Bridgeton Landfill Semi-Annual Ambient Air Sampling

Summary of Findings from the First and Second Semi-Annual Events, 2019

December 20, 2019

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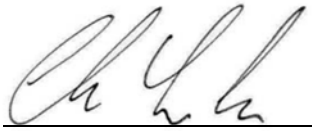
Prepared by 
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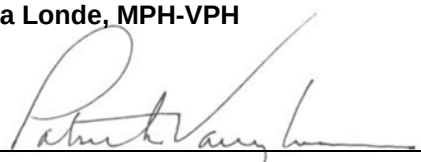
Reviewed by 
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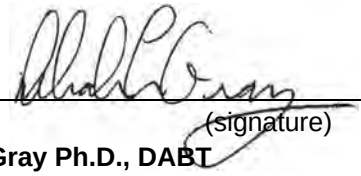
Approved by 
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Executive Summary

This report describes the methods and presents the findings from the first (January 10, 2019) and second (August 13, 2019) semi-annual sampling events conducted by Stantec Consulting Services Inc. (Stantec) on the Bridgeton Landfill, LLC (Bridgeton) facility located at 13570 St. Charles Rock Road, Bridgeton, Missouri (the landfill). These events fulfill the requirements of the Final Consent Judgment (Judgement) approved on June 29, 2018 and executed by the State of Missouri Attorney General, the Missouri Department of Natural Resources (MDNR), and Bridgeton Landfill LLC. The Judgment required Bridgeton to conduct two comprehensive ambient air sampling events on the landfill within eighteen months of the date from which the Judgment was entered and no sooner than six months apart. In accordance with the requirements of the Judgment and the Sampling Work Plan (submitted to MDNR November 2, 2018), ambient air samples were collected at two locations upwind and two locations downwind of the South Quarry and analyzed for the following prescribed parameters and analytical methods:

- Volatile Organic Compounds (VOCs) by EPA Method T0- 15 plus Tentatively Identified Compounds (TICs)
- Reduced Sulfur Compounds by ASTM Method 5504
- Aldehydes by EPA Method T0-11A
- Ammonia by OSHA ID 188
- Carboxylic Acids by ALS Global Laboratories (ALS) by Method (AQL 102))
- Amines by ALS Method AQL 101

Findings and Conclusions

The following conclusions are based on the findings of the first and second semi-annual sampling events as well as multiple comprehensive air sampling events conducted between 2012 and 2015 (reports available at www.bridgetonlandfill.com). The results of the first semi-annual sampling event are included as Appendix D.

- Amines, ammonia, carboxylic acids and reduced sulfur compounds were not detected in either sampling event at or above laboratory method reporting limits (MRLs) in any upwind or downwind sample. Except for triethylamine and hydrogen sulfide, all MRLs were below applicable screening levels.

- In both sampling events, low concentrations of aldehydes and VOCs were detected in ambient air. However, the following evidence indicates that the landfill is not the source of these compounds:

    - Concentrations of aldehydes and VOCs in ambient air are similar when comparing upwind to downwind samples, suggesting that all samples are representative of constituents of potential concern (COPC) concentrations in the regional air mass.

- The concentrations of aldehydes detected in upwind and downwind ambient air are within the background range for urban areas, including St. Louis.

- During the first semi-annual event, nine different VOCs were detected in ambient air samples: acetonitrile, dichlorodifluoromethane (CFC 12), ethyl acetate, methylene chloride, propene, trichlorofluoromethane (CFC 11), sulfur dioxide, n-pentane, and hexamethylcyclotrisiloxane. During the second event, ten (10) different VOCs were detected in ambient air samples: acetone, acetonitrile, benzene, dichlorodifluoromethane (CFC 12), d-limonene, ethanol, ethyl acetate, propene, toluene, and trichlorofluoromethane (CFC 11). VOC concentrations were low and do not pose a risk to human health or the environment. In addition, and with a few exceptions, the same compounds were detected at similar concentrations in ambient air from upwind and downwind sample locations; suggesting that the COPCs in ambient air are representative of the regional air mass. There is no evidence of an impact from the landfill on ambient air quality.

- Benzene is a COPC that is commonly detected in ambient air in urban settings.

    - Benzene was not detected above laboratory reporting limits during the first semi-annual event.

    - Benzene was detected in the second semi-annual event in one upwind sample (813 U2-Summa) at a concentration (1.1 µg/m^3) which is slightly above the method reporting limit (0.79 µg/m^3) and slightly exceeds the USEPA residential RSL (0.36 µg/m^3). The detection was in an upwind sample, which is representative of the regional air mass prior to moving over the landfill; therefore, the landfill is unlikely to be the source of this benzene detection. The detected concentration was low and consistent with regional background concentrations.

- In both sampling events, formaldehyde concentrations slightly exceeded US EPA residential and industrial RSLs (0.22 µg/m^3 and 0.94 µg/m^3, respectively); however, concentrations upwind and downwind were similar, suggesting that the formaldehyde concentrations in ambient air are representative of the regional air mass. There is no evidence of an impact from the landfill on ambient air quality.

- The totality of the evidence from the six comprehensive sampling events (2012 to 2015, January 2019) and the second semi-annual sampling event (August 2019) demonstrates that the remedial measures including the Ethylene Vinyl Alcohol (EVOH) liner, the leachate pre-treatment system, and the gas collection system/flare have been effective in controlling the potential for release of landfill gas to ambient air.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienist
ALS	ALS Global Laboratories
ASTM	American Society for Testing and Materials
CFC	Chlorofluorocarbon
COPC	Constituent of Potential Concern
HI	Hazard Index
H_2S	Hydrogen Sulfide
EDD	Electronic Data Deliverable
EVOH	Ethylene Vinyl Alcohol Liner
MDNR	Missouri Department of Natural Resources
mmHg	Millimeters of Mercury
MDL	Laboratory Analytical Method Detection Limit
MPH	Miles per Hour
MRL	Laboratory Analytical Method Reporting Limit
NTIS	National Technical Information service
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
TICs	Tentatively Identified Compounds
TLV	Threshold Limit Value
RSL	U.S. EPA Regional Screening Levels
US EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This report describes the methods and presents the findings from the first (January 10, 2019) and second (August 13, 2019) semi-annual sampling events conducted by Stantec Consulting Services Inc. (Stantec) on the Bridgeton Landfill, LLC (Bridgeton) facility located at 13570 St. Charles Rock Road, Bridgeton, Missouri (the landfill). These events fulfill the requirements of the Final Consent Judgment (Judgement) approved on June 29, 2018 and executed by the State of Missouri Attorney General, the Missouri Department of Natural Resources (MDNR), and Bridgeton Landfill LLC. The Judgment required Bridgeton to conduct two comprehensive ambient air sampling events on the site within eighteen months of the effective date of the Judgment and no sooner than six months apart. In accordance with the requirements of the Judgment and the Sampling Work Plan (submitted to MDNR November 2, 2018), ambient air samples were collected at two locations upwind and two locations downwind of the South Quarry and analyzed for the following constituents of potential concern (COPCs):

- Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (US EPA) Method T0- 15 plus Tentatively Identified Compounds (TICs)
- Reduced Sulfur Compounds by American Society for Testing and Materials (ASTM) Method 5504
- Aldehydes by US EPA Method T0-11A
- Amines by ALS Global Laboratories (ALS) Method AQL 101
- Ammonia by Occupational Safety and Health Administration (OSHA) ID 188
- Carboxylic Acids by ALS Method AQL 102

2.0 CONSTITUENTS OF POTENTIAL CONCERN IN AMBIENT AIR

The Judgment prescribed that ambient air samples collected during the semi-annual events be analyzed for the COPCs listed in Section 1.0 of this report. These constituents are commonly associated with odors and can be of concern to public health when present in ambient air at elevated concentrations, or when persistently present above hazardous screening levels. The COPCs evaluated during the semi-annual events represent a subset of the COPCs that were evaluated in historical ambient air sampling events conducted at the landfill from 2012 through 2015. Historical ambient air sampling events included the evaluation of the following additional COPCs: hydrogen cyanide, hydrogen chloride, sulfur dioxide, mercury, polynuclear aromatic hydrocarbons, polychlorinated dioxins and polychlorinated dibenzofurans. However, these compounds were not detected in historical samples; therefore, sampling for these compounds during the semi-annual events was not prescribed in the Judgement.

In addition to the sampling conducted by Bridgeton Landfill, MDNR instituted a regular (daily) community air monitoring program in May 2013. The program consists of an individual who traverses a prescribed path ("daily path") around the exterior of the landfill (off-site) at pre-determined locations, recording odors and taking real-time measurements of benzene using a RAE® Systems UltraRAE 3000 benzene monitor and hydrogen sulfide (H_2S) using a Jerome® J-605 Hydrogen Sulfide Analyzer. The Judgement required Bridgeton Landfill to assume the "daily path" monitoring program from MDNR and to conduct monitoring for a period of one year. Bridgeton Landfill conducted daily monitoring from July 15, 2018 to September 21, 2019. Based on the data collected, there was no evidence that benzene or hydrogen sulfide were present at concentrations of potential concern for public health. Based on this evidence, MDNR approved the letter "*Request to Terminate Daily Path Monitoring at Bridgeton Landfill*" (submitted, September 3, 2019; approved on September 27, 2019); therefore, daily path monitoring ceased as of September 2019. Historical ambient air sampling reports and daily path reports are available on the Bridgeton website: http://www.bridgetonlandfill.com.

3.0 SAMPLING METHODOLOGY

The sampling methods for the second semi-annual event are detailed in the work plan submitted to MDNR: "*Semi-Annual Air Sampling at the Bridgeton Landfill: Sampling Work Plan"* – approved November 27, 2018. Any deviations from the sampling methodology during the sampling event are discussed in Section 3.3 of this report.

The following table summarizes the methods and sample collection media and provides links to the analytical methods.

