | |
| 9.68 | 1-Propanol | 22 | |
| 11.03 | 2-Butanol | 47 | |
| 11.92 | Isobutanol | 12 | |
| 13.75 | 3-Methylhexane | 13 | |
| 20.15 | beta-Pinene | 19 | |

T = Analyte is a tentatively identified compound, result is estimated.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **Method Blank** | ALS Project ID: | P1900139 |
| **Client Project ID:** | **High Acres Waste Odor Study / 089290-1817** | ALS Sample ID: | P190121-MB |
| Test Code: | EPA TO-15 | Date Collected: | NA |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | NA |
| Analyst: | Anusha Bayyarapu | Date Analyzed: | 1/21/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 1.00 Liter(s) |
| Test Notes: | | | |

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 0.52 | 0.13 | ND | 0.30 | 0.076 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 0.52 | 0.087 | ND | 0.11 | 0.018 | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.086 | ND | 0.24 | 0.042 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.51 | 0.084 | ND | 0.073 | 0.012 | |
| 75-01-4 | Vinyl Chloride | ND | 0.53 | 0.057 | ND | 0.21 | 0.022 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.52 | 0.088 | ND | 0.24 | 0.040 | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.074 | ND | 0.13 | 0.019 | |
| 75-00-3 | Chloroethane | ND | 0.51 | 0.066 | ND | 0.19 | 0.025 | |
| 64-17-5 | Ethanol | ND | 5.1 | 0.37 | ND | 2.7 | 0.20 | |
| 75-05-8 | Acetonitrile | ND | 0.52 | 0.13 | ND | 0.31 | 0.077 | |
| 107-02-8 | Acrolein | ND | 1.0 | 0.15 | ND | 0.44 | 0.065 | |
| 67-64-1 | Acetone | ND | 5.4 | 1.2 | ND | 2.3 | 0.51 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 0.53 | 0.081 | ND | 0.094 | 0.014 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 2.1 | 0.22 | ND | 0.85 | 0.090 | |
| 107-13-1 | Acrylonitrile | ND | 0.52 | 0.11 | ND | 0.24 | 0.051 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.54 | 0.074 | ND | 0.14 | 0.019 | |
| 75-09-2 | Methylene Chloride | ND | 0.54 | 0.15 | ND | 0.16 | 0.043 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.53 | 0.072 | ND | 0.17 | 0.023 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 0.53 | 0.076 | ND | 0.069 | 0.0099 | |
| 75-15-0 | Carbon Disulfide | ND | 1.1 | 0.16 | ND | 0.35 | 0.051 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.53 | 0.074 | ND | 0.13 | 0.019 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.52 | 0.078 | ND | 0.13 | 0.019 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.54 | 0.063 | ND | 0.15 | 0.017 | |
| 108-05-4 | Vinyl Acetate | ND | 5.3 | 1.2 | ND | 1.5 | 0.34 | |
| 78-93-3 | 2-Butanone (MEK) | ND | 1.0 | 0.11 | ND | 0.34 | 0.037 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190121-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/21/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | **Result** **µg/m³** | MRL µg/m³ | MDL µg/m³ | **Result** **ppbV** | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.53 | 0.075 | ND | 0.13 | 0.019 | |
| 141-78-6 | Ethyl Acetate | ND | 1.1 | 0.28 | ND | 0.31 | 0.078 | |
| 110-54-3 | n-Hexane | ND | 0.54 | 0.11 | ND | 0.15 | 0.031 | |
| 67-66-3 | Chloroform | ND | 0.54 | 0.071 | ND | 0.11 | 0.015 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.53 | 0.067 | ND | 0.18 | 0.023 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.53 | 0.059 | ND | 0.13 | 0.015 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.54 | 0.066 | ND | 0.099 | 0.012 | |
| 71-43-2 | Benzene | ND | 0.52 | 0.077 | ND | 0.16 | 0.024 | |
| 56-23-5 | Carbon Tetrachloride | ND | 0.52 | 0.074 | ND | 0.083 | 0.012 | |
| 110-82-7 | Cyclohexane | ND | 1.0 | 0.15 | ND | 0.29 | 0.044 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.54 | 0.066 | ND | 0.12 | 0.014 | |
| 75-27-4 | Bromodichloromethane | ND | 0.53 | 0.077 | ND | 0.079 | 0.011 | |
| 79-01-6 | Trichloroethene | ND | 0.53 | 0.072 | ND | 0.099 | 0.013 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.53 | 0.063 | ND | 0.15 | 0.017 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.1 | 0.19 | ND | 0.27 | 0.046 | |
| 142-82-5 | n-Heptane | ND | 0.54 | 0.085 | ND | 0.13 | 0.021 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.56 | 0.083 | ND | 0.12 | 0.018 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 0.53 | 0.073 | ND | 0.13 | 0.018 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.53 | 0.11 | ND | 0.12 | 0.024 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.54 | 0.054 | ND | 0.099 | 0.0099 | |
| 108-88-3 | Toluene | ND | 0.53 | 0.065 | ND | 0.14 | 0.017 | |
| 591-78-6 | 2-Hexanone | ND | 0.54 | 0.066 | ND | 0.13 | 0.016 | |
| 124-48-1 | Dibromochloromethane | ND | 0.54 | 0.070 | ND | 0.063 | 0.0082 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.54 | 0.062 | ND | 0.070 | 0.0081 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.54 | 0.073 | ND | 0.11 | 0.015 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190121-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/21/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | ND | 0.54 | 0.12 | ND | 0.12 | 0.026 | |
| 127-18-4 | Tetrachloroethene | ND | 0.53 | 0.069 | ND | 0.078 | 0.010 | |
| 108-90-7 | Chlorobenzene | ND | 0.53 | 0.071 | ND | 0.12 | 0.015 | |
| 100-41-4 | Ethylbenzene | ND | 0.52 | 0.075 | ND | 0.12 | 0.017 | |
| 179601-23-1 | m,p-Xylenes | ND | 1.1 | 0.14 | ND | 0.25 | 0.032 | |
| 75-25-2 | Bromoform | ND | 0.53 | 0.11 | ND | 0.051 | 0.011 | |
| 100-42-5 | Styrene | ND | 0.53 | 0.086 | ND | 0.12 | 0.020 | |
| 95-47-6 | o-Xylene | ND | 0.53 | 0.077 | ND | 0.12 | 0.018 | |
| 111-84-2 | n-Nonane | ND | 0.54 | 0.089 | ND | 0.10 | 0.017 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.53 | 0.074 | ND | 0.077 | 0.011 | |
| 98-82-8 | Cumene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 80-56-8 | alpha-Pinene | ND | 0.52 | 0.082 | ND | 0.093 | 0.015 | |
| 103-65-1 | n-Propylbenzene | ND | 0.54 | 0.077 | ND | 0.11 | 0.016 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.53 | 0.085 | ND | 0.11 | 0.017 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 0.53 | 0.074 | ND | 0.11 | 0.015 | |
| 100-44-7 | Benzyl Chloride | ND | 1.1 | 0.12 | ND | 0.21 | 0.023 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.54 | 0.080 | ND | 0.090 | 0.013 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.54 | 0.082 | ND | 0.090 | 0.014 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.54 | 0.079 | ND | 0.090 | 0.013 | |
| 5989-27-5 | d-Limonene | ND | 0.51 | 0.11 | ND | 0.092 | 0.020 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.52 | 0.10 | ND | 0.054 | 0.010 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.53 | 0.13 | ND | 0.071 | 0.018 | |
| 91-20-3 | Naphthalene | ND | 0.51 | 0.13 | ND | 0.097 | 0.025 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.53 | 0.11 | ND | 0.050 | 0.010 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190121-MB

## Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/21/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| | No Compounds Detected | | |

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190122-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| **CAS #** | **Compound** | **Result** µg/m$^3$ | MRL µg/m$^3$ | MDL µg/m$^3$ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 0.52 | 0.13 | ND | 0.30 | 0.076 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 0.52 | 0.087 | ND | 0.11 | 0.018 | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.086 | ND | 0.24 | 0.042 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.51 | 0.084 | ND | 0.073 | 0.012 | |
| 75-01-4 | Vinyl Chloride | ND | 0.53 | 0.057 | ND | 0.21 | 0.022 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.52 | 0.088 | ND | 0.24 | 0.040 | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.074 | ND | 0.13 | 0.019 | |
| 75-00-3 | Chloroethane | ND | 0.51 | 0.066 | ND | 0.19 | 0.025 | |
| 64-17-5 | Ethanol | **0.78** | 5.1 | 0.37 | **0.42** | 2.7 | 0.20 | J |
| 75-05-8 | Acetonitrile | ND | 0.52 | 0.13 | ND | 0.31 | 0.077 | |
| 107-02-8 | Acrolein | ND | 1.0 | 0.15 | ND | 0.44 | 0.065 | |
| 67-64-1 | Acetone | ND | 5.4 | 1.2 | ND | 2.3 | 0.51 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 0.53 | 0.081 | ND | 0.094 | 0.014 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 2.1 | 0.22 | ND | 0.85 | 0.090 | |
| 107-13-1 | Acrylonitrile | ND | 0.52 | 0.11 | ND | 0.24 | 0.051 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.54 | 0.074 | ND | 0.14 | 0.019 | |
| 75-09-2 | Methylene Chloride | ND | 0.54 | 0.15 | ND | 0.16 | 0.043 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.53 | 0.072 | ND | 0.17 | 0.023 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 0.53 | 0.076 | ND | 0.069 | 0.0099 | |
| 75-15-0 | Carbon Disulfide | ND | 1.1 | 0.16 | ND | 0.35 | 0.051 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.53 | 0.074 | ND | 0.13 | 0.019 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.52 | 0.078 | ND | 0.13 | 0.019 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.54 | 0.063 | ND | 0.15 | 0.017 | |
| 108-05-4 | Vinyl Acetate | ND | 5.3 | 1.2 | ND | 1.5 | 0.34 | |
| 78-93-3 | 2-Butanone (MEK) | ND | 1.0 | 0.11 | ND | 0.34 | 0.037 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

## RESULTS OF ANALYSIS

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190122-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.53 | 0.075 | ND | 0.13 | 0.019 | |
| 141-78-6 | Ethyl Acetate | ND | 1.1 | 0.28 | ND | 0.31 | 0.078 | |
| 110-54-3 | n-Hexane | ND | 0.54 | 0.11 | ND | 0.15 | 0.031 | |
| 67-66-3 | Chloroform | ND | 0.54 | 0.071 | ND | 0.11 | 0.015 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.53 | 0.067 | ND | 0.18 | 0.023 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.53 | 0.059 | ND | 0.13 | 0.015 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.54 | 0.066 | ND | 0.099 | 0.012 | |
| 71-43-2 | Benzene | ND | 0.52 | 0.077 | ND | 0.16 | 0.024 | |
| 56-23-5 | Carbon Tetrachloride | ND | 0.52 | 0.074 | ND | 0.083 | 0.012 | |
| 110-82-7 | Cyclohexane | ND | 1.0 | 0.15 | ND | 0.29 | 0.044 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.54 | 0.066 | ND | 0.12 | 0.014 | |
| 75-27-4 | Bromodichloromethane | ND | 0.53 | 0.077 | ND | 0.079 | 0.011 | |
| 79-01-6 | Trichloroethene | ND | 0.53 | 0.072 | ND | 0.099 | 0.013 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.53 | 0.063 | ND | 0.15 | 0.017 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.1 | 0.19 | ND | 0.27 | 0.046 | |
| 142-82-5 | n-Heptane | ND | 0.54 | 0.085 | ND | 0.13 | 0.021 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.56 | 0.083 | ND | 0.12 | 0.018 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 0.53 | 0.073 | ND | 0.13 | 0.018 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.53 | 0.11 | ND | 0.12 | 0.024 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.54 | 0.054 | ND | 0.099 | 0.0099 | |
| 108-88-3 | Toluene | ND | 0.53 | 0.065 | ND | 0.14 | 0.017 | |
| 591-78-6 | 2-Hexanone | ND | 0.54 | 0.066 | ND | 0.13 | 0.016 | |
| 124-48-1 | Dibromochloromethane | ND | 0.54 | 0.070 | ND | 0.063 | 0.0082 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.54 | 0.062 | ND | 0.070 | 0.0081 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.54 | 0.073 | ND | 0.11 | 0.015 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190122-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| **CAS #** | **Compound** | **Result µg/m³** | **MRL µg/m³** | **MDL µg/m³** | **Result ppbV** | **MRL ppbV** | **MDL ppbV** | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | ND | 0.54 | 0.12 | ND | 0.12 | 0.026 | |
| 127-18-4 | Tetrachloroethene | ND | 0.53 | 0.069 | ND | 0.078 | 0.010 | |
| 108-90-7 | Chlorobenzene | ND | 0.53 | 0.071 | ND | 0.12 | 0.015 | |
| 100-41-4 | Ethylbenzene | ND | 0.52 | 0.075 | ND | 0.12 | 0.017 | |
| 179601-23-1 | m,p-Xylenes | ND | 1.1 | 0.14 | ND | 0.25 | 0.032 | |
| 75-25-2 | Bromoform | ND | 0.53 | 0.11 | ND | 0.051 | 0.011 | |
| 100-42-5 | Styrene | ND | 0.53 | 0.086 | ND | 0.12 | 0.020 | |
| 95-47-6 | o-Xylene | ND | 0.53 | 0.077 | ND | 0.12 | 0.018 | |
| 111-84-2 | n-Nonane | ND | 0.54 | 0.089 | ND | 0.10 | 0.017 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.53 | 0.074 | ND | 0.077 | 0.011 | |
| 98-82-8 | Cumene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 80-56-8 | alpha-Pinene | ND | 0.52 | 0.082 | ND | 0.093 | 0.015 | |
| 103-65-1 | n-Propylbenzene | ND | 0.54 | 0.077 | ND | 0.11 | 0.016 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.53 | 0.085 | ND | 0.11 | 0.017 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 0.53 | 0.074 | ND | 0.11 | 0.015 | |
| 100-44-7 | Benzyl Chloride | ND | 1.1 | 0.12 | ND | 0.21 | 0.023 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.54 | 0.080 | ND | 0.090 | 0.013 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.54 | 0.082 | ND | 0.090 | 0.014 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.54 | 0.079 | ND | 0.090 | 0.013 | |
| 5989-27-5 | d-Limonene | ND | 0.51 | 0.11 | ND | 0.092 | 0.020 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.52 | 0.10 | ND | 0.054 | 0.010 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.53 | 0.13 | ND | 0.071 | 0.018 | |
| 91-20-3 | Naphthalene | ND | 0.51 | 0.13 | ND | 0.097 | 0.025 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.53 | 0.11 | ND | 0.050 | 0.010 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **Method Blank** | ALS Project ID: | P1900139 |
| **Client Project ID:** | **High Acres Waste Odor Study / 089290-1817** | ALS Sample ID: | P190122-MB |

## Tentatively Identified Compounds

| | | | |
|---|---|---|---|
| Test Code: | EPA TO-15 | Date Collected: | NA |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | NA |
| Analyst: | Anusha Bayyarapu | Date Analyzed: | 1/22/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 1.00 Liter(s) |
| Test Notes: | | | |

Container Dilution Factor: 1.00

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| | No Compounds Detected | | |

## RESULTS OF ANALYSIS

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| | | | |
|---|---|---|---|
| **Client:** | **GHD Services Inc.** | | |
| **Client Sample ID:** | **Method Blank** | ALS Project ID: | P1900139 |
| **Client Project ID:** | **High Acres Waste Odor Study / 089290-1817** | ALS Sample ID: | P190123-MB |
| Test Code: | EPA TO-15 | Date Collected: | NA |
| Instrument ID: | Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 | Date Received: | NA |
| Analyst: | Raneem Sahtah | Date Analyzed: | 1/23/19 |
| Sample Type: | 6.0 L Silonite Canister | Volume(s) Analyzed: | 1.00 Liter(s) |
| Test Notes: | | | |

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 115-07-1 | Propene | ND | 0.52 | 0.13 | ND | 0.30 | 0.076 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | ND | 0.52 | 0.087 | ND | 0.11 | 0.018 | |
| 74-87-3 | Chloromethane | ND | 0.50 | 0.086 | ND | 0.24 | 0.042 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | ND | 0.51 | 0.084 | ND | 0.073 | 0.012 | |
| 75-01-4 | Vinyl Chloride | ND | 0.53 | 0.057 | ND | 0.21 | 0.022 | |
| 106-99-0 | 1,3-Butadiene | ND | 0.52 | 0.088 | ND | 0.24 | 0.040 | |
| 74-83-9 | Bromomethane | ND | 0.50 | 0.074 | ND | 0.13 | 0.019 | |
| 75-00-3 | Chloroethane | ND | 0.51 | 0.066 | ND | 0.19 | 0.025 | |
| 64-17-5 | Ethanol | ND | 5.1 | 0.37 | ND | 2.7 | 0.20 | |
| 75-05-8 | Acetonitrile | ND | 0.52 | 0.13 | ND | 0.31 | 0.077 | |
| 107-02-8 | Acrolein | ND | 1.0 | 0.15 | ND | 0.44 | 0.065 | |
| 67-64-1 | Acetone | ND | 5.4 | 1.2 | ND | 2.3 | 0.51 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | ND | 0.53 | 0.081 | ND | 0.094 | 0.014 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | ND | 2.1 | 0.22 | ND | 0.85 | 0.090 | |
| 107-13-1 | Acrylonitrile | ND | 0.52 | 0.11 | ND | 0.24 | 0.051 | |
| 75-35-4 | 1,1-Dichloroethene | ND | 0.54 | 0.074 | ND | 0.14 | 0.019 | |
| 75-09-2 | Methylene Chloride | ND | 0.54 | 0.15 | ND | 0.16 | 0.043 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | ND | 0.53 | 0.072 | ND | 0.17 | 0.023 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | ND | 0.53 | 0.076 | ND | 0.069 | 0.0099 | |
| 75-15-0 | Carbon Disulfide | ND | 1.1 | 0.16 | ND | 0.35 | 0.051 | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 0.53 | 0.074 | ND | 0.13 | 0.019 | |
| 75-34-3 | 1,1-Dichloroethane | ND | 0.52 | 0.078 | ND | 0.13 | 0.019 | |
| 1634-04-4 | Methyl tert-Butyl Ether | ND | 0.54 | 0.063 | ND | 0.15 | 0.017 | |
| 108-05-4 | Vinyl Acetate | ND | 5.3 | 1.2 | ND | 1.5 | 0.34 | |
| 78-93-3 | 2-Butanone (MEK) | ND | 1.0 | 0.11 | ND | 0.34 | 0.037 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 2 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190123-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | Result µg/m³ | MRL µg/m³ | MDL µg/m³ | Result ppbV | MRL ppbV | MDL ppbV | Data Qualifier |
|---|---|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | ND | 0.53 | 0.075 | ND | 0.13 | 0.019 | |
| 141-78-6 | Ethyl Acetate | ND | 1.1 | 0.28 | ND | 0.31 | 0.078 | |
| 110-54-3 | n-Hexane | ND | 0.54 | 0.11 | ND | 0.15 | 0.031 | |
| 67-66-3 | Chloroform | ND | 0.54 | 0.071 | ND | 0.11 | 0.015 | |
| 109-99-9 | Tetrahydrofuran (THF) | ND | 0.53 | 0.067 | ND | 0.18 | 0.023 | |
| 107-06-2 | 1,2-Dichloroethane | ND | 0.53 | 0.059 | ND | 0.13 | 0.015 | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 0.54 | 0.066 | ND | 0.099 | 0.012 | |
| 71-43-2 | Benzene | ND | 0.52 | 0.077 | ND | 0.16 | 0.024 | |
| 56-23-5 | Carbon Tetrachloride | ND | 0.52 | 0.074 | ND | 0.083 | 0.012 | |
| 110-82-7 | Cyclohexane | ND | 1.0 | 0.15 | ND | 0.29 | 0.044 | |
| 78-87-5 | 1,2-Dichloropropane | ND | 0.54 | 0.066 | ND | 0.12 | 0.014 | |
| 75-27-4 | Bromodichloromethane | ND | 0.53 | 0.077 | ND | 0.079 | 0.011 | |
| 79-01-6 | Trichloroethene | ND | 0.53 | 0.072 | ND | 0.099 | 0.013 | |
| 123-91-1 | 1,4-Dioxane | ND | 0.53 | 0.063 | ND | 0.15 | 0.017 | |
| 80-62-6 | Methyl Methacrylate | ND | 1.1 | 0.19 | ND | 0.27 | 0.046 | |
| 142-82-5 | n-Heptane | ND | 0.54 | 0.085 | ND | 0.13 | 0.021 | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 0.56 | 0.083 | ND | 0.12 | 0.018 | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 0.53 | 0.073 | ND | 0.13 | 0.018 | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 0.53 | 0.11 | ND | 0.12 | 0.024 | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 0.54 | 0.054 | ND | 0.099 | 0.0099 | |
| 108-88-3 | Toluene | ND | 0.53 | 0.065 | ND | 0.14 | 0.017 | |
| 591-78-6 | 2-Hexanone | ND | 0.54 | 0.066 | ND | 0.13 | 0.016 | |
| 124-48-1 | Dibromochloromethane | ND | 0.54 | 0.070 | ND | 0.063 | 0.0082 | |
| 106-93-4 | 1,2-Dibromoethane | ND | 0.54 | 0.062 | ND | 0.070 | 0.0081 | |
| 123-86-4 | n-Butyl Acetate | ND | 0.54 | 0.073 | ND | 0.11 | 0.015 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190123-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| CAS # | Compound | **Result** µg/m³ | MRL µg/m³ | MDL µg/m³ | **Result** ppbV | MRL ppbV | MDL ppbV | **Data Qualifier** |
|---|---|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | ND | 0.54 | 0.12 | ND | 0.12 | 0.026 | |
| 127-18-4 | Tetrachloroethene | ND | 0.53 | 0.069 | ND | 0.078 | 0.010 | |
| 108-90-7 | Chlorobenzene | ND | 0.53 | 0.071 | ND | 0.12 | 0.015 | |
| 100-41-4 | Ethylbenzene | ND | 0.52 | 0.075 | ND | 0.12 | 0.017 | |
| 179601-23-1 | m,p-Xylenes | ND | 1.1 | 0.14 | ND | 0.25 | 0.032 | |
| 75-25-2 | Bromoform | ND | 0.53 | 0.11 | ND | 0.051 | 0.011 | |
| 100-42-5 | Styrene | ND | 0.53 | 0.086 | ND | 0.12 | 0.020 | |
| 95-47-6 | o-Xylene | ND | 0.53 | 0.077 | ND | 0.12 | 0.018 | |
| 111-84-2 | n-Nonane | ND | 0.54 | 0.089 | ND | 0.10 | 0.017 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 0.53 | 0.074 | ND | 0.077 | 0.011 | |
| 98-82-8 | Cumene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 80-56-8 | alpha-Pinene | ND | 0.52 | 0.082 | ND | 0.093 | 0.015 | |
| 103-65-1 | n-Propylbenzene | ND | 0.54 | 0.077 | ND | 0.11 | 0.016 | |
| 622-96-8 | 4-Ethyltoluene | ND | 0.53 | 0.085 | ND | 0.11 | 0.017 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 0.53 | 0.077 | ND | 0.11 | 0.016 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 0.53 | 0.074 | ND | 0.11 | 0.015 | |
| 100-44-7 | Benzyl Chloride | ND | 1.1 | 0.12 | ND | 0.21 | 0.023 | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 0.54 | 0.080 | ND | 0.090 | 0.013 | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 0.54 | 0.082 | ND | 0.090 | 0.014 | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 0.54 | 0.079 | ND | 0.090 | 0.013 | |
| 5989-27-5 | d-Limonene | ND | 0.51 | 0.11 | ND | 0.092 | 0.020 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 0.52 | 0.10 | ND | 0.054 | 0.010 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 0.53 | 0.13 | ND | 0.071 | 0.018 | |
| 91-20-3 | Naphthalene | ND | 0.51 | 0.13 | ND | 0.097 | 0.025 | |
| 87-68-3 | Hexachlorobutadiene | ND | 0.53 | 0.11 | ND | 0.050 | 0.010 | |

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

## ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 4 of 4

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Method Blank**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190123-MB

### Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

| GC/MS Retention Time | **Compound Identification** | **Concentration µg/m³** | **Data Qualifier** |
|---|---|---|---|
| | No Compounds Detected | | |

# ALS ENVIRONMENTAL

## SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

**Client:** **GHD Services Inc.**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**
ALS Project ID: P1900139

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah/Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 1/8 - 1/11/19
Date(s) Received: 1/14/19
Date(s) Analyzed: 1/21 - 1/23/19

| Client Sample ID | ALS Sample ID | 1,2-Dichloroethane-d4 Percent Recovered | Toluene-d8 Percent Recovered | Bromofluorobenzene Percent Recovered | Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| Method Blank | P190121-MB | **84** | **101** | **110** | 70-130 | |
| Method Blank | P190122-MB | **84** | **101** | **107** | 70-130 | |
| Method Blank | P190123-MB | **85** | **100** | **110** | 70-130 | |
| Lab Control Sample | P190121-LCS | **82** | **101** | **110** | 70-130 | |
| Lab Control Sample | P190122-LCS | **82** | **102** | **108** | 70-130 | |
| Lab Control Sample | P190123-LCS | **82** | **100** | **110** | 70-130 | |
| WM-089290-010819-MAC-13 | P1900139-001 | **83** | **100** | **110** | 70-130 | |
| WM-089290-010919-MAC-14 | P1900139-002 | **82** | **97** | **113** | 70-130 | |
| WM-089290-011019-MAC-15 | P1900139-003 | **83** | **99** | **110** | 70-130 | |
| WM-089290-011119-MAC-16 | P1900139-004 | **82** | **102** | **106** | 70-130 | |