Analytical Methods and Collection Media	
Constituents of Concern	**Analytical Method**
6-Liter Individually Certified Clean Silonite™ Summa Canisters – 8-hour samples	
Reduced Sulfur Compounds	ASTM D5504 https://www.astm.org/Standards/D5504.htm
Volatile Organic Compounds + TICs	EPA TO-15 https://www.epa.gov/sites/production/files/2015-07/documents/epa-to-15_0.pdf
Sorbent Tube; Low Flow Sampling Pump – 4-hour samples	
Aldehydes (Carbonyl Compounds)	EPA TO-11A https://www3.epa.gov/ttnamti1/files/ambient/airtox/to-11ar.pdf
Amines	ALS Lab Method AQL 101 http://www.caslab.com/Forms-Downloads/Flyers/AMINES_METHOD_101_FLYER.pdf
Ammonia	OSHA ID-188F https://www.osha.gov/dts/sltc/methods/inorganic/id188/id188.html
Carboxylic Acids	ALS Lab Method AQL 102 http://www.caslab.com/Forms-Downloads/Flyers/CARBOXYLIC_SAMPLING_FLYER.pdf

3.1 COLLECTION OF AMBIENT AIR SAMPLES

Samples were collected to characterize the COPCs in the local/regional ambient air mass moving onto the landfill before passing over the South Quarry (upwind or background) and ambient air moving off the landfill towards the surrounding community (downwind). All samples were collected on-site at the perimeter of the Bridgeton Landfill property. Sampling methodology was consistent with the historic upwind and downwind sampling events with the wind-direction predominantly from the northwest.

The following list describes specific ambient air sample locations and relative to the wind direction at the time of the event.

- Upwind Locations – August 13, 2019
    - Upwind 1 – Former Construction and Demolition Landfill area (also referred to as the Grassy Knoll (North))
    - Upwind 2 - Former Construction and Demolition Landfill area (also referred to as the Grassy Knoll (South))
- Downwind Locations – August 13, 2019
    - Downwind 1 - East Fence
    - Downwind 2 - South Fence

3.2 QUALITY ASSURANCE PROCEDURES

The Quality Assurance/Quality Control (QA/QC) procedures for this project address: field sampling procedures; documentation of sampling conditions, instrument calibration, sample identification, sample custody, and data validation are briefly described below.

3.2.1 Quality Assurance for Field Sampling

Sampling quality assurance encompasses standard procedures used for pre-sample calibration of sampling pumps, care and handling of samples before, during, and after sample collection, post-calibration of sampling pumps, and procedures to minimize potential cross contamination and interferences.

Appendix A, Table A-1 provides specific details on sample collection times and instrument calibration. ALS laboratories confirmed that the samples were received intact under chain of custody on August 14, 2019 and were stored in accordance with the analytical method requirements.

Table 1 lists all samples collected by analytical group, date, and individual sample identifiers including trip blanks, field blanks and field duplicate samples.

3.2.1.1 Instrument Calibration

Each personal sampling pump was pre-calibrated using a BIOS Defender Model 510-M revC1 (BIOS International, Mesa Labs, Butler New Jersey) mechanical/digital calibration device traceable to the National Technical Information Service (NTIS) with representative sampling media in place for each type of sample. After sample collection, the pumps were post-calibrated using the same calibration device and analyte-specific sorbent tubes. Where discrepancies between pre- and post-samples were noted, the change was assumed to be linear over time. The sample volumes provided to the analytical laboratory were the arithmetic average of the pre- and post-calibration values.

3.2.2 Independent Data Validation

The laboratory results packages and Electronic Data Deliverables (EDDs) received from ALS Laboratories were reviewed by Stantec's analytical chemist. As part of the review, a data validation report corresponding to the laboratory data package was prepared (Appendix C). All data were deemed acceptable with regards to precision, sensitivity, accuracy, representativeness, method compliance and completeness.

3.2.3 Trip Blanks, Field Blanks and Field Duplicate Samples

Blank samples are used to identify potential sources of contamination during sampling, shipping, storage and analysis (US EPA, 2014). Trip blanks are media provided by the analytical laboratory prior to the sampling event. Trip blanks are kept with the investigative samples throughout the entire sampling event. However, trip blanks are never opened and are never exposed to ambient air. Then they are packaged and shipped with the investigative samples for analysis. Trip blanks are designed to identify contamination associated with shipping and laboratory sources of contamination. A total of five trip blanks were collected during the second semi-annual sampling event.

Field blanks are samples that are exposed to field and sampling conditions and are kept with the investigative samples throughout the entire sampling event. The sampling media is treated in a manner consistent with the investigative media. Field blanks are designed to determine the effectiveness of laboratory decontamination procedures and the effect of exposure to ambient on-site conditions. Unlike investigative samples, at no time is ambient air physically drawn through or into either type of sample media (Silonite™ canisters or sorbent tubes). A total of six field blanks were collected during the second semi-annual sampling event.

Duplicate (co-located) samples are two paired, independent samples, collected at a given point in time and space. Duplicate samples provide information on laboratory precision for the entire sampling process (i.e. sample collection to analysis). A total of five duplicate samples were collected during the second semi-annual sampling event.

3.2.4 Technical Quality Assurance for Report Preparation

This report has undergone both technical quality and independent peer review by appropriate senior level individuals.

- All data tables were checked against the original laboratory analytical reports by a team member who did not compile the original tables. Other quantitative information presented in this report, such as exposure screening levels, were independently verified.
- The Quality Review and Independent Peer Reviews were conducted by senior-level individuals with the appropriate expertise and credentials, and who have minimal or no involvement in preparing the report.

3.3 DEVIATIONS FROM SAMPLING SCHEDULE OR METHODS

The following list details deviations from the sampling schedule as presented in Table 1:

- The aldehyde sample collected at “Upwind 1” was submitted with an estimated end-time as the sample pump stopped running prior to retrieval. The pump stopped at a total run time of 99 minutes yielding a total flow of 123.3 liters.

- Due to the presence of VOCs in field blanks (contamination) during the first semi-annual sampling event, Stantec collected two field blanks using two slightly different methods during the second semi-annual sampling event. The methods used to collect the first field blank were consistent with methods used during the first semi-annual sampling event. The second method was employed to help determine if the dedicated flow controller could potentially be the source of contamination in previous field blanks.

    - **Field Blank 1:** For the first field blank, a laboratory supplied dedicated flow controller with the flow cap intact was attached to the canister, the valve on the canister was opened, the pressure was recorded, the canister valve was securely closed, and the flow controller was removed. The canister was then packaged, labelled (813-Summa-FB1), and shipped for analysis with the investigative samples.

    - **Field Blank 2:** For the second field blank, a laboratory provided digital gauge was attached to the canister, the valve on the canister was opened, the pressure displayed on the gauge was recorded, the canister valve was securely closed, and the digital gauge was removed. The canister was packaged, labelled (813-Summa-FB2), and shipped for analysis with the investigative samples.

No other deviations from the sampling work plan occurred during the August 13, 2019 second semi-annual event.

4.0 SAMPLING LOCATIONS

Table 1 summarizes the ambient air samples collected during the second semi-annual event. Figure 1 shows ambient air sample locations on an aerial view of the landfill. The sampling strategy was designed to characterize the COPCs in the local/regional ambient air mass moving onto the landfill before passing over the landfill (upwind or background) and ambient air moving off the South Quarry landfill towards the surrounding community (downwind). All downwind sample locations were on the facility boundary (fence-line).

Sampling locations were selected based on wind direction relative to the landfill at the onset of sampling.

4.1 UPWIND SAMPLE LOCATION

On August 13, 2019 winds were out of the northwest switching between north-northwest/west-northwest during the day. Wind speeds ranged from 8 mph to 15 miles per hour (MPH). Stantec deployed the upwind samples at the former Construction and Demolition Landfill location. The area is also known as the “Grassy Knoll” from previous comprehensive sampling events.

4.2 DOWNWIND SAMPLING LOCATIONS

Downwind ambient air samples represent air moving from the South Quarry area of the landfill into the surrounding community. Samples were collected on the perimeter of the landfill along the south and east fence-lines of the facility.

5.0 ANALYTICAL RESULTS

Review of the laboratory analytical reports, data validation forms, field notes and instrument calibration records indicate that all investigative data are acceptable for the intended purpose. The ALS laboratory analytical results report is presented in appendix B. Table 2 details the sampling results, laboratory method reporting limits (MRLs) and relevant screening levels. Table 3 presents sampling results and screening levels for detected COPCs only. Table 4 presents analytical results for QA/QC samples (trip blanks and field blanks).

Laboratory analytic results for analytes that were not detected above the MRL were reported as less than MRL (ug/m^3). MRLs are derived from the method detection limit, which is defined as the minimum measured concentration of an analyte that can be reported with 99% confidence. MRLs are established by raising the MDL by a "safety factor" of two to ten times. The degree of the safety factor (2-10) is decided by the individual lab. Compounds that are detected at concentrations above the MDL, but below the MRL, are reported as estimated concentrations and are qualified with a "J".

5.1 PUBLIC HEALTH AND OCCUPATIONAL SCREENING LEVELS FOR AMBIENT AIR

Along with the analytical results, health-based screening levels are provided in the four columns on the left-hand side of the ambient air results in Tables 2, 3 and 4, as a "point of reference" for the analyte concentrations in ambient air collected at the perimeter of the landfill. Two general categories of screening levels are presented and discussed: risk-based screening levels and occupational exposure limits.

The US EPA risk-based Regional Screening Levels (RSLs) are concentrations of constituents in ambient air in residential (Resident Air RSL) and industrial settings (Industrial Air RSL) considered to be protective of individuals who are exposed to those concentrations over many years. RSLs for carcinogenic chemicals are derived to correspond to an excess lifetime cancer risk of 1 in 1,000,000 (1 in 1 million or 1E-06) for a person who is assumed to be exposed to that concentration on an ongoing basis over an extended period of time (25 years for industrial and 30 years for residential). US EPA updates the RSL tables two times a year. The most recent RSL concentrations (April 2019) were used in this report.

Although the US EPA RSLs for carcinogenic chemicals were derived to correspond to a cancer risk of 1 in 1,000,000, many states and other jurisdictions consider a cancer risk of 1 in 100,000 to be a point of departure for regulating chemicals in the environment and mitigating potential risks. For carcinogenic chemicals such as benzene, the RSL concentrations for ambient air presented in the tables (residential RSL - 1.6 µg/m^3 and industrial RSL - 0.36 µg/m^3) would be ten times higher for a target cancer risk of 1 in 100,000, 16 µg/m^3 and 3.6 µg/m^3, respectively. We have conservatively chosen to present the lower concentrations that correspond to an excess cancer risk of 1 in a 1,000,000.