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

## ALS ENVIRONMENTAL

### LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190121-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/21/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 115-07-1 | Propene | 211 | **189** | **90** | 53-112 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | 210 | **158** | **75** | 62-103 | |
| 74-87-3 | Chloromethane | 211 | **140** | **66** | 51-121 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | 211 | **144** | **68** | 56-111 | |
| 75-01-4 | Vinyl Chloride | 214 | **148** | **69** | 57-117 | |
| 106-99-0 | 1,3-Butadiene | 210 | **161** | **77** | 53-134 | |
| 74-83-9 | Bromomethane | 212 | **198** | **93** | 65-110 | |
| 75-00-3 | Chloroethane | 214 | **202** | **94** | 64-111 | |
| 64-17-5 | Ethanol | 1,020 | **899** | **88** | 57-124 | |
| 75-05-8 | Acetonitrile | 206 | **209** | **101** | 57-126 | |
| 107-02-8 | Acrolein | 205 | **206** | **100** | 62-121 | |
| 67-64-1 | Acetone | 1,060 | **851** | **80** | 60-113 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 211 | **158** | **75** | 63-104 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | 413 | **367** | **89** | 60-124 | |
| 107-13-1 | Acrylonitrile | 207 | **202** | **98** | 66-125 | |
| 75-35-4 | 1,1-Dichloroethene | 218 | **192** | **88** | 68-107 | |
| 75-09-2 | Methylene Chloride | 217 | **187** | **86** | 66-105 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | 216 | **199** | **92** | 63-127 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 216 | **188** | **87** | 59-109 | |
| 75-15-0 | Carbon Disulfide | 218 | **180** | **83** | 67-109 | |
| 156-60-5 | trans-1,2-Dichloroethene | 214 | **188** | **88** | 70-115 | |
| 75-34-3 | 1,1-Dichloroethane | 216 | **183** | **85** | 66-106 | |
| 1634-04-4 | Methyl tert-Butyl Ether | 214 | **209** | **98** | 67-109 | |
| 108-05-4 | Vinyl Acetate | 1,060 | **852** | **80** | 68-136 | |
| 78-93-3 | 2-Butanone (MEK) | 208 | **189** | **91** | 71-116 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190121-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/21/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | 211 | **172** | **82** | 67-110 | |
| 141-78-6 | Ethyl Acetate | 436 | **388** | **89** | 64-127 | |
| 110-54-3 | n-Hexane | 216 | **173** | **80** | 60-115 | |
| 67-66-3 | Chloroform | 217 | **165** | **76** | 66-105 | |
| 109-99-9 | Tetrahydrofuran (THF) | 216 | **200** | **93** | 65-110 | |
| 107-06-2 | 1,2-Dichloroethane | 215 | **149** | **69** | 60-110 | |
| 71-55-6 | 1,1,1-Trichloroethane | 215 | **161** | **75** | 64-108 | |
| 71-43-2 | Benzene | 211 | **169** | **80** | 67-106 | |
| 56-23-5 | Carbon Tetrachloride | 212 | **156** | **74** | 64-112 | |
| 110-82-7 | Cyclohexane | 416 | **338** | **81** | 67-110 | |
| 78-87-5 | 1,2-Dichloropropane | 216 | **186** | **86** | 66-112 | |
| 75-27-4 | Bromodichloromethane | 215 | **174** | **81** | 67-113 | |
| 79-01-6 | Trichloroethene | 213 | **176** | **83** | 66-108 | |
| 123-91-1 | 1,4-Dioxane | 214 | **211** | **99** | 70-116 | |
| 80-62-6 | Methyl Methacrylate | 431 | **402** | **93** | 73-118 | |
| 142-82-5 | n-Heptane | 215 | **187** | **87** | 66-110 | |
| 10061-01-5 | cis-1,3-Dichloropropene | 214 | **192** | **90** | 75-120 | |
| 108-10-1 | 4-Methyl-2-pentanone | 209 | **204** | **98** | 65-124 | |
| 10061-02-6 | trans-1,3-Dichloropropene | 213 | **202** | **95** | 77-123 | |
| 79-00-5 | 1,1,2-Trichloroethane | 215 | **187** | **87** | 68-112 | |
| 108-88-3 | Toluene | 212 | **183** | **86** | 62-111 | |
| 591-78-6 | 2-Hexanone | 214 | **207** | **97** | 59-128 | |
| 124-48-1 | Dibromochloromethane | 213 | **201** | **94** | 67-123 | |
| 106-93-4 | 1,2-Dibromoethane | 216 | **203** | **94** | 66-122 | |
| 123-86-4 | n-Butyl Acetate | 219 | **209** | **95** | 64-128 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190121-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/21/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 217 | **196** | **90** | 65-114 | |
| 127-18-4 | Tetrachloroethene | 213 | **185** | **87** | 55-120 | |
| 108-90-7 | Chlorobenzene | 215 | **182** | **85** | 61-114 | |
| 100-41-4 | Ethylbenzene | 212 | **179** | **84** | 64-113 | |
| 179601-23-1 | m,p-Xylenes | 426 | **352** | **83** | 64-114 | |
| 75-25-2 | Bromoform | 213 | **217** | **102** | 65-132 | |
| 100-42-5 | Styrene | 212 | **204** | **96** | 67-124 | |
| 95-47-6 | o-Xylene | 214 | **178** | **83** | 65-114 | |
| 111-84-2 | n-Nonane | 215 | **183** | **85** | 64-117 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 214 | **190** | **89** | 66-119 | |
| 98-82-8 | Cumene | 214 | **181** | **85** | 61-116 | |
| 80-56-8 | alpha-Pinene | 211 | **178** | **84** | 65-120 | |
| 103-65-1 | n-Propylbenzene | 218 | **186** | **85** | 63-117 | |
| 622-96-8 | 4-Ethyltoluene | 214 | **189** | **88** | 63-124 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 214 | **179** | **84** | 60-117 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 215 | **178** | **83** | 61-122 | |
| 100-44-7 | Benzyl Chloride | 217 | **189** | **87** | 77-142 | |
| 541-73-1 | 1,3-Dichlorobenzene | 216 | **187** | **87** | 61-125 | |
| 106-46-7 | 1,4-Dichlorobenzene | 216 | **190** | **88** | 59-123 | |
| 95-50-1 | 1,2-Dichlorobenzene | 216 | **186** | **86** | 61-126 | |
| 5989-27-5 | d-Limonene | 211 | **188** | **89** | 66-124 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | 209 | **198** | **95** | 67-138 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 214 | **190** | **89** | 62-141 | |
| 91-20-3 | Naphthalene | 203 | **169** | **83** | 62-145 | |
| 87-68-3 | Hexachlorobutadiene | 209 | **186** | **89** | 49-131 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190122-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 115-07-1 | Propene | 211 | **198** | **94** | 53-112 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | 210 | **165** | **79** | 62-103 | |
| 74-87-3 | Chloromethane | 211 | **148** | **70** | 51-121 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | 211 | **150** | **71** | 56-111 | |
| 75-01-4 | Vinyl Chloride | 214 | **156** | **73** | 57-117 | |
| 106-99-0 | 1,3-Butadiene | 210 | **171** | **81** | 53-134 | |
| 74-83-9 | Bromomethane | 212 | **209** | **99** | 65-110 | |
| 75-00-3 | Chloroethane | 214 | **214** | **100** | 64-111 | |
| 64-17-5 | Ethanol | 1,020 | **944** | **93** | 57-124 | |
| 75-05-8 | Acetonitrile | 206 | **218** | **106** | 57-126 | |
| 107-02-8 | Acrolein | 205 | **216** | **105** | 62-121 | |
| 67-64-1 | Acetone | 1,060 | **892** | **84** | 60-113 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 211 | **165** | **78** | 63-104 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | 413 | **386** | **93** | 60-124 | |
| 107-13-1 | Acrylonitrile | 207 | **212** | **102** | 66-125 | |
| 75-35-4 | 1,1-Dichloroethene | 218 | **202** | **93** | 68-107 | |
| 75-09-2 | Methylene Chloride | 217 | **196** | **90** | 66-105 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | 216 | **207** | **96** | 63-127 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 216 | **198** | **92** | 59-109 | |
| 75-15-0 | Carbon Disulfide | 218 | **190** | **87** | 67-109 | |
| 156-60-5 | trans-1,2-Dichloroethene | 214 | **197** | **92** | 70-115 | |
| 75-34-3 | 1,1-Dichloroethane | 216 | **192** | **89** | 66-106 | |
| 1634-04-4 | Methyl tert-Butyl Ether | 214 | **222** | **104** | 67-109 | |
| 108-05-4 | Vinyl Acetate | 1,060 | **888** | **84** | 68-136 | |
| 78-93-3 | 2-Butanone (MEK) | 208 | **199** | **96** | 71-116 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY
Page 2 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190122-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | 211 | 181 | 86 | 67-110 | |
| 141-78-6 | Ethyl Acetate | 436 | 405 | 93 | 64-127 | |
| 110-54-3 | n-Hexane | 216 | 179 | 83 | 60-115 | |
| 67-66-3 | Chloroform | 217 | 174 | 80 | 66-105 | |
| 109-99-9 | Tetrahydrofuran (THF) | 216 | 211 | 98 | 65-110 | |
| 107-06-2 | 1,2-Dichloroethane | 215 | 156 | 73 | 60-110 | |
| 71-55-6 | 1,1,1-Trichloroethane | 215 | 168 | 78 | 64-108 | |
| 71-43-2 | Benzene | 211 | 177 | 84 | 67-106 | |
| 56-23-5 | Carbon Tetrachloride | 212 | 162 | 76 | 64-112 | |
| 110-82-7 | Cyclohexane | 416 | 353 | 85 | 67-110 | |
| 78-87-5 | 1,2-Dichloropropane | 216 | 196 | 91 | 66-112 | |
| 75-27-4 | Bromodichloromethane | 215 | 182 | 85 | 67-113 | |
| 79-01-6 | Trichloroethene | 213 | 183 | 86 | 66-108 | |
| 123-91-1 | 1,4-Dioxane | 214 | 222 | 104 | 70-116 | |
| 80-62-6 | Methyl Methacrylate | 431 | 421 | 98 | 73-118 | |
| 142-82-5 | n-Heptane | 215 | 194 | 90 | 66-110 | |
| 10061-01-5 | cis-1,3-Dichloropropene | 214 | 200 | 93 | 75-120 | |
| 108-10-1 | 4-Methyl-2-pentanone | 209 | 215 | 103 | 65-124 | |
| 10061-02-6 | trans-1,3-Dichloropropene | 213 | 211 | 99 | 77-123 | |
| 79-00-5 | 1,1,2-Trichloroethane | 215 | 196 | 91 | 68-112 | |
| 108-88-3 | Toluene | 212 | 195 | 92 | 62-111 | |
| 591-78-6 | 2-Hexanone | 214 | 222 | 104 | 59-128 | |
| 124-48-1 | Dibromochloromethane | 213 | 212 | 100 | 67-123 | |
| 106-93-4 | 1,2-Dibromoethane | 216 | 216 | 100 | 66-122 | |
| 123-86-4 | n-Butyl Acetate | 219 | 223 | 102 | 64-128 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190122-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Anusha Bayyarapu
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/22/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 217 | **210** | **97** | 65-114 | |
| 127-18-4 | Tetrachloroethene | 213 | **196** | **92** | 55-120 | |
| 108-90-7 | Chlorobenzene | 215 | **194** | **90** | 61-114 | |
| 100-41-4 | Ethylbenzene | 212 | **191** | **90** | 64-113 | |
| 179601-23-1 | m,p-Xylenes | 426 | **375** | **88** | 64-114 | |
| 75-25-2 | Bromoform | 213 | **230** | **108** | 65-132 | |
| 100-42-5 | Styrene | 212 | **218** | **103** | 67-124 | |
| 95-47-6 | o-Xylene | 214 | **189** | **88** | 65-114 | |
| 111-84-2 | n-Nonane | 215 | **195** | **91** | 64-117 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 214 | **202** | **94** | 66-119 | |
| 98-82-8 | Cumene | 214 | **193** | **90** | 61-116 | |
| 80-56-8 | alpha-Pinene | 211 | **196** | **93** | 65-120 | |
| 103-65-1 | n-Propylbenzene | 218 | **199** | **91** | 63-117 | |
| 622-96-8 | 4-Ethyltoluene | 214 | **194** | **91** | 63-124 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 214 | **191** | **89** | 60-117 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 215 | **189** | **88** | 61-122 | |
| 100-44-7 | Benzyl Chloride | 217 | **202** | **93** | 77-142 | |
| 541-73-1 | 1,3-Dichlorobenzene | 216 | **197** | **91** | 61-125 | |
| 106-46-7 | 1,4-Dichlorobenzene | 216 | **203** | **94** | 59-123 | |
| 95-50-1 | 1,2-Dichlorobenzene | 216 | **198** | **92** | 61-126 | |
| 5989-27-5 | d-Limonene | 211 | **204** | **97** | 66-124 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | 209 | **210** | **100** | 67-138 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 214 | **201** | **94** | 62-141 | |
| 91-20-3 | Naphthalene | 203 | **177** | **87** | 62-145 | |
| 87-68-3 | Hexachlorobutadiene | 209 | **195** | **93** | 49-131 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190123-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 115-07-1 | Propene | 211 | **207** | **98** | 53-112 | |
| 75-71-8 | Dichlorodifluoromethane (CFC 12) | 210 | **172** | **82** | 62-103 | |
| 74-87-3 | Chloromethane | 211 | **152** | **72** | 51-121 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114) | 211 | **155** | **73** | 56-111 | |
| 75-01-4 | Vinyl Chloride | 214 | **159** | **74** | 57-117 | |
| 106-99-0 | 1,3-Butadiene | 210 | **175** | **83** | 53-134 | |
| 74-83-9 | Bromomethane | 212 | **213** | **100** | 65-110 | |
| 75-00-3 | Chloroethane | 214 | **220** | **103** | 64-111 | |
| 64-17-5 | Ethanol | 1,020 | **977** | **96** | 57-124 | |
| 75-05-8 | Acetonitrile | 206 | **227** | **110** | 57-126 | |
| 107-02-8 | Acrolein | 205 | **225** | **110** | 62-121 | |
| 67-64-1 | Acetone | 1,060 | **923** | **87** | 60-113 | |
| 75-69-4 | Trichlorofluoromethane (CFC 11) | 211 | **170** | **81** | 63-104 | |
| 67-63-0 | 2-Propanol (Isopropyl Alcohol) | 413 | **400** | **97** | 60-124 | |
| 107-13-1 | Acrylonitrile | 207 | **221** | **107** | 66-125 | |
| 75-35-4 | 1,1-Dichloroethene | 218 | **210** | **96** | 68-107 | |
| 75-09-2 | Methylene Chloride | 217 | **203** | **94** | 66-105 | |
| 107-05-1 | 3-Chloro-1-propene (Allyl Chloride) | 216 | **215** | **100** | 63-127 | |
| 76-13-1 | Trichlorotrifluoroethane (CFC 113) | 216 | **206** | **95** | 59-109 | |
| 75-15-0 | Carbon Disulfide | 218 | **198** | **91** | 67-109 | |
| 156-60-5 | trans-1,2-Dichloroethene | 214 | **204** | **95** | 70-115 | |
| 75-34-3 | 1,1-Dichloroethane | 216 | **199** | **92** | 66-106 | |
| 1634-04-4 | Methyl tert-Butyl Ether | 214 | **228** | **107** | 67-109 | |
| 108-05-4 | Vinyl Acetate | 1,060 | **913** | **86** | 68-136 | |
| 78-93-3 | 2-Butanone (MEK) | 208 | **206** | **99** | 71-116 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

## ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY
Page 2 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190123-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 0.125 Liter(s)

| CAS # | Compound | Spike Amount µg/m³ | Result µg/m³ | % Recovery | ALS Acceptance Limits | Data Qualifier |
|---|---|---|---|---|---|---|
| 156-59-2 | cis-1,2-Dichloroethene | 211 | 187 | 89 | 67-110 | |
| 141-78-6 | Ethyl Acetate | 436 | 418 | 96 | 64-127 | |
| 110-54-3 | n-Hexane | 216 | 185 | 86 | 60-115 | |
| 67-66-3 | Chloroform | 217 | 180 | 83 | 66-105 | |
| 109-99-9 | Tetrahydrofuran (THF) | 216 | 220 | 102 | 65-110 | |
| 107-06-2 | 1,2-Dichloroethane | 215 | 161 | 75 | 60-110 | |
| 71-55-6 | 1,1,1-Trichloroethane | 215 | 176 | 82 | 64-108 | |
| 71-43-2 | Benzene | 211 | 185 | 88 | 67-106 | |
| 56-23-5 | Carbon Tetrachloride | 212 | 169 | 80 | 64-112 | |
| 110-82-7 | Cyclohexane | 416 | 369 | 89 | 67-110 | |
| 78-87-5 | 1,2-Dichloropropane | 216 | 204 | 94 | 66-112 | |
| 75-27-4 | Bromodichloromethane | 215 | 190 | 88 | 67-113 | |
| 79-01-6 | Trichloroethene | 213 | 192 | 90 | 66-108 | |
| 123-91-1 | 1,4-Dioxane | 214 | 230 | 107 | 70-116 | |
| 80-62-6 | Methyl Methacrylate | 431 | 438 | 102 | 73-118 | |
| 142-82-5 | n-Heptane | 215 | 201 | 93 | 66-110 | |
| 10061-01-5 | cis-1,3-Dichloropropene | 214 | 210 | 98 | 75-120 | |
| 108-10-1 | 4-Methyl-2-pentanone | 209 | 224 | 107 | 65-124 | |
| 10061-02-6 | trans-1,3-Dichloropropene | 213 | 221 | 104 | 77-123 | |
| 79-00-5 | 1,1,2-Trichloroethane | 215 | 206 | 96 | 68-112 | |
| 108-88-3 | Toluene | 212 | 196 | 92 | 62-111 | |
| 591-78-6 | 2-Hexanone | 214 | 222 | 104 | 59-128 | |
| 124-48-1 | Dibromochloromethane | 213 | 216 | 101 | 67-123 | |
| 106-93-4 | 1,2-Dibromoethane | 216 | 218 | 101 | 66-122 | |
| 123-86-4 | n-Butyl Acetate | 219 | 224 | 102 | 64-128 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

# ALS ENVIRONMENTAL

## LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

**Client:** **GHD Services Inc.**
**Client Sample ID:** **Lab Control Sample**
**Client Project ID:** **High Acres Waste Odor Study / 089290-1817**

ALS Project ID: P1900139
ALS Sample ID: P190123-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/23/19
Volume(s) Analyzed: 0.125 Liter(s)

| **CAS #** | **Compound** | Spike Amount µg/m³ | **Result µg/m³** | **% Recovery** | ALS Acceptance Limits | **Data Qualifier** |
|---|---|---|---|---|---|---|
| 111-65-9 | n-Octane | 217 | **210** | **97** | 65-114 | |
| 127-18-4 | Tetrachloroethene | 213 | **198** | **93** | 55-120 | |
| 108-90-7 | Chlorobenzene | 215 | **196** | **91** | 61-114 | |
| 100-41-4 | Ethylbenzene | 212 | **194** | **92** | 64-113 | |
| 179601-23-1 | m,p-Xylenes | 426 | **379** | **89** | 64-114 | |
| 75-25-2 | Bromoform | 213 | **234** | **110** | 65-132 | |
| 100-42-5 | Styrene | 212 | **220** | **104** | 67-124 | |
| 95-47-6 | o-Xylene | 214 | **191** | **89** | 65-114 | |
| 111-84-2 | n-Nonane | 215 | **198** | **92** | 64-117 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 214 | **204** | **95** | 66-119 | |
| 98-82-8 | Cumene | 214 | **196** | **92** | 61-116 | |
| 80-56-8 | alpha-Pinene | 211 | **193** | **91** | 65-120 | |
| 103-65-1 | n-Propylbenzene | 218 | **201** | **92** | 63-117 | |
| 622-96-8 | 4-Ethyltoluene | 214 | **210** | **98** | 63-124 | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 214 | **194** | **91** | 60-117 | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 215 | **192** | **89** | 61-122 | |
| 100-44-7 | Benzyl Chloride | 217 | **204** | **94** | 77-142 | |
| 541-73-1 | 1,3-Dichlorobenzene | 216 | **200** | **93** | 61-125 | |
| 106-46-7 | 1,4-Dichlorobenzene | 216 | **206** | **95** | 59-123 | |
| 95-50-1 | 1,2-Dichlorobenzene | 216 | **199** | **92** | 61-126 | |
| 5989-27-5 | d-Limonene | 211 | **203** | **96** | 66-124 | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | 209 | **214** | **102** | 67-138 | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 214 | **204** | **95** | 62-141 | |
| 91-20-3 | Naphthalene | 203 | **181** | **89** | 62-145 | |
| 87-68-3 | Hexachlorobutadiene | 209 | **198** | **95** | 49-131 | |

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

47-15-1A (1/98)-q
(Automated 6/07)

**NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**DIVISION OF SOLID & HAZARDOUS MATERIALS**

# 6 NYCRR Part 360-2
# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

(For use at Mixed Solid Waste Landfills, Industrial /Commercial Waste Monofills, or Ash Residue Monofills)

FACILITY NAME: High Acres Landfill
LOCATION: Perinton(T), Monroe(C)
FACILITY ID#: 28 S 32
DATE: 12/10/18
TIME:
INSPECTOR'S NAME: Dave Kay
CODE: M
PERSONS INTERVIEWED: Tom Grossman
REGION: 8
WEATHER CONDITIONS: CL; 30's°F; W: 0-5 W,WSW,NW,NE
DEC PERMIT NUMBER: 8 - 9908 - 00162 / 00032
SHEET 1 OF 2
CONTINUATION SHEET ☒YES ☐ NO
PART(S) 360- attached

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional and/or Multiple Violations May be Described on the Attached Continuation Sheet. This form is a record of conditions which are observed in the field at the time of inspection Items marked NI indicate No Inspection and do not mean no violation has occurred.

☒ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT ☐ CLOSED

| C | NI | V | |
|---|---|---|---|
| | | | **FACILITY MANAGEMENT** |
| ☒ | ☐ | ☐ | 1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a) (1), (b); 360-1.8(h) (5) |
| | | | 2. Incoming waste is monitored by a control program for unauthorized waste and solid waste material accepted are approved for management at the facility 360-1.14(e) (1) |
| ☐ | ☒ | ☐ | a. Hazardous/Low Level Radioactive Wastes 360-1.5(b), 360-2.17(m) |
| ☒ | ☐ | ☐ | b. Control Program. 360-1.14(e) (1) |
| ☒ | ☐ | ☐ | c. Department Approved Facility for Specific Wastes. 360-1.14(r) |
| ☒ | ☐ | ☐ | d. Bulk Liquids 360-2.17 (k) |
| ☒ | ☐ | ☐ | e. Whole Tires 360-2.17(v) |
| ☒ | ☐ | ☐ | f. Lead Acid Batteries 360-2.17 (w) |
| | | | 3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use. |
| ☒ | ☐ | ☐ | a. Maintenance of Facility Components/Site Grading. 360-1.14(f) (1); 360-2.17 (h), (u) |
| ☒ | ☐ | ☐ | b. Adequate Equipment. 360-1.14(f) (2) |
| | | | 4. Operational Records are available where required: |
| ☐ | ☒ | ☐ | a. Unauthorized Solid Waste Records. 360-1.14(l) (1) |
| ☐ | ☒ | ☐ | b. Self Inspection Records. 360-1.14(l) (2) |
| ☐ | ☒ | ☐ | c. Permit Application Records. 360-1.14(l) (3) |
| ☐ | ☒ | ☐ | d. Monitoring Records. 360-1.14(l) (4) |
| ☐ | ☒ | ☐ | e. Facility Operator Records. 360-1.14(u) (1) |
| ☐ | ☒ | ☐ | f. Fill Progression Records. 360-2.9 (e) |
| ☐ | ☒ | ☐ | g. Primary Leachate Collection and Removal System Logs 260-2.9(j) (3) |
| ☐ | ☒ | ☐ | h. Asbestos Waste Site Plan 360-2.17 (p) (2) |
| ☐ | ☒ | ☐ | i. Random waste collection vehicle inspection records 260-2.17(q) |
| | | | **OPERATION CONTROL** |
| ☒ | ☐ | ☐ | 5. Solid waste, including blowing litter, is sufficiently confined and controlled. 360-1.14(j) |
| ☒ | ☐ | ☐ | 6. Dust is effectively controlled and does not constitute an offsite nuisance. 360-1.14(k) |
| ☒ | ☐ | ☐ | 7. On-Site vector populations are prevented or controlled, and vector breeding areas are prevented 360-1.14(l) |
| ☐ | ☒ | ☐ | 8. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m) |
| | | | **WATER** |
| ☒ | ☐ | ☐ | 9. Solid waste is prevented from entering surface waters and/or groundwater. 360-1.14(b) (1) |
| ☒ | ☐ | ☐ | 10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters.360-1.14(b) (2); 360-2.17(q) |
| | | | **ACCESS** |
| ☒ | ☐ | ☐ | 11. Access to the facility is strictly and continuously controlled by fencing, gates signs, natural barriers, or other suitable means.360-1.14(d)* |
| ☒ | ☐ | ☐ | 12. On-site roads are passable. 360-1.14(n); 360-2.17(s) |
| | | | **WASTE HANDLING** |
| ☒ | ☐ | ☐ | 13. Solid Waste is spread in layers 2 feet or less in thickness, proper compaction is achieved with 3 passes of appropriately sized equipment and the working face area is the smallest practicable. 360-2.17(b) (1) |
| ☒ | ☐ | ☐ | 14. Lift height does not exceed 10 feet, slope is at least 4 percent and no more than 33 percent, and wastes are placed and graded in accordance with fill progression plan 360-2.17(b) (2) |
| | | | 15. Solid waste preparation measures and/or precautions are provided: |
| ☒ | ☐ | ☐ | a. Stabilized/dewatered sledges 360-2.17(n) |
| ☒ | ☐ | ☐ | b. Asbestos Waste 360-2.17 (p) (3) |
| ☒ | ☐ | ☐ | c. Tanks 360-2.17( r ) |
| | | | **COVER** |
| ☐ | ☒ | ☐ | 16. Daily cover material is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required to control vectors, fires, odors, blowing litter, and scavenging 360-2.17 (c ) |
| ☐ | ☒ | ☐ | 17. Intermediate cover is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required 36o-2.17 (d) |
| ☒ | ☐ | ☐ | 18. Final cover system material is suitable in quality, of proper compacted thickness, and is applied and maintained.360-2.17 (e) |
| | | | **MONITORING** |
| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
| ☒ | ☐ | ☐ | 20. Decomposition gasses are monitored and controlled 360-2.17(f); 360-8.3 (c ) |
| | | | **OTHER** |
| | | | On Continuation Sheet identify any other violations |

I Hereby Acknowledge receipt of the Facility Copy of this report

Please Print

Not Requested DK
Signature

47-15-1 (1/98)-q
(Automated 6/07)

## NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
## DIVISION OF SOLID & HAZARDOUS MATERIALS
## 6 NYCRR Part 360
# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
## Continuation Sheet

FACILITY NAME: High Acres Landfill
LOCATION: Perinton(T), Monroe(C)
FACILITY ID#: 28 S 32
DATE: 12/10/18
TIME:
INSPECTOR'S NAME: Dave Kay
CODE: M
PERSONS INTERVIEWED: see page one
REGION: 8
WEATHER CONDITIONS: see page one
DEC PERMIT NUMBER: 8 - 9908 - 00162 / 00032
SHEET 2 OF 2
CONTINUATION SHEET ☐ YES ☒ NO
PART(S) 360- Attached

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush coming in to stockpile. Town leaves are coming in to compost. Leaf/food waste compost continues to be managed. Construction- HCS was working on the clay plug on the east intercell berm of cell 12B. Erosion above the west end of the cell 10 EGC was being repaired today. CWC was widening the pad in front of cell 12 riser house.

5- Litter picking is an ongoing process and picked as needed.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the east perimeter road there was variable, slight to moderate garbage odor observed east and southeast of the working face and moderate garbage odor on the southwest perimeter road when the wind shifted to the northeast.

12- Onsite roads were firm/semi-frozen with some wet/muddy surfaces in high traffic areas, and dry, dusty surfaces in other areas. All roads were passable.

13- There were two working faces, one on the south slope of cell 12A working to the east and in the west-central area of section 1 of cell 12B.

16- Dress-up needed to areas of the cover in cells 12A and 12B.

17- HCS was excavating and hauling soil to stockpile on the west side of the cover area(cells 8/9) on top of cells 8/9/10/11.

20- Flares were in operation. CWC/Billitier completed the road crossing to the transformer on the north side of cell 12A of the electrical conduit for the dewatering system. CEC started the installation of laterals and headers for gas collection improvements to cells 1-5, working on the north slope of cell 1. Dilcher's is welding pipe for the horizontal system in the floor of section two of cell 12B.

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Signature

47-15-1A (1/98)-q
(Automated 6/07)

## NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
## DIVISION OF SOLID & HAZARDOUS MATERIALS
## 6 NYCRR Part 360-2
# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

(For use at Mixed Solid Waste Landfills, Industrial /Commercial Waste Monofills, or Ash Residue Monofills)

FACILITY NAME: High Acres Landfill
LOCATION: Perinton(T), Monroe(C)
FACILITY ID#: 28 S 32
DATE: 12/11/18
TIME:
INSPECTOR'S NAME: Dave Kay
CODE: M
PERSONS INTERVIEWED: Tom Grossman
REGION: 8
WEATHER CONDITIONS: CL; 20's-30's°F; W: 0-10 SSW,SW
DEC PERMIT NUMBER: 8 - 9908 - 00162 / 00032
SHEET 1 OF 2
CONTINUATION SHEET ☒YES ☐ NO
PART(S) 360- attached

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional and/or Multiple Violations May be Described on the Attached Continuation Sheet. This form is a record of conditions which are observed in the field at the time of inspection Items marked NI indicate No Inspection and do not mean no violation has occurred.

☒ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT ☐ CLOSED

| C | NI | V | |
|---|---|---|---|
| | | | **FACILITY MANAGEMENT** |
| ☒ | ☐ | ☐ | 1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a) (1), (b); 360-1.8(h) (5) |
| | | | 2. Incoming waste is monitored by a control program for unauthorized waste and solid waste material accepted are approved for management at the facility 360-1.14(e) (1) |
| ☐ | ☒ | ☐ | a. Hazardous/Low Level Radioactive Wastes 360-1.5(b), 360-2.17(m) |
| ☒ | ☐ | ☐ | b. Control Program. 360-1.14(e) (1) |
| ☒ | ☐ | ☐ | c. Department Approved Facility for Specific Wastes. 360-1.14(r) |
| ☒ | ☐ | ☐ | d. Bulk Liquids 360-2.17 (k) |
| ☒ | ☐ | ☐ | e. Whole Tires 360-2.17(v) |
| ☒ | ☐ | ☐ | f. Lead Acid Batteries 360-2.17 (w) |
| | | | 3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use. |
| ☒ | ☐ | ☐ | a. Maintenance of Facility Components/Site Grading. 360-1.14(f) (1); 360-2.17 (h), (u) |
| ☒ | ☐ | ☐ | b. Adequate Equipment. 360-1.14(f) (2) |
| | | | 4. Operational Records are available where required: |
| ☐ | ☒ | ☐ | a. Unauthorized Solid Waste Records. 360-1.14(I) (1) |
| ☐ | ☒ | ☐ | b. Self Inspection Records. 360-1.14(l) (2) |
| ☐ | ☒ | ☐ | c. Permit Application Records. 360-1.14(I) (3) |
| ☐ | ☒ | ☐ | d. Monitoring Records. 360-1.14(I) (4) |
| ☐ | ☒ | ☐ | e. Facility Operator Records. 360-1.14(u) (1) |
| ☐ | ☒ | ☐ | f. Fill Progression Records. 360-2.9 (e) |
| ☐ | ☒ | ☐ | g. Primary Leachate Collection and Removal System Logs 260-2.9(j) (3) |
| ☐ | ☒ | ☐ | h. Asbestos Waste Site Plan 360-2.17 (p) (2) |
| ☐ | ☒ | ☐ | i. Random waste collection vehicle inspection records 260-2.17(q) |
| | | | **OPERATION CONTROL** |
| ☒ | ☐ | ☐ | 5. Solid waste, including blowing litter, is sufficiently confined and controlled. 360-1.14(j) |
| ☒ | ☐ | ☐ | 6. Dust is effectively controlled and does not constitute an offsite nuisance. 360-1.14(k) |
| ☒ | ☐ | ☐ | 7. On-Site vector populations are prevented or controlled, and vector breeding areas are prevented 360-1.14(l) |
| ☐ | ☒ | ☐ | 8. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m) |
| | | | **WATER** |
| ☒ | ☐ | ☐ | 9. Solid waste is prevented from entering surface waters and/or groundwater. 360-1.14(b) (1) |
| ☒ | ☐ | ☐ | 10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters.360-1.14(b) (2); 360-2.17(q) |
| | | | **ACCESS** |
| ☒ | ☐ | ☐ | 11. Access to the facility is strictly and continuously controlled by fencing, gates signs, natural barriers, or other suitable means.360-1.14(d)* |
| ☒ | ☐ | ☐ | 12. On-site roads are passable. 360-1.14(n); 360-2.17(s) |
| | | | **WASTE HANDLING** |
| ☒ | ☐ | ☐ | 13. Solid Waste is spread in layers 2 feet or less in thickness, proper compaction is achieved with 3 passes of appropriately sized equipment and the working face area is the smallest practicable. 360-2.17(b) (1) |
| ☒ | ☐ | ☐ | 14. Lift height does not exceed 10 feet, slope is at least 4 percent and no more than 33 percent, and wastes are placed and graded in accordance with fill progression plan 360-2.17(b) (2) |
| | | | 15. Solid waste preparation measures and/or precautions are provided: |
| ☒ | ☐ | ☐ | a. Stabilized/dewatered sledges 360-2.17(n) |
| ☒ | ☐ | ☐ | b. Asbestos Waste 360-2.17 (p) (3) |
| ☒ | ☐ | ☐ | c. Tanks 360-2.17( r ) |
| | | | **COVER** |
| ☐ | ☒ | ☐ | 16. Daily cover material is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required to control vectors, fires, odors, blowing litter, and scavenging 360-2.17 (c ) |
| ☐ | ☒ | ☐ | 17. Intermediate cover is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required 36o-2.17 (d) |
| ☒ | ☐ | ☐ | 18. Final cover system material is suitable in quality, of proper compacted thickness, and is applied and maintained.360-2.17 (e) |
| | | | **MONITORING** |
| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
| ☒ | ☐ | ☐ | 20. Decomposition gasses are monitored and controlled 360-2.17(f); 360-8.3 (c ) |
| | | | **OTHER** |
| | | | On Continuation Sheet identify any other violations |

I Hereby Acknowledge receipt of the Facility Copy of this report

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(Automated 6/07)

**NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**DIVISION OF SOLID & HAZARDOUS MATERIALS**

## 6 NYCRR Part 360

## SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

### Continuation Sheet

| | | | | |
|---|---|---|---|---|
| FACILITY NAME:<br>High Acres Landfill | LOCATION:<br>Perinton(T), Monroe(C) | FACILITY ID#:<br>28 S 32 | DATE:<br>12/11/18 | TIME: |
| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>see page one | | |
| REGION<br>8 | WEATHER CONDITIONS:<br>see page one | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 | | |
| SHEET<br>2 OF 2 | CONTINUATION SHEET<br>☐ YES ☒ NO | PART(S) 360-<br>Attached | | |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush coming in to stockpile. Town leaves are coming in to compost. Leaf/food waste compost continues to be managed. Construction- HCS continues working on the clay plug on the east intercell berm of cell 12B.