For chemicals that may produce adverse non-cancer health effects (and are not considered to be carcinogens) RSLs correspond to concentrations that are very unlikely to produce adverse health effects in people who are exposed to those concentrations over many years. Non-cancer RSL concentrations

were derived to correspond to a non-cancer hazard index (HI) of 1. For most states and jurisdictions an estimated hazard index greater than 1 for non-cancer health effects from potential exposures to chemicals in the ambient environment is the point of departure for further evaluation and consideration of actions to mitigate the exposure.

Concentrations of constituents below applicable RSL concentrations are not a concern for public health. Concentrations above RSLs do not mean that adverse health effects will occur but indicate that additional evaluation may be appropriate. RSLs are extremely conservative and do not account for other (non-environmental) sources of exposure to the same chemicals or personal risk factors for developing disease.

Occupational Exposure Limits (OELs), published as OSHA Permissible Exposure Limits (PELs) and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), are exposure limits promulgated to protect a worker that handles these COPCs as part of their regular job duties. Workers on the landfill do not directly handle COPCs; however, PELs and TLVs are presented to help put COPC concentrations detected in ambient air into perspective. ACGIH TLVs are health-based values and refer to concentrations of chemical substances and represent conditions under which it is believed nearly all workers may be repeatedly exposed, day after day, over a working lifetime, without adverse health effects. OSHA PELs are based on 1969 TLVs with the exception that some have been updated as substance specific standards to reflect more current toxicological data and research.

5.2 SILONITE™ CANISTER SAMPLING

5.2.1 Volatile Organic Compounds + TICs

During the first semi-annual event, nine different VOCs were detected in ambient air samples: acetonitrile, dichlorodifluoromethane (CFC 12), ethyl acetate, methylene chloride, propene, trichlorofluoromethane (CFC 11), sulfur dioxide, n-pentane, and hexamethylcyclotrisiloxane. An additional three TICs were detected in the upwind and downwind samples.

The analytical results for the upwind and downwind samples collected on August 13, 2019 and relevant screening levels are presented in Tables 2, 3 and 4. A total of ten (10) different VOCs from the standard analyte list were detected in ambient air samples: acetone, acetonitrile, benzene, dichlorodifluoromethane (CFC 12), d-limonene, ethanol, ethyl acetate, propene, toluene, and trichlorofluoromethane (CFC 11). An additional thirteen TICs were detected in the upwind and downwind samples.

Detected concentrations during both semi-annual events are very low and near the laboratory MRLs. Except for benzene, acetaldehyde and 2-Ethyl-1-hexanol, no detected VOC concentration exceeds US EPA RSLs, ACGIH TLVs or OSHA PELs. All these compounds were detected in at least one upwind sample, suggesting that they are representative of the regional air mass and the concentrations are not impacted by the landfill.

Note that laboratory MRLs for several chlorinated and brominated solvents exceed US EPA RSLs. Chlorinated compounds were not detected during historical source gas sampling events or the second semi-annual event and are not expected to be present in ambient air at concentrations exceeding RSLs.

Benzene is a constituent that is commonly detected in ambient air in urban settings.Benzene was not detected above laboratory reporting limits during the first semi-annual event. Benzene was detected in the second semi-annual event in one upwind sample (813 U2-Summa) at a concentration (1.1 µg/m^3) which is slightly above the method reporting limit (0.79 µg/m^3) and slightly exceeds the USEPA residential RSL. The detection was in an upwind sample, which is representative of the regional air mass prior to moving over the landfill; therefore, the landfill is unlikely to be the source of this benzene detection. To put the screening level concentrations of benzene in ambient air into context, the annual average benzene concentration reported by the St. Louis Community Air Project (US EPA 2005) was 1.5 µg/m^3. According to US EPA (2010), for the United States as a whole, the mean and 90th percentile concentrations of benzene in ambient air in 2009 were 0.85 µg/m^3 and 1.39 µg/m^3, respectively. The detected concentration is consistent with regional background benzene concentrations.

During both sampling events, VOC concentrations were low and do not pose a risk to human health or the environment. In addition, and with a few exceptions, the same compounds were detected at similar concentrations in ambient air from upwind and downwind sample locations; suggesting that the COPCs in ambient air are representative of the regional air mass. There is no evidence of an impact from the landfill on ambient air quality.

5.2.2 Reduced Sulfur Compounds

No reduced sulfur compounds including dimethyl sulfide, dimethyldisulfide, hydrogen sulfide and mercaptans, were detected during in either the first or second semi-annual sampling event of 2019.

Although hydrogen sulfide was not detected in any sample, the laboratory MRLs for hydrogen sulfide for the second semi-annual monitoring event (range of MRLs - <10 to <11 µg/m^3) slightly exceed US EPA RSLs (industrial - 8.8 µg/m^3, residential – 2.1 µg/m^3) corresponding to a non-cancer Hazard Quotient of 1.0. However, daily path monitoring for hydrogens sulfide has been conducted in the communities surrounding Bridgeton using a Jerome J-605 monitor®, which can detect hydrogen sulfide at or below the RSL concentrations. Hydrogen sulfide concentrations collected during daily path monitoring (May 2013 to September 21, 2019) have consistently remained below US EPA RSLs. The data are available on the Bridgeton website: http://www.bridgetonlandfill.com.

5.3 SORBENT TUBE; LOW FLOW SAMPLING PUMP

5.3.1 Aldehydes (Carbonyl Compounds)

Low concentrations of three aldehyde compounds (acetaldehyde, formaldehyde and n-hexaldehyde) were detected during the first and second semi-annual monitoring events. The detected concentrations are very low and near the laboratory MRLs. Formaldehyde and acetaldehyde concentrations slightly exceeded their US EPA residential RSLs (0.22 µg/m3 and 1.3 µg/m3, respectively) at a cancer risk of 1 in 1,000,000; however, concentrations upwind and downwind were similar, suggesting that the formaldehyde and acetaldehyde concentrations in ambient air are representative of the regional air mass. There is no evidence of an impact from the landfill on ambient air quality.

To put the detected concentrations of formaldehyde and acetaldehyde into context, the annual average formaldehyde and acetaldehyde concentrations reported by the St. Louis Community Air Project (US EPA

2005) was 4.6 µg/m^3 and 4.83 µg/m^3, respectively; which are greater than the detected concentrations in the upwind/downwind samples and larger than the US EPA residential RSL.

5.3.2 Amines

No amine compounds were detected in any sample collected during the first or second semi-annual ambient air monitoring event.

Triethylamine was not detected in any sample; however, the laboratory MRLs for triethylamine (<34 to <44 µg/m^3) slightly exceed US EPA RSLs (industrial - 31 µg/m^3, residential – 7.3 µg/m^3). Triethylamine was not detected during historical source gas sampling events and is not expected to be present in ambient air at concentrations exceeding RSLs.

5.3.3 Ammonia

Ammonia was not detected in sample collected during the first or second semi-annual ambient air monitoring event. The laboratory MRL was below all applicable screening levels.

5.3.4 Carboxylic Acids

No carboxylic acids were detected in any sample collected during the first or second semi-annual ambient air monitoring event. Laboratory MRLs were below applicable screening levels.

5.4 QUALITY ASSURANCE QUALITY CONTROL SAMPLES

Trip Blanks: One compound, 2-Ethyl-1-hexanol, was detected in the trip blank. The detected concentration, 3.5 µg/m^3 exceeded the US EPA RSLs for industrial and residential air, 1.8 µg/m^3 and 0.42 µg/m^3, respectively. The 2-Ethyl-1-hexanol present in the trip blank was compared to concentrations in the investigative samples. 2-Ethyl-1-hexanol was detected at low levels (3.0 – 6.1 µg/m^3) in the Upwind-1, Downwind 1 and Downwind-1 Dupe, Downwind 2 and the Trip Blank suggesting canisters may have been contaminated prior to shipment or during analysis. Note that trip blank sample bottles are not opened during field sampling procedures.

Field Blanks: Several VOCs were detected in the field blank samples collected in laboratory provided certified clean Silonite™ canisters. The same issue occurred during the first semi-annual monitoring event. Section 3.3 describes QA/QC procedures employed to help determine if the dedicated flow controller could potentially be the source of contamination in previous field blanks.

Two compounds were detected in Field Blank 2 above US EPA residential RSLs or occupational exposure limits: naphthalene (3.2 µg/m$^{3)}$ and sulfur dioxide (180 µg/m^3). However, the detection of sulfur dioxide was flagged with a laboratory qualifier *"(!) - Previous studies have shown that EPA Method TO-15 is not an appropriate method for quantifying Sulfur Dioxide"* and should not be considered a reliable result. Naphthalene was not detected in any upwind or downwind ambient air sample or other QA/QC sample. Except for hexamethylcyclotrisiloxane, this sample also had several low-level detections of VOCs and TICs that were not present in any other QA/QC or investigative sample. These detections

suggest that the digital gauge used for the shut-in testing was a potential source of low-level contamination.

The table below provides a comparison of the upwind and downwind TO-15 and TICs sample results to the QA/QC samples.