5- Litter picking is an ongoing process and picked as needed. Some litter in the north ditch of cell 12A.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the north perimeter road there was variable, slight to moderate garbage odor observed north-northeast of the working face. GHD is onsite working on the waste odor evaluation study.

12- Onsite roads were firm/semi-frozen with some wet/muddy surfaces in high traffic areas, and dry, dusty surfaces in other areas. All roads were passable.

13- There were two working faces, one on the south slope of cell 12A working to the east and in the central area of section 1 of cell 12B.

16- Need to continue to dress-up areas of the cover in cells 12A and 12B.

17- HCS was excavating and hauling soil to stockpile on the west side of the cover area(cells 8/9) on top of cells 8/9/10/11. They were placing and grading the first lift, 1ft., on the remaining areas and stockpiling the remainder to complete the second lift in the spring.

20- Flares were in operation. CWC was working on the forcemain installation to manhole 4A north of cells 10 and 11 for the dewatering system. CEC continues working on the installation of laterals and headers for gas collection improvements on the north slope of cell 1.

I Hereby acknowledge receipt of the Facility Copy of this report

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Not Requested DK
Signature

47-15-1A (1/98)-q
(Automated 6/07)

**NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**DIVISION OF SOLID & HAZARDOUS MATERIALS**

# 6 NYCRR Part 360-2

# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

(For use at Mixed Solid Waste Landfills, Industrial /Commercial Waste Monofills, or Ash Residue Monofills)

FACILITY NAME: High Acres Landfill
LOCATION: Perinton(T), Monroe(C)
FACILITY ID#: 28 S 32
DATE: 12/12/18
TIME:
INSPECTOR'S NAME: Dave Kay
CODE: M
PERSONS INTERVIEWED: Tom Grossman
REGION: 8
WEATHER CONDITIONS: CL; 30's°F; W: 0-10 W,NW,NE
DEC PERMIT NUMBER: 8 - 9908 - 00162 / 00032
SHEET: 1 OF 2
CONTINUATION SHEET: ☒YES ☐ NO
PART(S) 360-: attached

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional and/or Multiple Violations May be Described on the Attached Continuation Sheet. This form is a record of conditions which are observed in the field at the time of inspection Items marked NI indicate No Inspection and do not mean no violation has occurred.

☒ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT ☐ CLOSED

| C | NI | V | |
|---|---|---|---|
| | | | **FACILITY MANAGEMENT** |
| ☒ | ☐ | ☐ | 1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a) (1), (b); 360-1.8(h) (5) |
| | | | 2. Incoming waste is monitored by a control program for unauthorized waste and solid waste material accepted are approved for management at the facility 360-1.14(e) (1) |
| ☐ | ☒ | ☐ | a. Hazardous/Low Level Radioactive Wastes 360-1.5(b), 360-2.17(m) |
| ☒ | ☐ | ☐ | b. Control Program. 360-1.14(e) (1) |
| ☒ | ☐ | ☐ | c. Department Approved Facility for Specific Wastes. 360-1.14(r) |
| ☒ | ☐ | ☐ | d. Bulk Liquids 360-2.17 (k) |
| ☒ | ☐ | ☐ | e. Whole Tires 360-2.17(v) |
| ☒ | ☐ | ☐ | f. Lead Acid Batteries 360-2.17 (w) |
| | | | 3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use. |
| ☒ | ☐ | ☐ | a. Maintenance of Facility Components/Site Grading. 360-1.14(f) (1); 360-2.17 (h), (u) |
| ☒ | ☐ | ☐ | b. Adequate Equipment. 360-1.14(f) (2) |
| | | | 4. Operational Records are available where required: |
| ☐ | ☒ | ☐ | a. Unauthorized Solid Waste Records. 360-1.14(l) (1) |
| ☐ | ☒ | ☐ | b. Self Inspection Records. 360-1.14(l) (2) |
| ☐ | ☒ | ☐ | c. Permit Application Records. 360-1.14(l) (3) |
| ☐ | ☒ | ☐ | d. Monitoring Records. 360-1.14(l) (4) |
| ☐ | ☒ | ☐ | e. Facility Operator Records. 360-1.14(u) (1) |
| ☐ | ☒ | ☐ | f. Fill Progression Records. 360-2.9 (e) |
| ☐ | ☒ | ☐ | g. Primary Leachate Collection and Removal System Logs 260-2.9(j) (3) |
| ☐ | ☒ | ☐ | h. Asbestos Waste Site Plan 360-2.17 (p) (2) |
| ☐ | ☒ | ☐ | i. Random waste collection vehicle inspection records 260-2.17(q) |
| | | | **OPERATION CONTROL** |
| ☒ | ☐ | ☐ | 5. Solid waste, including blowing litter, is sufficiently confined and controlled. 360-1.14(j) |
| ☒ | ☐ | ☐ | 6. Dust is effectively controlled and does not constitute an offsite nuisance. 360-1.14(k) |
| ☒ | ☐ | ☐ | 7. On-Site vector populations are prevented or controlled, and vector breeding areas are prevented 360-1.14(l) |
| ☐ | ☒ | ☐ | 8. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m) |
| | | | **WATER** |
| ☒ | ☐ | ☐ | 9. Solid waste is prevented from entering surface waters and/or groundwater. 360-1.14(b) (1) |
| ☒ | ☐ | ☐ | 10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters.360-1.14(b) (2); 360-2.17(q) |
| | | | **ACCESS** |
| ☒ | ☐ | ☐ | 11. Access to the facility is strictly and continuously controlled by fencing, gates signs, natural barriers, or other suitable means.360-1.14(d)* |
| ☒ | ☐ | ☐ | 12. On-site roads are passable. 360-1.14(n); 360-2.17(s) |
| | | | **WASTE HANDLING** |
| ☒ | ☐ | ☐ | 13. Solid Waste is spread in layers 2 feet or less in thickness, proper compaction is achieved with 3 passes of appropriately sized equipment and the working face area is the smallest practicable. 360-2.17(b) (1) |
| ☒ | ☐ | ☐ | 14. Lift height does not exceed 10 feet, slope is at least 4 percent and no more than 33 percent, and wastes are placed and graded in accordance with fill progression plan 360-2.17(b) (2) |
| | | | 15. Solid waste preparation measures and/or precautions are provided: |
| ☒ | ☐ | ☐ | a. Stabilized/dewatered sledges 360-2.17(n) |
| ☒ | ☐ | ☐ | b. Asbestos Waste 360-2.17 (p) (3) |
| ☒ | ☐ | ☐ | c. Tanks 360-2.17( r ) |
| | | | **COVER** |
| ☐ | ☒ | ☐ | 16. Daily cover material is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required to control vectors, fires, odors, blowing litter, and scavenging 360-2.17 (c ) |
| ☐ | ☒ | ☐ | 17. Intermediate cover is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required 36o-2.17 (d) |
| ☒ | ☐ | ☐ | 18. Final cover system material is suitable in quality, of proper compacted thickness, and is applied and maintained.360-2.17 (e) |
| | | | **MONITORING** |
| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
| ☒ | ☐ | ☐ | 20. Decomposition gasses are monitored and controlled 360-2.17(f); 360-8.3 (c ) |
| | | | **OTHER** |
| | | | On Continuation Sheet identify any other violations |

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NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

# 6 NYCRR Part 360

# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

## Continuation Sheet

FACILITY NAME: High Acres Landfill
LOCATION: Perinton(T), Monroe(C)
FACILITY ID#: 28 S 32
DATE: 12/12/18
TIME:
INSPECTOR'S NAME: Dave Kay
CODE: M
PERSONS INTERVIEWED: see page one
REGION: 8
WEATHER CONDITIONS: see page one
DEC PERMIT NUMBER: 8 - 9908 - 00162 / 00032
SHEET: 2 OF 2
CONTINUATION SHEET: ☐ YES ☒ NO
PART(S) 360- Attached

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush coming in to stockpile. Town leaves are coming in to compost. Leaf/food waste compost continues to be managed. Construction- HCS completed the clay plug on the east intercell berm of cell 12B and was working on the south berm from the east end.

5- Litter picking is an ongoing process and picked as needed. Some litter was picked in the north ditch of cell 12A, a minor amount remains.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the east perimeter road there was variable, slight to moderate garbage odor observed east and southeast of the working area. GHD continued working on the waste odor evaluation.

12- Onsite roads were firm/semi-frozen with some wet/muddy surfaces in high traffic areas. All roads were passable.

13- There were two working faces, one at the northeast end of section 1 and in the east-central area of section 1 of cell 12B.

16- Need to continue to dress-up areas of the cover in cells 12A and 12B.

17- HCS was excavating and hauling soil to the top finishing the first lift of cover and stockpiling the remainder.

20- Flares were in operation. CWC continues working on the forcemain installation to manhole 4A north of cells 10 and 11 for the dewatering system. CEC continues working on the installation of laterals and headers for gas collection Improvements, working on the north slope of cell 1. Dilcher's raising slipforms/wells as needed in cell 12.

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**NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**DIVISION OF SOLID & HAZARDOUS MATERIALS**

# 6 NYCRR Part 360-2

# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

(For use at Mixed Solid Waste Landfills, Industrial /Commercial Waste Monofills, or Ash Residue Monofills)

| | | | | |
|---|---|---|---|---|
| FACILITY NAME:<br>High Acres Landfill | LOCATION:<br>Perinton(T), Monroe(C) | FACILITY ID#:<br>28 S 32 | DATE:<br>12/1418 | TIME: |

| | | |
|---|---|---|
| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>Tom Grossman |

| | | |
|---|---|---|
| REGION<br>8 | WEATHER CONDITIONS:<br>CL; 30's-40's°F; W: 0-8 SSE,S | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 |

| | | |
|---|---|---|
| SHEET<br>1 OF 2 | CONTINUATION SHEET<br>☒YES ☐ NO | PART(S) 360-<br>attached |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional and/or Multiple Violations May be Described on the Attached Continuation Sheet. This form is a record of conditions which are observed in the field at the time of inspection Items marked NI indicate No Inspection and do not mean no violation has occurred.

☒ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT ☐ CLOSED

| C | NI | V | |
|---|---|---|---|
| | | | **FACILITY MANAGEMENT** |
| ☒ | ☐ | ☐ | 1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a) (1), (b); 360-1.8(h) (5) |
| | | | 2. Incoming waste is monitored by a control program for unauthorized waste and solid waste material accepted are approved for management at the facility 360-1.14(e) (1) |
| ☐ | ☒ | ☐ | a. Hazardous/Low Level Radioactive Wastes 360-1.5(b), 360-2.17(m) |
| ☒ | ☐ | ☐ | b. Control Program. 360-1.14(e) (1) |
| ☒ | ☐ | ☐ | c. Department Approved Facility for Specific Wastes. 360-1.14(r) |
| ☒ | ☐ | ☐ | d. Bulk Liquids 360-2.17 (k) |
| ☒ | ☐ | ☐ | e. Whole Tires 360-2.17(v) |
| ☒ | ☐ | ☐ | f. Lead Acid Batteries 360-2.17 (w) |
| | | | 3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use. |
| ☒ | ☐ | ☐ | a. Maintenance of Facility Components/Site Grading. 360-1.14(f) (1); 360-2.17 (h), (u) |
| ☒ | ☐ | ☐ | b. Adequate Equipment. 360-1.14(f) (2) |
| | | | 4. Operational Records are available where required: |
| ☐ | ☒ | ☐ | a. Unauthorized Solid Waste Records. 360-1.14(l) (1) |
| ☐ | ☒ | ☐ | b. Self Inspection Records. 360-1.14(l) (2) |
| ☐ | ☒ | ☐ | c. Permit Application Records. 360-1.14(l) (3) |
| ☐ | ☒ | ☐ | d. Monitoring Records. 360-1.14(l) (4) |
| ☐ | ☒ | ☐ | e. Facility Operator Records. 360-1.14(u) (1) |
| ☐ | ☒ | ☐ | f. Fill Progression Records. 360-2.9 (e) |
| ☐ | ☒ | ☐ | g. Primary Leachate Collection and Removal System Logs 260-2.9(j) (3) |
| ☐ | ☒ | ☐ | h. Asbestos Waste Site Plan 360-2.17 (p) (2) |
| ☐ | ☒ | ☐ | i. Random waste collection vehicle inspection records 260-2.17(q) |
| | | | **OPERATION CONTROL** |
| ☒ | ☐ | ☐ | 5. Solid waste, including blowing litter, is sufficiently confined and controlled. 360-1.14(j) |
| ☒ | ☐ | ☐ | 6. Dust is effectively controlled and does not constitute an offsite nuisance. 360-1.14(k) |
| ☒ | ☐ | ☐ | 7. On-Site vector populations are prevented or controlled, and vector breeding areas are prevented 360-1.14(l) |
| ☐ | ☒ | ☐ | 6. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m) |
| | | | **WATER** |
| ☒ | ☐ | ☐ | 9. Solid waste is prevented from entering surface waters and/or groundwater. 360-1.14(b) (1) |
| ☒ | ☐ | ☐ | 10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters.360-1.14(b) (2); 360-2.17(q) |
| | | | **ACCESS** |
| ☒ | ☐ | ☐ | 11. Access to the facility is strictly and continuously controlled by fencing, gates signs, natural barriers, or other suitable means.360-1.14(d)* |
| ☒ | ☐ | ☐ | 12. On-site roads are passable. 360-1.14(n); 360-2.17(s) |
| | | | **WASTE HANDLING** |
| ☒ | ☐ | ☐ | 13. Solid Waste is spread in layers 2 feet or less in thickness, proper compaction is achieved with 3 passes of appropriately sized equipment and the working face area is the smallest practicable. 360-2.17(b) (1) |
| ☒ | ☐ | ☐ | 14. Lift height does not exceed 10 feet, slope is at least 4 percent and no more than 33 percent, and wastes are placed and graded in accordance with fill progression plan 360-2.17(b) (2) |
| | | | 15. Solid waste preparation measures and/or precautions are provided: |
| ☒ | ☐ | ☐ | a. Stabilized/dewatered sledges 360-2.17(n) |
| ☒ | ☐ | ☐ | b. Asbestos Waste 360-2.17 (p) (3) |
| ☒ | ☐ | ☐ | c. Tanks 360-2.17( r ) |
| | | | **COVER** |
| ☐ | ☒ | ☐ | 16. Daily cover material is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required to control vectors, fires, odors, blowing litter, and scavenging 360-2.17 (c ) |
| ☐ | ☒ | ☐ | 17. Intermediate cover is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required 36o-2.17 (d) |
| ☒ | ☐ | ☐ | 18. Final cover system material is suitable in quality, of proper compacted thickness, and is applied and maintained.360-2.17 (e) |
| | | | **MONITORING** |
| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
| ☒ | ☐ | ☐ | 20. Decomposition gasses are monitored and controlled 360-2.17(f); 360-8.3 (c ) |
| | | | **OTHER** |
| | | | On Continuation Sheet identify any other violations |

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**NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**DIVISION OF SOLID & HAZARDOUS MATERIALS**

# 6 NYCRR Part 360
# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
## Continuation Sheet

| | | | | |
|---|---|---|---|---|
| FACILITY NAME:<br>High Acres Landfill | LOCATION:<br>Perinton(T), Monroe(C) | FACILITY ID#:<br>28 S 32 | DATE:<br>12/14/18 | TIME: |
| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>see page one | | |
| REGION<br>8 | WEATHER CONDITIONS:<br>see page one | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 | | |
| SHEET<br>2 OF 2 | CONTINUATION SHEET<br>☐ YES ☒ NO | PART(S) 360-<br>Attached | | |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush coming in to stockpile. Town leaves are coming in to compost. Leaf/food waste compost continues to be managed. Construction- HCS not working today. The clay plug and soil backfill on outside slope along the south intercell berm is complete. Billitier was placing conduit for power to pump stormwater from the pond south of cell 12B.

5- Litter picking is an ongoing process and picked as needed. The north ditch of cell 12A has been picked.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the north perimeter road there was variable, slight to moderate garbage odor observed north-northwest of the working area. GHD continued working on the waste odor evaluation. GHD was also onsite conducting the surface scan.

12- Onsite roads were wet/muddy. All roads were passable. The Parkway and onsite paved areas were flushed with the water truck.

13- There were two working faces, one on the south slope of 12A working east and in the south-central area of section 1 of cell 12B.

16- Additional cover has been added to some of the flats in 12B. Need to continue to dress-up areas of the cover on the sloping portions in cell 12B.

17- There was no work on the cover to the top of the hill, HCS was not working today.

20- Flares were in operation. CWC continues working with Billitier on the dewatering system. CEC continues working on the installation of laterals and headers for gas collection improvements in cells 1-5.

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**NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**DIVISION OF SOLID & HAZARDOUS MATERIALS**

# 6 NYCRR Part 360-2

# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

(For use at Mixed Solid Waste Landfills, Industrial /Commercial Waste Monofills, or Ash Residue Monofills)

FACILITY NAME: High Acres Landfill
LOCATION: Perinton(T), Monroe(C)
FACILITY ID#: 28 S 32
DATE: 12/17/18
TIME:
INSPECTOR'S NAME: Dave Kay
CODE: M
PERSONS INTERVIEWED: Tom Grossman
REGION: 8
WEATHER CONDITIONS: CL; 30's°F; W: 5-20+ WSW,WNW,NW
DEC PERMIT NUMBER: 8 - 9908 - 00162 / 00032
SHEET 1 OF 2
CONTINUATION SHEET ☒YES ☐ NO
PART(S) 360- attached

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional and/or Multiple Violations May be Described on the Attached Continuation Sheet. This form is a record of conditions which are observed in the field at the time of inspection Items marked NI indicate No Inspection and do not mean no violation has occurred.

☒ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT ☐ CLOSED

| C | NI | V | |
|---|---|---|---|
| | | | **FACILITY MANAGEMENT** |
| ☒ | ☐ | ☐ | 1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a) (1), (b); 360-1.8(h) (5) |
| | | | 2. Incoming waste is monitored by a control program for unauthorized waste and solid waste material accepted are approved for management at the facility 360-1.14(e) (1) |
| ☐ | ☒ | ☐ | a. Hazardous/Low Level Radioactive Wastes 360-1.5(b), 360-2.17(m) |
| ☒ | ☐ | ☐ | b. Control Program. 360-1.14(e) (1) |
| ☒ | ☐ | ☐ | c. Department Approved Facility for Specific Wastes. 360-1.14(r) |
| ☒ | ☐ | ☐ | d. Bulk Liquids 360-2.17 (k) |
| ☒ | ☐ | ☐ | e. Whole Tires 360-2.17(v) |
| ☒ | ☐ | ☐ | f. Lead Acid Batteries 360-2.17 (w) |
| | | | 3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use. |
| ☒ | ☐ | ☐ | a. Maintenance of Facility Components/Site Grading. 360-1.14(f) (1); 360-2.17 (h), (u) |
| ☒ | ☐ | ☐ | b. Adequate Equipment. 360-1.14(f) (2) |
| | | | 4. Operational Records are available where required: |
| ☐ | ☒ | ☐ | a. Unauthorized Solid Waste Records. 360-1.14(l) (1) |
| ☐ | ☒ | ☐ | b. Self Inspection Records. 360-1.14(l) (2) |
| ☐ | ☒ | ☐ | c. Permit Application Records. 360-1.14(l) (3) |
| ☐ | ☒ | ☐ | d. Monitoring Records. 360-1.14(l) (4) |
| ☐ | ☒ | ☐ | e. Facility Operator Records. 360-1.14(u) (1) |
| ☐ | ☒ | ☐ | f. Fill Progression Records. 360-2.9 (e) |
| ☐ | ☒ | ☐ | g. Primary Leachate Collection and Removal System Logs 260-2.9(j) (3) |
| ☐ | ☒ | ☐ | h. Asbestos Waste Site Plan 360-2.17 (p) (2) |
| ☐ | ☒ | ☐ | i. Random waste collection vehicle inspection records 260-2.17(q) |
| | | | **OPERATION CONTROL** |
| ☐ | ☒ | ☐ | 5. Solid waste, including blowing litter, is sufficiently confined and controlled. 360-1.14(j) |
| ☒ | ☐ | ☐ | 6. Dust is effectively controlled and does not constitute an offsite nuisance. 360-1.14(k) |
| ☒ | ☐ | ☐ | 7. On-Site vector populations are prevented or controlled, and vector breeding areas are prevented 360-1.14(l) |
| ☐ | ☒ | ☐ | 8. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m) |
| | | | **WATER** |
| ☒ | ☐ | ☐ | 9. Solid waste is prevented from entering surface waters and/or groundwater. 360-1.14(b) (1) |
| ☒ | ☐ | ☐ | 10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters.360-1.14(b) (2); 360-2.17(q) |
| | | | **ACCESS** |
| ☒ | ☐ | ☐ | 11. Access to the facility is strictly and continuously controlled by fencing, gates signs, natural barriers, or other suitable means.360-1.14(d)* |
| ☒ | ☐ | ☐ | 12. On-site roads are passable. 360-1.14(n); 360-2.17(s) |
| | | | **WASTE HANDLING** |
| ☒ | ☐ | ☐ | 13. Solid Waste is spread in layers 2 feet or less in thickness, proper compaction is achieved with 3 passes of appropriately sized equipment and the working face area is the smallest practicable. 360-2.17(b) (1) |
| ☒ | ☐ | ☐ | 14. Lift height does not exceed 10 feet, slope is at least 4 percent and no more than 33 percent, and wastes are placed and graded in accordance with fill progression plan 360-2.17(b) (2) |
| | | | 15. Solid waste preparation measures and/or precautions are provided: |
| ☒ | ☐ | ☐ | a. Stabilized/dewatered sledges 360-2.17(n) |
| ☒ | ☐ | ☐ | b. Asbestos Waste 360-2.17 (p) (3) |
| ☒ | ☐ | ☐ | c. Tanks 360-2.17( r ) |
| | | | **COVER** |
| ☐ | ☒ | ☐ | 16. Daily cover material is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required to control vectors, fires, odors, blowing litter, and scavenging 360-2.17 (c ) |
| ☐ | ☒ | ☐ | 17. Intermediate cover is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required 36o-2.17 (d) |
| ☒ | ☐ | ☐ | 18. Final cover system material is suitable in quality, of proper compacted thickness, and is applied and maintained.360-2.17 (e) |
| | | | **MONITORING** |
| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
| ☒ | ☐ | ☐ | 20. Decomposition gasses are monitored and controlled 360-2.17(f); 360-8.3 (c ) |
| | | | **OTHER** |
| | | | On Continuation Sheet identity any other violations |

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# NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
## DIVISION OF SOLID & HAZARDOUS MATERIALS
## 6 NYCRR Part 360
# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
## Continuation Sheet

| | | | | |
|---|---|---|---|---|
| FACILITY NAME:<br>High Acres Landfill | LOCATION:<br>Perinton(T), Monroe(C) | FACILITY ID#:<br>28 S 32 | DATE:<br>12/17/18 | TIME: |
| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>see page one | | |
| REGION<br>8 | WEATHER CONDITIONS:<br>see page one | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 | | |
| SHEET<br>2 OF 2 | CONTINUATION SHEET<br>☐ YES ☒ NO | PART(S) 360-<br>Attached | | |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush coming in to stockpile. Town leaves are coming in to compost. Leaf/food waste compost continues to be managed. Construction- HCS was working with Billitier to get electric and discharge pipe connected to pump stormwater from the pond south of cell 12B.

5- Litter picking is an ongoing process. There is scattered litter on the north slope/ditch of cell 12A, the east side of cell 12A and along the hedge row running east-west on the east side of cell 12B.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the east perimeter road there was variable, slight to moderate garbage odor observed east of the working area. GHD/Odor Science finishing up the data collection onsite for the waste odor evaluation.

12- Onsite roads were wet/muddy. All roads were passable. The Parkway and onsite paved areas were flushed with the water truck.

13- Today there was one working face in the northeast area of section 1 of cell 12B.

16- Additional cover is needed in cell 12B, there inconsistent coverage across section one.

17- There was no work on the cover to the top of the hill. HCS was hauling cover soil to cell 12B.

20- Flares were in operation. CWC continues working on the dewatering system infrastructure along the north fence, north of cell 11. CEC continues working on the installation of laterals and headers for gas collection improvements in cells 1-5.

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# NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
# DIVISION OF SOLID & HAZARDOUS MATERIALS
## 6 NYCRR Part 360-2
## SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

(For use at Mixed Solid Waste Landfills, Industrial /Commercial Waste Monofills, or Ash Residue Monofills)

| | | | | |
|---|---|---|---|---|
| FACILITY NAME:<br>High Acres Landfill | LOCATION:<br>Perinton(T), Monroe(C) | FACILITY ID#:<br>28 S 32 | DATE:<br>01/08/19 | TIME: |
| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>Tom Grossman | | |
| REGION<br>8 | WEATHER CONDITIONS:<br>CL; 30's-40's°F; W: 0-5+ SSE,SE | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 | | |
| SHEET<br>1 OF 2 | CONTINUATION SHEET<br>☒YES ☐ NO | PART(S) 360-<br>attached | | |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional and/or Multiple Violations May be Described on the Attached Continuation Sheet. This form is a record of conditions which are observed in the field at the time of inspection Items marked NI indicate No Inspection and do not mean no violation has occurred.

☒ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT ☐ CLOSED

| C | NI | V | |
|---|---|---|---|
| | | | **FACILITY MANAGEMENT** |
| ☒ | ☐ | ☐ | 1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a) (1), (b); 360-1.8(h) (5) |
| | | | 2. Incoming waste is monitored by a control program for unauthorized waste and solid waste material accepted are approved for management at the facility 360-1.14(e) (1) |
| ☐ | ☒ | ☐ | a. Hazardous/Low Level Radioactive Wastes 360-1.5(b), 360-2.17(m) |
| ☒ | ☐ | ☐ | b. Control Program. 360-1.14(e) (1) |
| ☒ | ☐ | ☐ | c. Department Approved Facility for Specific Wastes. 360-1.14(r) |
| ☒ | ☐ | ☐ | d. Bulk Liquids 360-2.17 (k) |
| ☒ | ☐ | ☐ | e. Whole Tires 360-2.17(v) |
| ☒ | ☐ | ☐ | f. Lead Acid Batteries 360-2.17 (w) |
| | | | 3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use. |
| ☒ | ☐ | ☐ | a. Maintenance of Facility Components/Site Grading. 360-1.14(f) (1); 360-2.17 (h), (u) |
| ☒ | ☐ | ☐ | b. Adequate Equipment. 360-1.14(f) (2) |
| | | | 4. Operational Records are available where required: |
| ☐ | ☒ | ☐ | a. Unauthorized Solid Waste Records. 360-1.14(l) (1) |
| ☐ | ☒ | ☐ | b. Self Inspection Records. 360-1.14(l) (2) |
| ☐ | ☒ | ☐ | c. Permit Application Records. 360-1.14(l) (3) |
| ☐ | ☒ | ☐ | d. Monitoring Records. 360-1.14(l) (4) |
| ☐ | ☒ | ☐ | e. Facility Operator Records. 360-1.14(u) (1) |
| ☐ | ☒ | ☐ | f. Fill Progression Records. 360-2.9 (e) |
| ☐ | ☒ | ☐ | g. Primary Leachate Collection and Removal System Logs 260-2.9(j) (3) |
| ☐ | ☒ | ☐ | h. Asbestos Waste Site Plan 360-2.17 (p) (2) |
| ☐ | ☒ | ☐ | i. Random waste collection vehicle inspection records 260-2.17(q) |
| | | | **OPERATION CONTROL** |
| ☒ | ☐ | ☐ | 5. Solid waste, including blowing litter, is sufficiently confined and controlled. 360-1.14(j) |
| ☒ | ☐ | ☐ | 6. Dust is effectively controlled and does not constitute an offsite nuisance. 360-1.14(k) |
| ☒ | ☐ | ☐ | 7. On-Site vector populations are prevented or controlled, and vector breeding areas are prevented 360-1.14(l) |
| ☐ | ☒ | ☐ | 6. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m) |
| | | | **WATER** |
| ☒ | ☐ | ☐ | 9. Solid waste is prevented from entering surface waters and/or groundwater. 360-1.14(b) (1) |
| ☒ | ☐ | ☐ | 10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters.360-1.14(b) (2); 360-2.17(q) |
| | | | **ACCESS** |
| ☒ | ☐ | ☐ | 11. Access to the facility is strictly and continuously controlled by fencing, gates signs, natural barriers, or other suitable means.360-1.14(d)* |
| ☒ | ☐ | ☐ | 12. On-site roads are passable. 360-1.14(n); 360-2.17(s) |
| | | | **WASTE HANDLING** |
| ☒ | ☐ | ☐ | 13. Solid Waste is spread in layers 2 feet or less in thickness, proper compaction is achieved with 3 passes of appropriately sized equipment and the working face area is the smallest practicable. 360-2.17(b) (1) |
| ☒ | ☐ | ☐ | 14. Lift height does not exceed 10 feet, slope is at least 4 percent and no more than 33 percent, and wastes are placed and graded in accordance with fill progression plan 360-2.17(b) (2) |
| | | | 15. Solid waste preparation measures and/or precautions are provided: |
| ☒ | ☐ | ☐ | a. Stabilized/dewatered sledges 360-2.17(n) |
| ☒ | ☐ | ☐ | b. Asbestos Waste 360-2.17 (p) (3) |
| ☒ | ☐ | ☐ | c. Tanks 360-2.17( r ) |
| | | | **COVER** |
| ☐ | ☒ | ☐ | 16. Daily cover material is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required to control vectors, fires, odors, blowing litter, and scavenging 360-2.17 (c ) |
| ☐ | ☒ | ☐ | 17. Intermediate cover is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required 36o-2.17 (d) |
| ☒ | ☐ | ☐ | 18. Final cover system material is suitable in quality, of proper compacted thickness, and is applied and maintained.360-2.17 (e) |
| | | | **MONITORING** |
| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
| ☒ | ☐ | ☐ | 20. Decomposition gasses are monitored and controlled 360-2.17(f); 360-8.3 (c ) |
| | | | **OTHER** |
| | | | On Continuation Sheet identify any other violations |