Analyte	Analyte Concentrations in µg/m^3							
	TB	**FB-1**	**FB-2**	**U-1**	**U-2**	**D-1**	**DUPE**	**D-2**
Carbon disulfide	<	<	**1.5**	<	<	<	<	<
Ethanol	<	**28**	<	**21**	**20**	**14**	**16**	**47**
Naphthalene	<	<	**3.2**	<	<	<	<	<
Sulfur Dioxide (4.30)	--	--	**>180**	--	--	--	--	--
Unknown (9.56)	--	--	**3.7**	--	--	--	--	--
Trimethylsilanol (10.21)	--	**2.0**	--	**3.2**	--	--	--	**5.4**
Propylene glycol (14.81)	--	**3.2**	--	--	--	--	--	--
Acetic acid (11.17)	--	--	**2.0**	--	--	--	--	--
Dimethyl disulfide (15.18)	--	--	**35**	--	--	--	--	--
Hexamethylcyclotrisiloxane (17.33)	--	--	**53**	**13**	**3.5**	**7.1**	**3.6**	--
Methyl ethyl disulfide (17.44)	--	--	**2.6**	--	--	--	--	--
2-methyl-2-cyclopenten-1-one (18.53)	--	--	**7.2**	--	--	--	--	--
Dimethyl trisulfide (19.81)	--	--	**77**	--	--	--	--	--
Unknown (20.15)	--	--	**7.9**	--	--	--	--	--
Unknown (20.92)	--	--	**4.7**	--	--	--	--	--
2-Ethyl-1-hexanol (20.45)	**3.5**	--	--	**3.4**	--	**4.0**	**3.0**	**6.1**
Unknown Siloxane (21.85)	--	--	**6.6**	--	--	--	--	**2.9**
Dimethyltetrasulfide (22.55)	--	--	**4.0**	--	--	--	--	--

1. TB = Trip Blank; FB = Field Blank; U = Upwind Sample; D = Downwind sample; DUPE = Duplicate sample
2. < = Analyte not present above laboratory Method Reporting Limit (MRL) for EPA Method TO-15 Target Analytes.
3. "--" – Result not available for analytes reported as TICs for EPA Method TO-15.
4. 4. (0.0) – Number in parenthesis indicates retention time in minutes and seconds on the gas chromatography/mass spectrometry (GC/MS) column for TICs. For example - Trimethylsilanol (10.21).

The source of the continued contamination of QA/QC samples has not been determined. It appears the contamination of field blanks samples may be due to the use of contaminated instruments received from the analytical laboratory (e.g. flow controllers or digital pressure gauge) that were used to determine canister pressures.

6.0 SUMMARY AND CONCLUSIONS

The second semi-annual sampling event characterized COPC concentrations present in the ambient air that may contribute to the odors or are of potential concern for public health.

The following conclusions are based on the findings of the first and second semi-annual sampling events, as well as historic ambient air sampling events conducted at the Bridgeton Landfill. For reference, the results of the first semi-annual sampling event are included as Appendix D.

- Amines, ammonia, carboxylic acids and reduced sulfur compounds were not detected at or above laboratory MRLs in any upwind or downwind sample.

- Low concentrations of aldehydes were detected in ambient air. However, the following evidence indicates that the landfill is not the source of these compounds:

    - Concentrations of aldehydes in ambient air are similar when comparing upwind to downwind samples, suggesting that all samples are representative of COPC concentrations in the regional air mass. There is no evidence of an impact from the landfill on ambient air quality.

    - The concentrations of acetaldehyde and formaldehyde detected in upwind and downwind ambient air are within the background range for urban areas, including St. Louis.

- Low concentrations of VOCs were detected in ambient air. However, the following evidence indicates that the landfill is not the source of these compounds:

    - During the first semi-annual event, nine (9) different VOCs from the standard analyte list were detected in ambient air samples. An additional three TICs were detected in the upwind and downwind samples.

    - During the second semi-annual sampling event, a total of ten (10) different VOCs from the standard analyte list were detected in ambient air samples. An additional thirteen TICs were detected in the upwind and downwind samples.

    - Detected concentrations were very low and near the laboratory MRLs. Except for acetaldehyde, benzene and 2-Ethyl-1-hexanol, no detected VOC concentration exceeds US EPA RSLs, ACGIH TLVs or OSHA PELs.

        - There is anecdotal evidence that the presence of 2-Ethyl-1-hexanol may be due to laboratory contamination as discussed in Section 5.4.

        - Acetaldehyde and benzene were detected in at least one upwind sample, suggesting the concentrations are representative of concentrations in the regional air mass, e.g. the landfill is not the source of these detections.

- The detected concentration of acetaldehyde and benzene are consistent with regional background concentrations for St. Louis.

The totality of the evidence from the six comprehensive sampling events (2012 to 2015, January 2019) and the second semi-annual sampling event (August 2019) demonstrates that the remedial measures including the installation of the Ethylene Vinyl Alcohol (EVOH) liner, the leachate treatment system, and the gas collection system/flare have been effective in controlling the potential for release of landfill gas to ambient air.

7.0 REFERENCES

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US EPA, Regional Screening Levels (RSL) Tables, November 2018.

FIGURES

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BRIDGETON, MISSOURI 63044

AMBIENT AIR SAMPLING LOCATIONS
SECOND SEMI-ANNUAL SAMPLING EVENT
BRIDGETON LANDFILL

FIGURE:
1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
182608049	CK	CL	DG	08/28/19

TABLES

Table 1.
Second Semi-Annual Sampling Event 2019
Summary of Sampling Activities
August 13, 2019
Bridgeton Landfill, Bridgeton Missouri

Perimeter			
Upwind Locations		**Downwind Locations**	
Aldehydes/Carbonyl Compounds – Method: EPA TO-11a			
813U1-ALD ***813-DUPE01***	**813U2-ALD**	**813D1-ALD**	**813D2-ALD**
Amine Compounds – AQL 101			
813U1-AMINE	**813U2-AMINE**	**813D1-AMINE** ***813-DUPE02***	**813D2-AMINE**
Ammonia – Method: OSHA ID 188			
813U1-NH3	**813U2-NH3** ***813-DUPE03***	**813D1-NH3**	**813D2-NH3**
Carboxylic Acid Compounds – Method: CAS AQL 102			
813U1-CARBOX	**813U2-CARBOX**	**813D1-CARBOX**	**813D2-CARBOX** ***813DUPE-04***
Volatile Organic Compounds (VOCs) – Method: EPA TO15 + TICs – Standard Analyte List			
813U1-SUMMA	**813U2-SUMMA**	**813D1-SUMMA** ***813-DUPE10***	**813D2-SUMMA**
Reduced Sulfur Compound – ASTM D5504			
813U1-SUMMA	**813U2-SUMMA**	**813D1-SUMMA** ***813-DUPE10***	**813D2-SUMMA**

Notes:
Field Blanks and Trip Blanks were submitted for all analytical methods.

Table 2.
Second Semi-Annual Sampling Event 2019
Ambient Air Sampling Results (Concentrations µg/m^3)
August 13, 2019
Bridgeton Landfill, Bridgeton Missouri

Analyte	Screening Levels (µg/m^3)				Perimeter Sampling Locations			
	USEPA Industrial RSL	USEPA Residential RSL	OSHA PEL	ACGIH TLV	Upwind 1 (Old C&D Landfill/Grassy Knoll)	Upwind 2 (Old C&D Landfill/Grassy Knoll)	Downwind 1 (East Fence)	Downwind 2 (South Fence)
Aldehydes/Carbonyl Compounds – Method: EPA TO-11a								
Sample ID					**813U1-ALD (813-DUPE01)**	**813U2-ALD**	**813D1-ALD**	**813D2-ALD**
2,5-Dimethylbenzaldehyde	--	--	--	--	ND (Range of MRLs - <0.35 to <0.81)			
Acetaldehyde	5.6	1.3	360,000	45,000	**1.9 (1.3)**	**1.4**	**0.72**	**1.2**
Benzaldehyde	--	--	--	--	ND (Range of MRLs - <0.35 to <0.81)			
Butyraldehyde	--	--	--	--	ND (Range of MRLs - <0.35 to <0.81)			
Crotonaldehyde, Total	--	--	6,000	860	ND (Range of MRLs - <0.35 to <0.81)			
Formaldehyde	0.94	0.22	920	400	**3.3 (2.9)**	**3.0**	**2.7**	**2.8**
Isovaleraldehyde	--	--	--	--	ND (Range of MRLs - <0.35 to <0.81)			
m,p-Tolualdehyde	--	--	--	--	ND (Range of MRLs - <0.69 to <1.6)			
n-Hexaldehyde	--	--	--	--	**0.58 (0.46)**	**0.93**	**0.51**	**0.46**
o-Tolualdehyde	--	--	--	--	ND (Range of MRLs - <0.35 to <0.81)			
Propionaldehyde	35	8.3	--	48,000	ND (Range of MRLs - <0.35 to <0.81)			
Valeraldehyde	--	--	--	176,000	ND (Range of MRLs - <0.35 to <0.81)			
Amine Compounds – AQL 101								
Sample ID					**813U1-AMINE**	**813U2-AMINE**	**813D1-AMINE (813-DUPE02)**	**813D2-AMINE**
Diethylamine	--	--	75,000	15,000	ND (Range of MRLs - <34 to <44)			
Diisopropylamine	--	--	20,000	2,100	ND (Range of MRLs - <34 to <44)			
Dimethylamine	--	--	18,000	9,200	ND (Range of MRLs - <36 to <46)			
Dipropylamine	--	--	--	--	ND (Range of MRLs - <35 to <45)			
Ethylamine	--	--	18,000	9,000	ND (Range of MRLs - <37 to <47)			
Isobutylamine	--	--	--	--	ND (Range of MRLs - <35 to <45)			
Isopropylamine	--	--	12,000	12,000	ND (Range of MRLs - <41 to <45)			
n-Butylamine	--	--	15,000	15,000	ND (Range of MRLs - <35 to <45)			
n-Propylamine	--	--	--	--	ND (Range of MRLs - <36 to <46)			
sec-Butylamine	--	--	--	--	ND (Range of MRLs - <34 to <44)			
tert-Butylamine	--	--	--	--	ND (Range of MRLs - <34 to <44)			
Triethylamine	31	7.3	100,000	2,070	ND (Range of MRLs - <34 to <44)			
Trimethylamine	--	--	--	--	ND (Range of MRLs - <35 to <45)			
Ammonia – Method*: OSHA ID 188*								
Sample ID					**813U1-NH3**	**813U2-NH3 (813-DUPE03)**	**813D1-NH3**	**813D2-NH3**
Ammonia	2,200	520	35,000	17,500	ND (MRL - <110)			
Carboxylic Acid Compounds – Method: CAS AQL 102								
Sample ID					**813U1-CARBOX**	**813U2-CARBOX**	**813D1-CARBOX**	**813D2-CARBOX (813DUPE-04)**
2-Ethylhexanoic Acid	--	--	--	--	ND (Range of MRLs - <2.7 to <3.0)			
2-Methylbutanoic Acid	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
2-Methylpentanoic Acid	--	--	--	--	ND (Range of MRLs - <2.5 to <2.9)			
2-Methylpropanoic Acid (Isobutyric)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
3-Methylbutanoic Acid (Isovaleric)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
3-Methylpentanoic Acid	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
4-Methylpentanoic Acid (Isocaproic)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.9)			
Acetic Acid	--	--	25,000	2,500	ND (Range of MRLs - <20 to <23)			
Benzoic Acid	--	--	--	--	ND (Range of MRLs - <2.8 to <3.2)			
Butanoic Acid (Butyric)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
Cyclohexanecarboxylic Acid	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
Heptanoic Acid (Enanthoic)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
Hexanoic Acid (Caproic)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
Nonanoic Acid (Pelargonic)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
Octanoic Acid (Caprylic)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
Pentanoic Acid (Valeric)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
Propionic Acid (Propanoic)	--	--	--	--	ND (Range of MRLs - <2.5 to <2.8)			
Volatile Organic Compounds (VOCs) – Method: EPA TO15 + TICs – Standard Analyte List								
Sample ID					**813 U1-Summa**	**813 U2-Summa**	**813 D1-Summa (813-DUPE10)**	**813 D2-Summa**
1,1,1-Trichloroethane	22,000	5,200	1,900,000	1,900,000	ND (Range of MRLs - <0.80 to <0.86)			
1,1,2,2-Tetrachloroethane	0.21	0.048	35,000	6,900	ND (Range of MRLs - <0.79 to <0.85)			
1,1,2-Trichloroethane	0.77	0.18	45,000	55,000	ND (Range of MRLs - <0.80 to <0.86)			
1,1-Dichloroethane	7.7	1.8	400,000	400,000	ND (Range of MRLs - <0.77 to <0.83)			
1,1-Dichloroethene	880	210	--	--	ND (Range of MRLs - <0.80 to <0.86)			
1,2,4-Trichlorobenzene	8.8	2.1	--	3700c	ND (Range of MRLs - <0.79 to <0.85)			
1,2,4-Trimethylbenzene	260	63	--	--	ND (Range of MRLs - <0.79 to <0.85)			
1,2-Dibromo-3-chloropropane	0.002	0.00017	10	--	ND (Range of MRLs - <0.77 to <0.83)			
1,2-Dibromoethane	0.02	0.0047	150,000	--	ND (Range of MRLs - <0.80 to <0.86)			
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	--	--	417,000	4,170,000	ND (Range of MRLs - <0.76 to <0.82)			
1,2-Dichlorobenzene	880	210	300,000	150,000	ND (Range of MRLs - <0.80 to <0.86)			
1,2-Dichloroethane	0.47	0.11	200,000	4,000	ND (Range of MRLs - <0.79 to <0.85)			
1,2-Dichloropropane	3.3	0.76	350,000	46,000	ND (Range of MRLs - <0.80 to <0.86)			
1,3,5-Trimethylbenzene	260	63	--	--	ND (Range of MRLs - <0.79 to <0.85)			
1,3-Butadiene	0.41	0.094	2,000	4,400	ND (Range of MRLs - <0.77 to <0.83)			
1,3-Dichlorobenzene	--	--	--	--	ND (Range of MRLs - <0.80 to <0.86)			
1,4-Dichlorobenzene	1.1	0.26	450,000	60,000	ND (Range of MRLs - <0.80 to <0.86)			
1,4-Dioxane	2.5	0.56	360,000	72,000	ND (Range of MRLs - <0.79 to <0.85)			
2-Butanone (MEK)	22,000	5,200	590,000	590,000	ND (Range of MRLs - <1.5 to <1.6)			
2-Hexanone (MBK)	130	31	410,000	20,500	ND (Range of MRLs - <0.80 to <0.86)			
Isopropyl Alcohol	880	210	980,000	490,000	ND (Range of MRLs - <3.1 to <3.4)			
3-Chloro-1-propene	2	0.47	3,000	3,000	ND (Range of MRLs - <0.79 to <0.85)			
4-Ethyltoluene	--	--	--	--	ND (Range of MRLs - <0.79 to <0.85)			
4-Methyl-2-pentanone	13,000	3,100	410,000	82,000	ND (Range of MRLs - <0.79 to <0.85)			
Acetone	140,000	32,000	2,400,000	594,000	**9.1**	**9.6**	**11** (<8.3)	**13**
Acetonitrile	260	63	70,000	34,000	**1.6**	**10**	<0.77 (<0.80)	**0.79**
Acrolein	0.088	0.021	250	250	ND (Range of MRLs - <1.5 to <1.6)			
Acrylonitrile	0.18	0.041	4,300	4,300	ND (Range of MRLs - <0.77 to <0.83)			
alpha-Pinene	--	--	--	--	ND (Range of MRLs - <0.77 to <0.83)			
Benzene	1.6	0.36	3,000	1,600	<0.83	**1.1**	<0.77 (<0.80)	<0.77
Benzyl Chloride	0.25	0.057	5,000	5,200	ND (Range of MRLs - <1.6 to <1.8)			
Bromodichloromethane	0.33	0.076	--	--	ND (Range of MRLs - <0.79 to <0.85)			
Bromoform	11	2.6	5,000	5,200	ND (Range of MRLs - <0.79 to <0.85)			
Bromomethane	22	5.2	80,000c	3,900	ND (Range of MRLs - <0.79 to <0.85)			
Carbon Disulfide	3100	730	62,000	3,000	ND (Range of MRLs - <1.6 to <1.8)			
Carbon Tetrachloride	2	0.47	62,000	31,000	ND (Range of MRLs - <0.77 to <0.83)			
Chlorobenzene	220	52	350,000	46,000	ND (Range of MRLs - <0.79 to <0.85)			
Chloroethane	44,000	10,000	2,600,000	264,000	ND (Range of MRLs - <0.76 to <0.82)			
Chloroform	0.53	0.12	240,000c	49,000	ND (Range of MRLs - <0.80 to <0.86)			
Chloromethane	390	94	206,000	103,000	ND (Range of MRLs - <0.75 to <0.80)			
cis-1,2-Dichloroethene	--	--	800,000	800,000	ND (Range of MRLs - <0.79 to <0.85)			
cis-1,3-Dichloropropene	3.1	0.7	--	--	ND (Range of MRLs - <0.83 to <0.90)			
Cumene	1,800	420	245,000	246,000	ND (Range of MRLs - <0.79 to <0.85)			
Cyclohexane	26,000	6,300	1,050,000	344,000	ND (Range of MRLs - <1.5 to <1.6)			

Table 2.
Second Semi-Annual Sampling Event 2019
Ambient Air Sampling Results (Concentrations µg/m^3)
August 13, 2019
Bridgeton Landfill, Bridgeton Missouri