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47-15-1 (1/98)-q
(Automated 6/07)

NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

# 6 NYCRR Part 360
# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
## Continuation Sheet

| | | | | |
|---|---|---|---|---|
| FACILITY NAME:<br>High Acres Landfill | LOCATION:<br>Perinton(T), Monroe(C) | FACILITY ID#:<br>28 S 32 | DATE:<br>01/08/19 | TIME: |
| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>see page one | | |
| REGION<br>8 | WEATHER CONDITIONS:<br>see page one | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 | | |
| SHEET<br>2 OF 2 | CONTINUATION SHEET<br>☐ YES ☒ NO | PART(S) 360-<br>Attached | | |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush stockpile managed. Town leaves being managed to compost. Leaf/food waste compost continues to be managed. The back-up generator arrived at the site today and was set on the pad. The stormwater collection pipe on the east slope EGC of cell 11 at the edge of the lift of waste in 12B needs to be removed or redesigned due to asbestos waste being placed over the top of part of it.

5- Litter picking is an ongoing process. Observed laborers picking the north slope of cells 10/11.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the north perimeter road there was variable, slight to moderate garbage odor with some gas at times observed northwest of the working area. GHD and B&L continues work on the odor study of inbound waste.

12- Onsite roads were muddy. All roads were passable. The Parkway was flushed with the water truck.

13- Today there was one working face centrally located on the south slope of 12A to 12B.

16- Additional cover has been added to some areas in cell 12B, the dress-up needs to continue. The south end of the east slope of cell 12B(at the intercell berm) and the upper portion of this slope needs cover. Additional cover is needed on the sloping portion of the fluff lift in 12B.

17- There was no work on the cover stockpile on the top of cells 10/11 today.

20- Flares were in operation. CEC continues work to install laterals and header pipe in cells 1-5. Dilcher's raised a slip-form well in cell 12B and do so as needed. They also continued with horizontal install work in 12B.

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### DIVISION OF SOLID & HAZARDOUS MATERIALS
## 6 NYCRR Part 360-2
## SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
(For use at Mixed Solid Waste Landfills, Industrial /Commercial Waste Monofills, or Ash Residue Monofills)

| | | | | |
|---|---|---|---|---|
| FACILITY NAME:<br>High Acres Landfill | LOCATION:<br>Perinton(T), Monroe(C) | FACILITY ID#:<br>28 S 32 | DATE:<br>01/10/19 | TIME: |
| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>Tom Grossman | | |
| REGION<br>8 | WEATHER CONDITIONS:<br>CL, snow; teens-20's°F; W: 5-20+ NW | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 | | |
| SHEET<br>1 OF 2 | CONTINUATION SHEET<br>☒YES ☐ NO | PART(S) 360-<br>attached | | |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional and/or Multiple Violations May be Described on the Attached Continuation Sheet. This form is a record of conditions which are observed in the field at the time of inspection Items marked NI indicate No Inspection and do not mean no violation has occurred.

☒ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT ☐ CLOSED

| C | NI | V | |
|---|---|---|---|
| | | | **FACILITY MANAGEMENT** |
| ☒ | ☐ | ☐ | 1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a) (1), (b); 360-1.8(h) (5) |
| | | | 2. Incoming waste is monitored by a control program for unauthorized waste and solid waste material accepted are approved for management at the facility 360-1.14(e) (1) |
| ☐ | ☒ | ☐ | a. Hazardous/Low Level Radioactive Wastes 360-1.5(b), 360-2.17(m) |
| ☒ | ☐ | ☐ | b. Control Program. 360-1.14(e) (1) |
| ☒ | ☐ | ☐ | c. Department Approved Facility for Specific Wastes. 360-1.14(r) |
| ☒ | ☐ | ☐ | d. Bulk Liquids 360-2.17 (k) |
| ☒ | ☐ | ☐ | e. Whole Tires 360-2.17(v) |
| ☒ | ☐ | ☐ | f. Lead Acid Batteries 360-2.17 (w) |
| | | | 3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use. |
| ☒ | ☐ | ☐ | a. Maintenance of Facility Components/Site Grading. 360-1.14(f) (1); 360-2.17 (h), (u) |
| ☒ | ☐ | ☐ | b. Adequate Equipment. 360-1.14(f) (2) |
| | | | 4. Operational Records are available where required: |
| ☐ | ☒ | ☐ | a. Unauthorized Solid Waste Records. 360-1.14(l) (1) |
| ☐ | ☒ | ☐ | b. Self Inspection Records. 360-1.14(l) (2) |
| ☐ | ☒ | ☐ | c. Permit Application Records. 360-1.14(l) (3) |
| ☐ | ☒ | ☐ | d. Monitoring Records. 360-1.14(l) (4) |
| ☐ | ☒ | ☐ | e. Facility Operator Records. 360-1.14(u) (1) |
| ☐ | ☒ | ☐ | f. Fill Progression Records. 360-2.9 (e) |
| ☐ | ☒ | ☐ | g. Primary Leachate Collection and Removal System Logs 260-2.9(j) (3) |
| ☐ | ☒ | ☐ | h. Asbestos Waste Site Plan 360-2.17 (p) (2) |
| ☐ | ☒ | ☐ | i. Random waste collection vehicle inspection records 260-2.17(q) |
| | | | **OPERATION CONTROL** |
| ☒ | ☐ | ☐ | 5. Solid waste, including blowing litter, is sufficiently confined and controlled. 360-1.14(j) |
| ☒ | ☐ | ☐ | 6. Dust is effectively controlled and does not constitute an offsite nuisance. 360-1.14(k) |
| ☒ | ☐ | ☐ | 7. On-Site vector populations are prevented or controlled, and vector breeding areas are prevented 360-1.14(l) |
| ☐ | ☒ | ☐ | 8. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m) |
| | | | **WATER** |
| ☒ | ☐ | ☐ | 9. Solid waste is prevented from entering surface waters and/or groundwater. 360-1.14(b) (1) |
| ☒ | ☐ | ☐ | 10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters.360-1.14(b) (2); 360-2.17(q) |
| | | | **ACCESS** |
| ☒ | ☐ | ☐ | 11. Access to the facility is strictly and continuously controlled by fencing, gates signs, natural barriers, or other suitable means.360-1.14(d)* |
| ☒ | ☐ | ☐ | 12. On-site roads are passable. 360-1.14(n); 360-2.17(s) |
| | | | **WASTE HANDLING** |
| ☒ | ☐ | ☐ | 13. Solid Waste is spread in layers 2 feet or less in thickness, proper compaction is achieved with 3 passes of appropriately sized equipment and the working face area is the smallest practicable. 360-2.17(b) (1) |
| ☒ | ☐ | ☐ | 14. Lift height does not exceed 10 feet, slope is at least 4 percent and no more than 33 percent, and wastes are placed and graded in accordance with fill progression plan 360-2.17(b) (2) |
| | | | 15. Solid waste preparation measures and/or precautions are provided: |
| ☒ | ☐ | ☐ | a. Stabilized/dewatered sledges 360-2.17(n) |
| ☒ | ☐ | ☐ | b. Asbestos Waste 360-2.17 (p) (3) |
| ☒ | ☐ | ☐ | c. Tanks 360-2.17( r ) |
| | | | **COVER** |
| ☐ | ☒ | ☐ | 16. Daily cover material is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required to control vectors, fires, odors, blowing litter, and scavenging 360-2.17 (c ) |
| ☐ | ☒ | ☐ | 17. Intermediate cover is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required 36o-2.17 (d) |
| ☒ | ☐ | ☐ | 18. Final cover system material is suitable in quality, of proper compacted thickness, and is applied and maintained.360-2.17 (e) |
| | | | **MONITORING** |
| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
| ☒ | ☐ | ☐ | 20. Decomposition gasses are monitored and controlled 360-2.17(f); 360-8.3 (c ) |
| | | | **OTHER** |
| | | | On Continuation Sheet identify any other violations |

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## NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
## DIVISION OF SOLID & HAZARDOUS MATERIALS
## 6 NYCRR Part 360
## SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
## Continuation Sheet

FACILITY NAME: High Acres Landfill
LOCATION: Perinton(T), Monroe(C)
FACILITY ID#: 28 S 32
DATE: 01/10/19
TIME:
INSPECTOR'S NAME: Dave Kay
CODE: M
PERSONS INTERVIEWED: see page one
REGION: 8
WEATHER CONDITIONS: see page one
DEC PERMIT NUMBER: 8 - 9908 - 00162 / 00032
SHEET 2 OF 2
CONTINUATION SHEET ☐ YES ☒ NO
PART(S) 360- Attached

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush stockpile managed. Town leaves being managed to compost. Leaf/food waste compost continues to be managed. Monroe County turned the leaf compost with their wind-row turner. The stormwater diversion pipe on the east slope EGC of cell 11 at the edge of the lift of waste in 12B was cut prior to placement of waste over the top of part of it but an additional cut has also been made. If the geomembrane flap that was holding the pipe has not been cut out, this will also need to be done. The site is snow-covered.

5- Litter picking is an ongoing process. Today litter was blowing to the east pole fence at the south end.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the east perimeter road there was variable, slight garbage odor observed southeast of the working area. There was also moderate compost odor southeast of the food-waste compost on the perimeter road. Most likely due to it being turned. GHD and B&L continues work on the odor study of inbound waste.

12- Onsite roads were snow-covered, plowed and all roads were passable. The road grader was utilized on site roads.

13- Today there was one working face centrally located at the north end of section 1 of 12B.

16- Dress-up of cover in cell 12B needs to continue including the sloping portion of the fluff lift.

17- There was no work on the cover stockpile on the top of cells 10/11 today.

20- Flares were in operation. CEC continues working on installation of laterals and header pipe in cells 1-5. Billitier was onsite setting up to pull wire for the dewatering system on the north side of cells 11/12 and also working on the backup generator.

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**DIVISION OF SOLID & HAZARDOUS MATERIALS**

# 6 NYCRR Part 360-2

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DATE: 01/11/19
TIME:
INSPECTOR'S NAME: Dave Kay
CODE: M
PERSONS INTERVIEWED: Tom Grossman
REGION: 8
WEATHER CONDITIONS: CL-PS; teens-20°F; W: 5-15 NW-WNW
DEC PERMIT NUMBER: 8 - 9908 - 00162 / 00032
SHEET 1 OF 2
CONTINUATION SHEET ☒YES ☐ NO
PART(S) 360- attached

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| | | | **WATER** |
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| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
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| | | | **OTHER** |
| | | | On Continuation Sheet identify any other violations |

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(Automated 6/07)

NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

# 6 NYCRR Part 360
# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
## Continuation Sheet

| | | | | |
|---|---|---|---|---|
| FACILITY NAME:<br>High Acres Landfill | LOCATION:<br>Perinton(T), Monroe(C) | FACILITY ID#:<br>28 S 32 | DATE:<br>01/11/19 | TIME: |

| | | |
|---|---|---|
| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>see page one |

| | | |
|---|---|---|
| REGION<br>8 | WEATHER CONDITIONS:<br>see page one | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 |
| SHEET<br>2 OF 2 | CONTINUATION SHEET<br>☐ YES ☒ NO | PART(S) 360-<br>Attached |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush stockpile managed. Town leaves being managed to compost. Leaf/food waste compost continues to be managed.

5- Litter picking is an ongoing process. Today litter was blowing to the east pole fence. Laborers were picking the fence.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the east perimeter road there was variable, slight garbage odor observed east-southeast of the working area. There was also slight compost odor east-southeast of the food-waste compost on the perimeter road. GHD and B&L continues work on the odor study of inbound waste.

12- Onsite roads were snow-covered, plowed and all roads were passable.

13- Today there was one working face centrally located at the north end of section 1 of 12B.

16- Dress-up of cover in cell 12B needs to continue including the sloping portion of the fluff lift.

17- There was no work on the cover stockpile on the top of cells 10/11 today.

20- Flares were in operation. CEC continues working on installation of laterals and header pipe in cells 1-5, currently working in cell 4. Work on the dewatering system and the back-up generator is ongoing.

I Hereby acknowledge receipt of the Facility Copy of this report

Please Print

Not Requested DK
Signature

47-15-1A (1/98)-q
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**NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**DIVISION OF SOLID & HAZARDOUS MATERIALS**

# 6 NYCRR Part 360-2
# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

(For use at Mixed Solid Waste Landfills, Industrial /Commercial Waste Monofills, or Ash Residue Monofills)

| | | | | |
|---|---|---|---|---|
| FACILITY NAME: High Acres Landfill | LOCATION: Perinton(T), Monroe(C) | FACILITY ID#: 28 S 32 | DATE: 01/14/19 | TIME: |

| | | |
|---|---|---|
| INSPECTOR'S NAME: Dave Kay | CODE: M | PERSONS INTERVIEWED Tom Grossman |

| | | |
|---|---|---|
| REGION 8 | WEATHER CONDITIONS: CL-PS; teens-20's°F; W: 0-5 SSE-SE | DEC PERMIT NUMBER 8 - 9908 - 00162 / 00032 |

| | | |
|---|---|---|
| SHEET 1 OF 2 | CONTINUATION SHEET ☒YES ☐ NO | PART(S) 360- attached |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional and/or Multiple Violations May be Described on the Attached Continuation Sheet. This form is a record of conditions which are observed in the field at the time of inspection Items marked NI indicate No Inspection and do not mean no violation has occurred.