Analyte	Screening Levels (µg/m^3)				Perimeter Sampling Locations			
	USEPA Industrial RSL	USEPA Residential RSL	OSHA PEL	ACGIH TLV	Upwind 1 (Old C&D Landfill/Grassy Knoll)	Upwind 2 (Old C&D Landfill/Grassy Knoll)	Downwind 1 (East Fence)	Downwind 2 (South Fence)
Dibromochloromethane	--	--	--	--	ND (Range of MRLs - <0.80 to <0.86)			
Dichlorodifluoromethane (CFC 12)	440	100	4,950,000	4,950,000	**2.5**	**2.4**	**2.5 (2.4)**	**2.5**
d-Limonene	--	--	--	--	<0.82	<0.78	<0.76 (<0.78)	**1.7**
Ethanol	--	--	1,900,000	1,880,000	**21**	**20**	**14 (16)**	**47**
Ethyl Acetate	310	73	1,400,000	1,440,000	**7.6**	**8.0**	**7.7 (8.4)**	**46**
Ethylbenzene	4.9	1.1	435,000	87,000	ND (Range of MRLs - <0.77 to <0.83)			
Hexachlorobutadiene	0.56	0.13	--	210	ND (Range of MRLs - <0.79 to <0.85)			
m,p-Xylenes	440	100	435,000	434,000	ND (Range of MRLs - <1.6 to <1.8)			
Methyl Methacrylate	3,100	730	410,000	205,000	ND (Range of MRLs - <1.6 to <1.8)			
Methyl tert-Butyl Ether	47	11	--	180,000	ND (Range of MRLs - <0.80 to <0.86)			
Methylene Chloride	1,200	100	87,000	174,000	ND (Range of MRLs - <0.80 to <0.86)			
Naphthalene	0.36	0.083	50,000	52,000	ND (Range of MRLs - <0.76 to <0.82)			
n-Butyl Acetate	--	--	710,000	--	ND (Range of MRLs - <0.80 to <0.86)			
n-Heptane	1,800	420	2,000,000	1,640,000	ND (Range of MRLs - <0.80 to <0.86)			
n-Hexane	3,100	730	1,800,000	176,000	ND (Range of MRLs - <0.80 to <0.86)			
n-Nonane	88	21	--	--	ND (Range of MRLs - <0.80 to <0.86)			
n-Octane	--	--	2,350,000	1,400,000	ND (Range of MRLs - <0.80 to <0.86)			
n-Propylbenzene	4,400	1,000	--	--	ND (Range of MRLs - <0.80 to <0.86)			
o-Xylene	440	100	435,000	434,000	ND (Range of MRLs - <0.79 to <0.85)			
Propene	13,000	3,100	--	--	<0.83	<0.79	<0.77 (<0.80)	**1.5**
Styrene	4,400	1,000	426,000	85,000	ND (Range of MRLs - <0.79 to <0.85)			
Tetrachloroethene	47	11	678,000	170,000	ND (Range of MRLs - <0.79 to <0.85)			
Tetrahydrofuran (THF)	8,800	2,100	590,000	147,500	ND (Range of MRLs - <0.79 to <0.85)			
Toluene	22,000	5,200	754,000	75,000	<0.85	<0.81	<0.79 (<0.81)	**1.6**
trans-1,2-Dichloroethene	--	--	790,000	793,000	ND (Range of MRLs - <0.79 to <0.85)			
trans-1,3-Dichloropropene	--	--	--	--	ND (Range of MRLs - <0.79 to <0.85)			
Trichloroethene	3	0.48	537,000	54,000	ND (Range of MRLs - <0.79 to <0.85)			
Trichlorofluoromethane (CFC 11)	--	--	5,600,000	5,620,000c	**1.2**	**1.1**	**1.2 (1.2)**	**1.2**
Trichlorotrifluoroethane/Trichloro-1,2,2-trifluoroethane, 1,1,2-	22000	5200	7,600,000	7,670,000	ND (Range of MRLs - <0.79 to <0.85)			
Vinyl Acetate	880	210	--	35,000	ND (Range of MRLs - <7.9 to <8.5)			
Vinyl Chloride	2.8	0.17	--	*20,000*	ND (Range of MRLs - <0.79 to <0.85)			
Volatile Organic Compounds (VOCs) –Method: EPA TO15 + TICs - Tentatively Identified Compounds								
				Sample ID	**813 U1-Summa**	**813 U2-Summa**	**813 D1-Summa (813-DUPE10)**	**813 D2-Summa**
Propane (4.23)	--	--	1,800,000	--	**3.1**	--	**-- (3.0)**	--
Isobutane (4.89)	--	--	--	2,370,000	--	--	**-- (4.4)**	**15**
Acetaldehyde (4.94)	5.6	1.3	360,000	45,000	--	**3.6**	--	--
n-Butane (5.44)	--	--	--	2,370,000	--	--	--	**3.6**
Trimethylsilanol (10.21)	--	--	--	--	**3.2**	--	--	**5.4**
Isobutanol (11.91)	--	--	300,000	152,000	**3.5**	--	--	**14**
Hexamethylcyclotrisiloxane (17.33)	--	--	--	--	**13**	**3.5**	**7.1 (3.6)**	--
n-Octanal (20.08)	--	--	--	--	--	--	--	**3.2**
2-Ethyl-1-hexanol (20.45)	1.8	0.42	**--**	**--**	**3.4**	**--**	**4.0 (3.0)**	**6.1**
n-Nonanal (21.25)	--	--	--	--	**4.6**	**6.1**	**6.4 (3.5)**	**5.1**
2-Ethylhexylacetate (21.69)	--	--	--	--	**4.0**	--	**5.1 (4.2)**	**11**
unknown Siloxane (21.85)	--	--	--	--	--	--	--	**2.9**
n-Decanal (22.21)	--	--	--	--	--	**2.9**	**3.5 (--)**	--
Reduced Sulfur Compound – ASTM D5504								
				Sample ID	**813 U1-Summa**	**813 U2-Summa**	**813 D1-Summa (813-DUPE10)**	**813 D2-Summa**
2,5-Dimethylthiophene	--	--	--	--	ND (Range of MRLs - <34 to <37)			
2-Ethylthiophene	--	--	--	--	ND (Range of MRLs - <34 to <37)			
3-Methylthiophene	--	--	--	--	ND (Range of MRLs - <30 to <32)			
Carbon Disulfide	3,100	730	62,000	3,130	ND (MRL - <12)			
Carbonyl Sulfide	440	100	--	*12,000*	ND (Range of MRLs - <18 to <20)			
Diethyl Disulfide	--	--	--	--	ND (Range of MRLs - <19 to <20)			
Diethyl Sulfide	--	--	--	--	ND (Range of MRLs - <27 to <29)			
Dimethyl Disulfide	--	--	--	--	ND (Range of MRLs - <14 to <15)			
Dimethyl Sulfide	--	--	--	--	ND (Range of MRLs - <19 to <20)			
Ethyl Mercaptan	--	--	20,000c	1,300	ND (Range of MRLs - <19 to <20)			
Ethyl Methyl Sulfide	--	--	--	--	ND (Range of MRLs - <23 to <25)			
Hydrogen Sulfide	8.8	2.1	28,000	1,400	ND (Range of MRLs - <10 to <11)			
Isobutyl Mercaptan	--	--	--	--	ND (Range of MRLs - <27 to <29)			
Isopropyl Mercaptan	--	--	--	--	ND (Range of MRLs - <23 to <25)			
Methyl Mercaptan	--	--	20,000c	980	ND (Range of MRLs - <15 to <16)			
n-Butyl Mercaptan	--	--	35,000	1,800	ND (Range of MRLs - <27 to <29)			
n-Propyl Mercaptan	--	--	--	--	ND (Range of MRLs - <23 to <25)			
tert-Butyl Mercaptan	--	--	--	--	ND (Range of MRLs - <27 to <29)			
Tetrahydrothiophene	--	--	--	--	ND (Range of MRLs - <27 to <29)			
Thiophene	--	--	--	--	ND (Range of MRLs - <26 to <28)			

All units: µg/m^3
USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels (RSL) for Industrial Air (RSL). (USEPA: April 2019, TR=1E-06, HQ=1).
USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels for Residential Air. (USEPA: April 2019, TR=1E-06, HQ=1)
OSHA PEL: Occupational Safety & Health Administration (OSHA) Permissible Exposure Limit
ACGIH: American Conference of Governmental Industrial Hygienists- Threshold Limit Value
"--" = Not Available
"<": Compound not detected above Method Reporting Limit (MRL).
Bold indicates that compound was detected above Method Reporting Limits (MRL).
Gray shading indicates concentration exceeds one or more screening values.
J = The result is an estimated concentration that is less than the Method Reporting Limit (MRL) but greater than the Method Detection Limit (MDL).
c: Indicates that the value is an OSHA PEL ceiling limit
"ND": Not Detected
Concentrations in parentheses represent duplicate samples.

Table 3.
Second Semi-Annual Sampling Event 2019
Ambient Air Sampling Results - Detected Compounds Only (Concentrations µg/m3)
August 13, 2019
Bridgeton Landfill, Bridgeton Missouri

Analyte	Screening Levels (µg/m^3)				Perimeter Sampling Locations			
	USEPA Industrial RSL	USEPA Residential RSL	OSHA PEL	ACGIH TLV	Upwind 1 (Old C&D Landfill/Grassy Knoll)	Upwind 2 (Old C&D Landfill/Grassy Knoll)	Downwind 1 (East Fence)	Downwind 2 (South Fence)
Aldehydes/Carbonyl Compounds – Method: EPA TO-11a								
Sample ID					**813U1-ALD (813-DUPE01)**	**813U2-ALD**	**813D1-ALD**	**813D2-ALD**
Acetaldehyde	5.6	1.3	360,000	45,000	**1.7 (1.3)**	**1.4**	**0.72**	**1.2**
Formaldehyde	0.94	0.22	920	400	**3.1 (2.9)**	**3.0**	**2.7**	**2.8**
n-Hexaldehyde	--	--	--	--	**0.54(0.46)**	**0.93**	**0.51**	**0.46**
Amine Compounds – AQL 101								
Sample ID					**813U1-AMINE**	**813U2-AMINE**	**813D1-AMINE (813-DUPE02)**	**813D2-AMINE**
No Amine Compounds Detected Above Reporting Limits (Range of Reporting Limits - <34 to <47)								
Ammonia – Method*: OSHA ID 188*								
Sample ID					**813U1-NH3**	**813U2-NH3 (813-DUPE03)**	**813D1-NH3**	**813D2-NH3**
Ammonia was not Detected Above Reporting Limits (Reporting Limit - <110)								
Carboxylic Acid Compounds – Method: CAS AQL 102								
No Carboxylic Compounds Detected (Range of Reporting Limits - <2.5 to <23)								
Sample ID					**813U1-CARBOX**	**813U2-CARBOX**	**813D1-CARBOX**	**813D2-CARBOX (813DUPE-04)**
Volatile Organic Compounds (VOCs) – Method: EPA TO15 + TICs								
Sample ID					**813 U1-Summa**	**813 U2-Summa**	**813 D1-Summa (813-DUPE10)**	**813 D2-Summa**
Acetone	140,000	32,000	2,400,000	594,000	**9.1**	**9.6**	**11** (<8.3)	**13**
Acetonitrile	260	63	70,000	34,000	**1.6**	**10**	<0.77 (<0.80)	**0.79**
Benzene	1.6	0.36	3,000	1,600	<0.83	**1.1**	<0.77 (<0.80)	<0.77
Dichlorodifluoromethane (CFC 12)	440	100	4,950,000	4,950,000	**2.5**	**2.4**	**2.5 (2.4)**	**2.5**
d-Limonene	--	--	--	--	<0.82	<0.78	<0.76 (<0.78)	**1.7**
Ethanol	--	--	1,900,000	1,880,000	**21**	**20**	**14 (16)**	**47**
Ethyl Acetate	310	73	1,400,000	1,440,000	**7.6**	**8.0**	**7.7 (8.4)**	**46**
Propene	13,000	3,100	--	--	<0.83	<0.79	<0.77 (<0.80)	**1.5**
Toluene	22,000	5,200	753,000	75,000	<0.85	<0.81	<0.79 (<0.81)	**1.6**
Trichlorofluoromethane (CFC 11)	--	--	5,600,000	5,620,000c	**1.2**	**1.1**	**1.2 (1.2)**	**1.2**
Propane (4.23)	--	--	500,000	--	**3.1**	--	-- **(3.0)**	--
Isobutane (4.89)	--	--	--	2,370,000	--	--	-- **(4.4)**	**15**
Acetaldehyde (4.94)	5.6	1.3	360,000	45,000	--	**3.6**	--	--
n-Butane (5.44)	--	--	--	2,370,000	--	--	--	**3.6**
Trimethylsilanol (10.21)	--	--	--	--	**3.2**	--	--	**5.4**
Isobutanol (11.91)	--	--	300,000	152,000	**3.5**	--	--	**14**
Hexamethylcyclotrisiloxane (17.33)	--	--	--	--	**13**	**3.5**	**7.1 (3.6)**	--
n-Octanal (20.08)	--	--	--	--	--	--	--	**3.2**
2-Ethyl-1-hexanol (20.45)	1.8	0.42	--	--	**3.4**	--	**4.0 (3.0)**	**6.1**
n-Nonanal (21.25)	--	--	--	--	**4.6**	**6.1**	**6.4 (3.5)**	**5.1**
2-Ethylhexylacetate (21.69)	--	--	--	--	**4.0**	--	**5.1 (4.2)**	**11**
unknown Siloxane (21.85)	--	--	--	--	--	--	--	**2.9**
n-Decanal (22.21)	--	--	--	--	--	**2.9**	**3.5**	--
Reduced Sulfur Compound – ASTM D5504								
Sample ID					**813 U1-Summa**	**813 U2-Summa**	**813 D1-Summa (813-DUPE10)**	**813 D2-Summa**
No Reduced Sulfur Compounds Detected Above Reporting Limits (Range of Reporting Limits - <12 to <37)								

USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels (RSL) for Industrial Air (RSL). (USEPA: April 2019, TR=1E-06, HQ=1).
USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels for Residential Air. (USEPA: April 2019, TR=1E-06, HQ=1)
OSHA PEL: Occupational Safety & Health Administration (OSHA) Permissible Exposure Limit
ACGIH: American Conference of Governmental Industrial Hygienists- Threshold Limit Value
"--" = Not Available
"<": Compound not detected above Method Reporting Limit (MRL).
Bold indicates that compound was detected above Method Reporting Limits (MRL).
Gray shading indicates concentration exceeds one or more screening values.
J = The result is an estimated concentration that is less than the Method Reporting Limit (MRL) but greater than the Method Detection Limit (MDL).
c: Indicates that the value is an OSHA PEL ceiling limit
Concentrations in parentheses represent duplicate samples.

Table 4.
Second Semi-Annual Sampling Event 2019
Ambient Air Sampling Results - Quality Assurance/Quality Control Samples (Concentrations µg/m^3)
August 13, 2019
Bridgeton Landfill, Bridgeton Missouri

Analyte	Screening Levels (µg/m^3)				Quality Assurance/Quality Control Samples			
	USEPA Industrial RSL	USEPA Residential RSL	OSHA PEL	ACGIH TLV				
Aldehydes/Carbonyl Compounds – Method: EPA TO-11a								
					Sample ID	**813 TB-ALD**	**813 FB-ALD**	**Method Blank**
No Aldehyde Compounds Detected Above MRLs (Range of MRLs - <100 to <200 ng/Sample)								
Amine Compounds – AQL 101								
					Sample ID	**813 TB-Amine**	**813 FB-Amine**	**Method Blank**
No Amine Compounds Detected Above MRLs (Range of MRLs - <1.0 to <1.1 µg/Sample)								
Ammonia – Method*: OSHA ID 188*								
					Sample ID	**813 TB-NH3**	**813 FB-NH3**	**Method Blank**
Ammonia was not Detected Above MRLs (Range of MRLs - <10 µg/Sample)								
Carboxylic Acid Compounds – Method: CAS AQL 102								
					Sample ID	**813 TB-CARBOX**	**813 FB-CARBOX**	**Method Blank**
No Carboxylic Compounds Detected (Range of MRLs - <0.25 to <2.0 µg/Sample)								
Volatile Organic Compounds (VOCs) – Method: EPA TO15 + TICs – Standard Analyte List								
					Sample ID	**813-SUMMA-TB**	**813-SUMMA-FB1**	**813-SUMMA-FB2**	**Method Blank**
Carbon Disulfide	3,100	730	62,000	3,000	<1.1	<1.1	**1.5**	<1.1
Ethanol	--	--	1,900,000	1,880,000	<5.1	**28**	<5.1	<5.1
Naphthalene	0.36	0.083	50,000	52,000	<0.51	<0.51	**3.2**	<0.51
Sulfur Dioxide (4.30)	--	--	13	0.65	--	--	**>180 (!)**	--
unknown (9.56)	--	--	--	--	--	--	**3.7**	--
Trimethylsilanol (10.21)	--	--	--	--	--	**2.0**	--	--
Propylene Glycol (14.81)	--	--	--	--	--	**3.2**	--	--
Acetic Acid (11.17)	--	--	25,000	2,500	--	--	**2.0**	--
Dimethyl Disulfide (15.18)	--	--	--	--	--	--	**35**	--
Hexamethylcyclotrisiloxane (17.33)	--	--	--	--	--	--	**53**	--
Methyl Ethyl Disulfide (17.44)	--	--	--	--	--	--	**2.6**	--
2-Methyl-2-cyclopenten-1-one (18.53)	--	--	--	--	--	--	**7.2**	--
Dimethyl Trisulfide (19.81)	--	--	--	--	--	--	**77**	--
unknown (20.15)	--	--	--	--	--	--	**7.9**	--
unknown (20.92)	--	--	--	--	--	--	**4.7**	--
2-Ethyl-1-hexanol (20.45)	1.8	0.42	--	--	**3.5**	--	--	--
unknown Siloxane (21.85)	--	--	--	--	--	--	**6.6**	--
Dimethyltetrasulfide (22.55)	--	--	--	--	--	--	**4.0**	--
Reduced Sulfur Compound – ASTM D5504								
					Sample ID	**813-SUMMA-TB**	**813-SUMMA-FB1**	**813-SUMMA-FB2**	**Method Blank**
No Reduced Sulfur Compounds Detected Above MRLs (Range of MRLs - <7 to <23)								

USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels (RSL) for Industrial Air (RSL). (USEPA: April 2019, TR=1E-06, HQ=1).
USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels for Residential Air. (USEPA: April 2019, TR=1E-06, HQ=1)
OSHA PEL: Occupational Safety & Health Administration (OSHA) Permissible Exposure Limit
ACGIH: American Conference of Governmental Industrial Hygienists- Threshold Limit Value
"--" = Not Available
"<": Compound not detected above Method Reporting Limit (MRL).
Bold indicates that compound was detected above Method Reporting Limits (MRL).
Gray shading indicates concentration exceeds one or more screening values.
(µg/m^3) = micrograms per cubic meter
ng = nanogram
TB = Trip Blank
FB = Field Blank
! = Data qualifier indicates the (TIC) Sulfur Dioxide concentration reported is estimated. Previous studies have shown that EPA Method TO-15 is not an appropriate method for quantifying Sulfur Dioxide.

APPENDIX A

Sample Summary

Table A-1.
Second Semi-Annual Bridgeton Landfill Sampling Event - Summary of Sampling Procedures, Calibration, and Methods
August 13, 2019
Bridgeton Landfill, Bridgeton, Missouri