☒ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT ☐ CLOSED

| C | NI | V | |
|---|---|---|---|
| | | | **FACILITY MANAGEMENT** |
| ☒ | ☐ | ☐ | 1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a) (1), (b); 360-1.8(h) (5) |
| | | | 2. Incoming waste is monitored by a control program for unauthorized waste and solid waste material accepted are approved for management at the facility 360-1.14(e) (1) |
| ☐ | ☒ | ☐ | a. Hazardous/Low Level Radioactive Wastes 360-1.5(b), 360-2.17(m) |
| ☒ | ☐ | ☐ | b. Control Program. 360-1.14(e) (1) |
| ☒ | ☐ | ☐ | c. Department Approved Facility for Specific Wastes. 360-1.14(r) |
| ☒ | ☐ | ☐ | d. Bulk Liquids 360-2.17 (k) |
| ☒ | ☐ | ☐ | e. Whole Tires 360-2.17(v) |
| ☒ | ☐ | ☐ | f. Lead Acid Batteries 360-2.17 (w) |
| | | | 3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use. |
| ☒ | ☐ | ☐ | a. Maintenance of Facility Components/Site Grading. 360-1.14(f) (1); 360-2.17 (h), (u) |
| ☒ | ☐ | ☐ | b. Adequate Equipment. 360-1.14(f) (2) |
| | | | 4. Operational Records are available where required: |
| ☐ | ☒ | ☐ | a. Unauthorized Solid Waste Records. 360-1.14(l) (1) |
| ☐ | ☒ | ☐ | b. Self Inspection Records. 360-1.14(l) (2) |
| ☐ | ☒ | ☐ | c. Permit Application Records. 360-1.14(l) (3) |
| ☐ | ☒ | ☐ | d. Monitoring Records. 360-1.14(l) (4) |
| ☐ | ☒ | ☐ | e. Facility Operator Records. 360-1.14(u) (1) |
| ☐ | ☒ | ☐ | f. Fill Progression Records. 360-2.9 (e) |
| ☐ | ☒ | ☐ | g. Primary Leachate Collection and Removal System Logs 260-2.9(j) (3) |
| ☐ | ☒ | ☐ | h. Asbestos Waste Site Plan 360-2.17 (p) (2) |
| ☐ | ☒ | ☐ | i. Random waste collection vehicle inspection records 260-2.17(q) |
| | | | **OPERATION CONTROL** |
| ☒ | ☐ | ☐ | 5. Solid waste, including blowing litter, is sufficiently confined and controlled. 360-1.14(j) |
| ☒ | ☐ | ☐ | 6. Dust is effectively controlled and does not constitute an offsite nuisance. 360-1.14(k) |
| ☒ | ☐ | ☐ | 7. On-Site vector populations are prevented or controlled, and vector breeding areas are prevented 360-1.14(l) |
| ☐ | ☒ | ☐ | 8. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m) |
| | | | **WATER** |
| ☒ | ☐ | ☐ | 9. Solid waste is prevented from entering surface waters and/or groundwater. 360-1.14(b) (1) |
| ☒ | ☐ | ☐ | 10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters.360-1.14(b) (2); 360-2.17(q) |
| | | | **ACCESS** |
| ☒ | ☐ | ☐ | 11. Access to the facility is strictly and continuously controlled by fencing, gates signs, natural barriers, or other suitable means.360-1.14(d)* |
| ☒ | ☐ | ☐ | 12. On-site roads are passable. 360-1.14(n); 360-2.17(s) |
| | | | **WASTE HANDLING** |
| ☒ | ☐ | ☐ | 13. Solid Waste is spread in layers 2 feet or less in thickness, proper compaction is achieved with 3 passes of appropriately sized equipment and the working face area is the smallest practicable. 360-2.17(b) (1) |
| ☒ | ☐ | ☐ | 14. Lift height does not exceed 10 feet, slope is at least 4 percent and no more than 33 percent, and wastes are placed and graded in accordance with fill progression plan 360-2.17(b) (2) |
| | | | 15. Solid waste preparation measures and/or precautions are provided: |
| ☒ | ☐ | ☐ | a. Stabilized/dewatered sledges 360-2.17(n) |
| ☒ | ☐ | ☐ | b. Asbestos Waste 360-2.17 (p) (3) |
| ☒ | ☐ | ☐ | c. Tanks 360-2.17( r ) |
| | | | **COVER** |
| ☐ | ☒ | ☐ | 16. Daily cover material is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required to control vectors, fires, odors, blowing litter, and scavenging 360-2.17 (c ) |
| ☐ | ☒ | ☐ | 17. Intermediate cover is suitable in quality, of proper compacted thickness, and is applied and maintained where and when required 36o-2.17 (d) |
| ☒ | ☐ | ☐ | 18. Final cover system material is suitable in quality, of proper compacted thickness, and is applied and maintained.360-2.17 (e) |
| | | | **MONITORING** |
| ☒ | ☐ | ☐ | 19. Monitoring wells are intact. 360-2.17 (a); 360-2.11(a) (8) (v); (c) (1) |
| ☒ | ☐ | ☐ | 20. Decomposition gasses are monitored and controlled 360-2.17(f); 360-8.3 (c ) |
| | | | **OTHER** |
| | | | On Continuation Sheet identify any other violations |

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Signature

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NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

# 6 NYCRR Part 360

# SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT

## Continuation Sheet

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|---|---|---|---|---|
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| INSPECTOR'S NAME:<br>Dave Kay | CODE:<br>M | PERSONS INTERVIEWED<br>see page one | | |
| REGION<br>8 | WEATHER CONDITIONS:<br>see page one | DEC PERMIT NUMBER<br>8 - 9908 - 00162 / 00032 | | |
| SHEET<br>2 OF 2 | CONTINUATION SHEET<br>☐ YES ☒ NO | PART(S) 360-<br>Attached | | |

Violations of Part 360 are Subject to Applicable Civil, Administrative, and Criminal Sanctions Set Forth in ECL Article 71 and as Appropriate, the Clean Water and Air Acts. Additional Violations May be noted on Sheet one of this inspection report. Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations(uncorrected violations must be described in detail and located on a sketch.)

Item # 3a- Town brush stockpile managed. Town leaves being managed to compost. Leaf/food waste compost continues to be managed.

5- Litter picking is an ongoing process. The east litter fence has been picked. There is some litter south of the east pole fence in the hedgerow/ditch eastward.

8- The odor neutralizers, along with gas collection and flaring are utilized for ongoing odor control mechanisms. Today the vapor units on the north fence were in use along with the Odor Boss. Onsite, on the north perimeter road there was variable, slight garbage odor observed northwest of the working area. GHD and B&L continues work on the odor study of inbound waste. Today probes were pulled from walking floors.

12- Onsite roads were frozen, some surfaces became muddy with the sun. All roads were passable.

13- Today there was one working face centrally located at the north end of section 1 of 12B.

16- Dress-up of cover in cell 12B needs to continue including the sloping portion of the fluff lift along the east side, the west and south sides are to be filled to the clay plug. The Enviro-cover system continues to be evaluated. It is not used every day due to location of the active face.

20- Flares were in operation. CEC continues working on installation of laterals and header pipe in cells 1-5, currently working in cells 2/4. Billitier continues working on the back-up generator. Work on the dewatering system is on hold, waiting for the control panel.

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Signature

# about
# GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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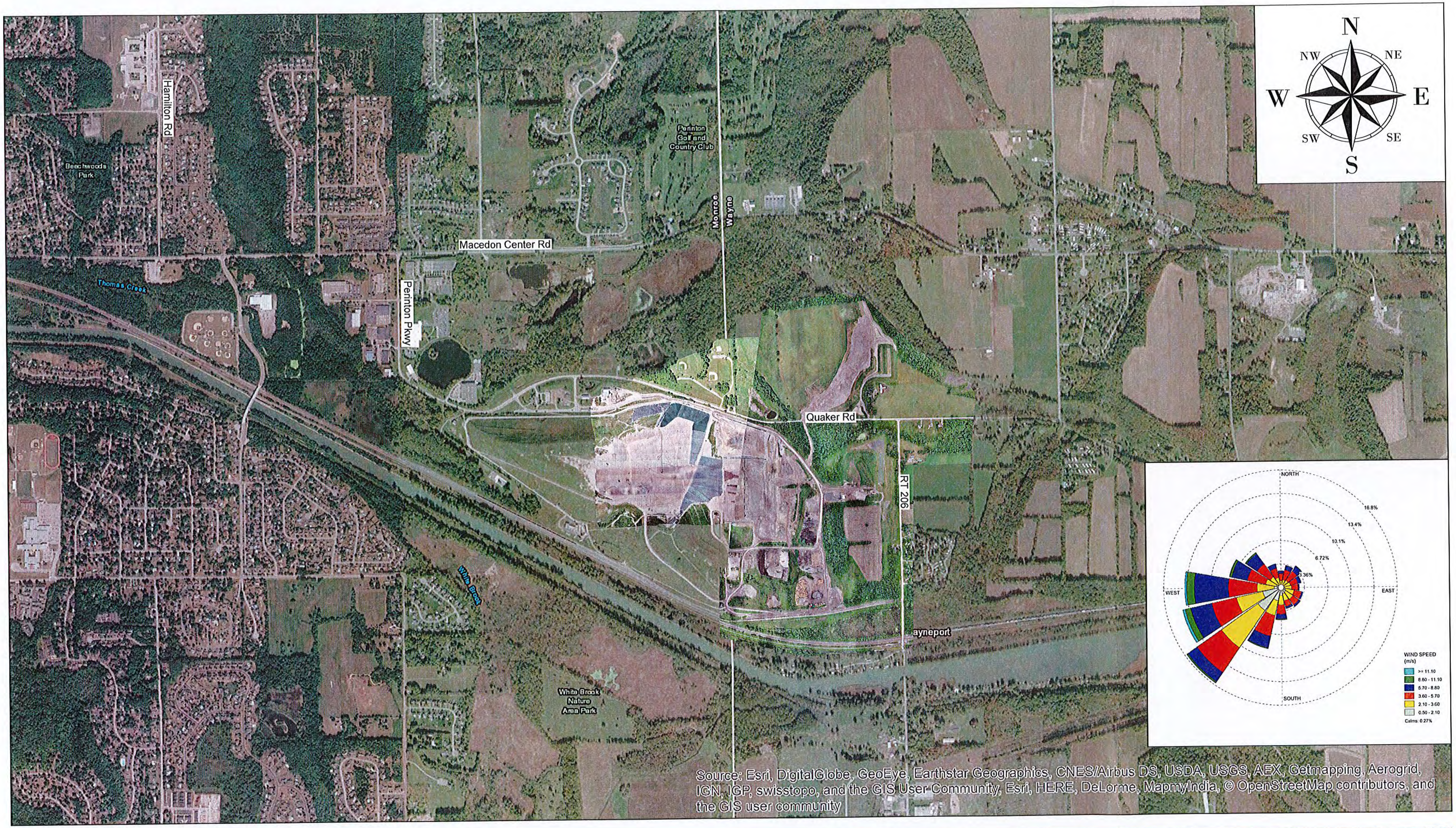

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WASTE MANAGEMENT HIGH ACRES LANDFILL FAIRPORT, NEW YORK
AMBIENT AIR MONITORING

SITE LOCATION WITH WIND ROSE (2013 TO 2017)

FIGURE 1

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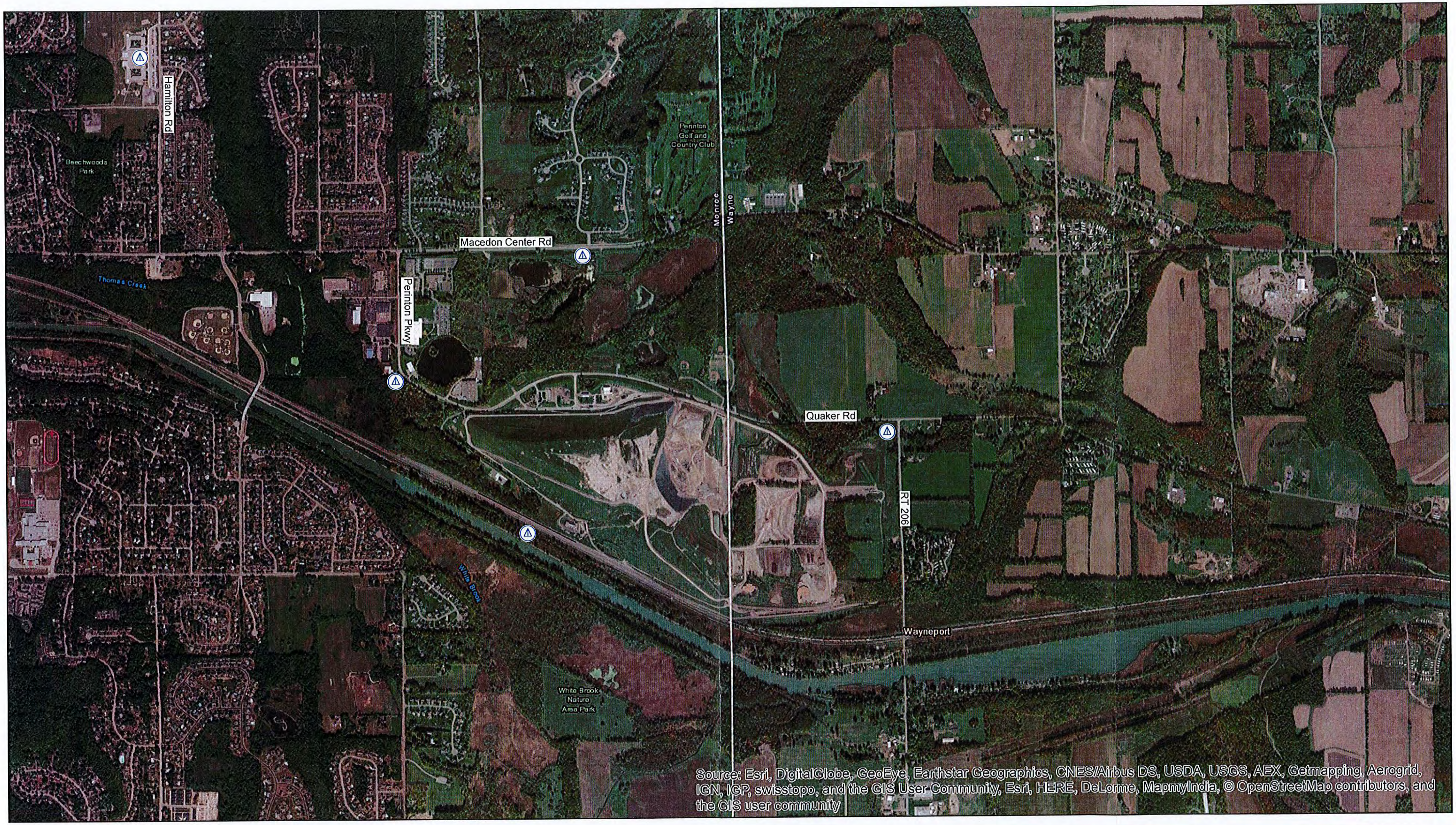

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LEGEND

Ⓐ AMBIENT AIR MONITORING LOCATION

GHD

WASTE MANAGEMENT HIGH ACRES LANDFILL
FAIRPORT, NEW YORK
AMBIENT AIR MONITORING

89290-00

AMBIENT AIR MONITORING LOCATIONS

FIGURE 2

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