Upwind Location 1																	
Sample ID	**Sample Date**	**Start Time**	**Stop Time**	**Duration (Minutes)**	**Parameter**	**Analytical Method**	**Canister ID**	**Regulator ID**	**Start Pres. (PSI)**	**End Pres. (PSI)**	**Pump ID**	**Pre-Cal (ml/min)**	**Post-Cal (ml/min)**	**Mean Flow (ml/min)**	**%Def**	**Total Volume (ml)**	**Total Volume COC (liters)**	
813U1-Summa	8/13/2019	8:33	15:45	432	VOCs	TO-15 + TICs	as01356	sfc00298	-28	-5	--	--	--	--	--	NA	6	
					Reduced Sulfur	ASTM D5504												
813U1-Ald	8/13/2019	12:00	15:45	225	Aldehydes	EPA TO 11a	--	--	--	--	b20645b	1183	1136	1160	-4.1%	260,888	260.9	Pump fault, replaced media and restarted pump at 12:00
813U1-Amine	8/13/2019	12:37	16:37	240	Amines	AQL 101	--	--	--	--	b20578b	111.3	144.4	128	22.9%	30,684	30.7	Pump fault, replaced media and restarted pump at 12:37
813U1-NH3	8/13/2019	10:53	14:56	243	Ammonia	OSHA ID 188	--	--	--	--	b18587b	406.5	407	407	0.1%	98,840	98.8	
813U1-Carbox	8/13/2019	10:53	14:28	215	Carboxylic Acids	AQL 102	--	--	--	--	b22014b	412	410.4	411	-0.4%	88,408	88.4	
813-Dupe01	8/13/2019	12:00	16:00	240	Aldehydes	EPA TO 11a	--	--	--	--	b20097b	1226	1176	1201	-4.3%	288,240	288.2	Aldehyde Duplicate Sample (Upland Location 1) Pump fault, replaced media at 11:45 and restarted pump.
Downwind Location 1																		
Sample ID	**Sample Date**	**Start Time**	**Stop Time**	**Duration (Minutes)**	**Parameter**	**Analytical Method**	**Canister ID**	**Regulator ID**	**Start Pres. (PSI)**	**End Pres. (PSI)**	**Pump ID**	**Pre-Cal (ml/min)**	**Post-Cal (ml/min)**	**Mean Flow (ml/min)**	**%Def**	**Total Volume (ml)**	**Total Volume COC (liters)**	**Comments**
813D1-Summa	8/13/2019	9:00	16:50	470	VOCs	TO-15 + TICs	as01260	sfc00106	-30	-5	--	--	--	--	--	NA	6	
					Reduced Sulfur	ASTM D5504												
813-Dupe10	8/13/2019	9:00	16:50	470	VOCs	TO-15 + TICs	as01341	sfc00062	-29	-6	--	--	--	--	--	NA	6	Downwind 1 - Summa Duplicate VOCs and Reduced Sulfur Compounds
					Reduced Sulfur	ASTM D5504												
813D1-Ald	8/13/2019	11:17	15:11	234	Aldehydes	EPA TO 11a	--	--	--	--	b18594b	1202	1190	1196	-1.0%	279,864	279.9	
813D1-Amine	8/13/2019	11:17	*15:11*	234	Amines	AQL 101	--	--	--	--	b20586b	100	103.5	102	3.4%	23,810	23.8	
813D1-NH3	8/13/2019	11:17	15:11	234	Ammonia	OSHA ID 188	--	--	--	--	b18589b	405.5	398	402	-1.9%	94,010	94.0	
813D1-Carbox	8/13/2019	11:17	15:11	234	Carboxylic Acids	AQL 102	--	--	--	--	b21869b	399.7	401.9	401	0.5%	93,787	93.8	
813-Dupe02	8/13/2019	11:17	15:11	234	Amines	AQL 101	--	--	--	--	b20252b	105	100.8	103	-4.2%	24,079	24.1	Amine Duplicate Sample (Downwind Location 1)
Upwind Location 2																		
Sample ID	**Sample Date**	**Start Time**	**Stop Time**	**Duration (Minutes)**	**Parameter**	**Analytical Method**	**Canister ID**	**Regulator ID**	**Start Pres. (PSI)**	**End Pres. (PSI)**	**Pump ID**	**Pre-Cal (ml/min)**	**Post-Cal (ml/min)**	**Mean Flow (ml/min)**	**%Def**	**Total Volume (ml)**	**Total Volume COC (liters)**	**Comments**
813U2-Summa	8/13/2019	8:45	16:34	469	VOCs	TO-15 + TICs	as00609	sfc00296	-29	-5	--	--	--	--	--	NA	6	
					Reduced Sulfur	ASTM D5504												
813U2-Ald	8/13/2019	11:00	12:39	99	Aldehydes	EPA TO 11a	--	--	--	--	b18592b	1246	1244	1245	-0.2%	123,255	123.3	Pump failed at 99 minutes - submitted sample for analysis with 99 minute sample duration.
813U2-Amine	8/13/2019	11:00	*15:00*	240	Amines	AQL 101	--	--	--	--	b20579b	105.9	108.1	107	2.0%	25,680	25.7	
813U2-NH3	8/13/2019	11:00	15:00	240	Ammonia	OSHA ID 188	--	--	--	--	b18591b	402.9	394.8	399	-2.1%	95,724	95.7	
813U2-Carbox	8/13/2019	11:00	15:00	240	Carboxylic Acids	AQL 102	--	--	--	--	b21862b	408.2	404	406	-1.0%	97,464	97.5	
813-Dupe03	8/13/2019	11:00	15:00	240	Ammonia	OSHA ID 188	--	--	--	--	b18595b	401.9	397.1	400	-1.2%	95,880	95.9	Ammonia Duplicate Sample (Upwind Location 2)
Downwind Location 2																		
Sample ID	**Sample Date**	**Start Time**	**Stop Time**	**Duration (Minutes)**	**Parameter**	**Analytical Method**	**Canister ID**	**Regulator ID**	**Start Pres. (PSI)**	**End Pres. (PSI)**	**Pump ID**	**Pre-Cal (ml/min)**	**Post-Cal (ml/min)**	**Mean Flow (ml/min)**	**%Def**	**Total Volume (ml)**	**Total Volume COC (liters)**	**Comments**
813D2-Summa	8/13/2019	8:55	16:45	470	VOCs	TO-15 + TICs	as00940	sfc00031	-29	-6	--	--	--	--	--	NA	6	
					Reduced Sulfur	ASTM D5504												
813D2-Ald	8/13/2019	12:17	16:17	240	Aldehydes	EPA TO 11a	--	--	--	--	b18596b	1180	1164	1172	-1.4%	281,280	281.3	Pump fault, replaced pump and sample media at 12:17.
813D2-Amine	8/13/2019	11:20	*15:20*	240	Amines	AQL 101	--	--	--	--	b20073b	108.3	105.1	107	-3.0%	25,608	25.6	
813D2-NH3	8/13/2019	11:20	15:20	240	Ammonia	OSHA ID 188	--	--	--	--	b18590b	405.5	399	402	-1.6%	96,540	96.5	
813D2-Carbox	8/13/2019	11:20	15:20	240	Carboxylic Acids	AQL 102	--	--	--	--	b21867b	404.9	380.1	393	-6.5%	94,200	94.2	
813-Dupe04	8/13/2019	11:20	15:20	240	Carboxylic Acids	AQL 102	--	--	--	--	b22017b	415.9	415.5	416	-0.1%	99,768	99.8	Carboxylic Acid Duplicate Sample (Downwind Location 2)

APPENDIX B

Laboratory Analytical Report

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

LABORATORY REPORT

October 29, 2019

Deborah Gray
Stantec Consulting Services, Inc.
1500 Lake Shore Drive Suite 100
Columbus, OH 43204

RE: Bridgeton Air Monitoring / 182608047

Dear Deborah:

Your report P1904808 has been amended for the samples submitted to our laboratory on August 14, 2019. A revised chain of custody form was provided that changed sample volumes for two of the samples. The change has been indicated by the "Revised Page" footer located at the bottom right corner of each affected page.

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

By Sue Anderson at 3:50 pm, Oct 29, 2019

Sue Anderson
Project Manager

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

Client: Stantec Consulting Services, Inc. Service Request No: P1904808
Project: Bridgeton Air Monitoring / 182608047

CASE NARRATIVE

The samples were received intact under chain of custody on August 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.

Aldehyde Analysis

The DNPH silica gel tube samples were analyzed for aldehydes according to EPA Method TO-11A using high performance liquid chromatography (HPLC). This method is not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

Amine Analysis

The Alumina tube samples were analyzed for triethylamine and dimethylisopropyl amine using a gas chromatograph equipped with a nitrogen phosphorus detector (NPD). This method is not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The IS for samples 813 D2-Amine (P1904808-012), 813- DUPE 02 (P1904808-13), 813 FB-Amine (P1904808-014 and 813 FB-Amine (P1904808-015) had an internal standard value that was above the specified criteria. However, all samples were ND and, therefore, not affected. No corrective action was necessary

Ammonia Analysis

The Anasorb747 tube samples were prepared in accordance with OSHA ID-188 and analyzed for ammonia in air by Ion Selective Electrode per OSHA ID-164. This method is not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

Carboxylic Acids Analysis

The Silica gel tube samples were analyzed for carboxylic acids using combined gas chromatography/mass spectrometry (GC/MS) in accordance with laboratory operating procedures. This method is not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

Sulfur Analysis

The Silonite canister 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.

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Client: Stantec Consulting Services, Inc. Service Request No: P1904808
Project: Bridgeton Air Monitoring / 182608047

CASE NARRATIVE

Volatile Organic Compound Analysis

The Silonite canister 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	4068-006
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	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
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: Stantec Consulting Services, Inc. Service Request: P1904808

Project ID: Bridgeton Air Monitoring / 182608047

Date Received: 8/14/2019

Time Received: 09:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	ASTM D5504-08 - Sulfur Can	TO-15 Modified - VOC Cans	Amines - Amines	TO-11A - Carbonyls	Carbox Acids - Carboxy Acids	OSHA ID-164 Modified - Ammonia
813 U1-Summa	P1904808-001	Air	8/13/2019	15:45	AS01356	-3.21	3.63	X	X				
813 U2-Summa	P1904808-002	Air	8/13/2019	16:34	AS00609	-2.47	3.86	X	X				
813 D1-Summa	P1904808-003	Air	8/13/2019	16:50	AS01260	-2.31	3.73	X	X				
813 D2-Summa	P1904808-004	Air	8/13/2019	16:45	AS00940	-2.36	3.63	X	X				
813-DUPE10	P1904808-005	Air	8/13/2019	00:00	AS01341	-2.81	3.51	X	X				
813-Summa-TB	P1904808-006	Air	8/13/2019	00:00	AS01361	-14.23	3.66	X	X				
813-Summa-FB1	P1904808-007	Air	8/13/2019	00:00	AS00969	-14.28	3.73	X	X				
813-Summa-FB2	P1904808-008	Air	8/13/2019	00:00	AS00866	-14.28	3.76	X	X				
813 U1- Amine	P1904808-009	Air	8/13/2019	16:37						X			
813 U2- Amine	P1904808-010	Air	8/13/2019	15:00						X			
813 D1- Amine	P1904808-011	Air	8/13/2019	15:11						X			
813 D2- Amine	P1904808-012	Air	8/13/2019	15:20						X			
813-DUPE 02	P1904808-013	Air	8/13/2019	00:00						X			
813 FB-Amine	P1904808-014	Air	8/13/2019	17:00						X			
813 TB-Amine	P1904808-015	Air	8/13/2019	17:00						X			
813 U1-ALD	P1904808-016	Air	8/13/2019	15:45							X		
813 U2-ALD	P1904808-017	Air	8/13/2019	12:39							X		
813 D1-ALD	P1904808-018	Air	8/13/2019	15:11							X		
813 D2-ALD	P1904808-019	Air	8/13/2019	16:17							X		
813-DUPE01	P1904808-020	Air	8/13/2019	00:00							X		
813 FB-ALD	P1904808-021	Air	8/13/2019	17:00							X		
813 TB-ALD	P1904808-022	Air	8/13/2019	17:00							X		
813 U1-CARBOX	P1904808-023	Air	8/13/2019	14:28								X	
813 U2-CARBOX	P1904808-024	Air	8/13/2019	15:00								X	
813 D1-CARBOX	P1904808-025	Air	8/13/2019	15:11								X	
813 D2-CARBOX	P1904808-026	Air	8/13/2019	15:20								X	
813-DUPE 04	P1904808-027	Air	8/13/2019	00:00								X	
813 FB-CARBOX	P1904808-028	Air	8/13/2019	17:00								X	
813 TB-CARBOX	P1904808-029	Air	8/13/2019	17:00								X	
813 U1-NH3	P1904808-030	Air	8/13/2019	14:56									X
813 U2-NH3	P1904808-031	Air	8/13/2019	15:00									X
813 D1-NH3	P1904808-032	Air	8/13/2019	15:11									X
813 D1-NH3	P1904808-033	Air	8/13/2019	15:20									X
813-DUPE 03	P1904808-034	Air	8/13/2019	00:00									X
813 FB-NH3	P1904808-035	Air	8/13/2019	17:00									X
813 TB-NH3	P1904808-036	Air	8/13/2019	17:00									X

Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161

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. R1904808

ALS Contact:

Analysis Method

Company Name & Address (Reporting Information)	Project Name	P.O. # / Billing Information
Stantec Consulting Services Inc. 1500 Lake Shore Drive Suite 100 Columbus, OH 43204	Bridgeton Air Monitoring	Bridgeton Landfill LLC
Project Manager: Deborah L. Gray	Project Number: 182608047	
Phone: 614.643.4362 Fax: —	Sampler (Print & Sign): Nicole Iannazzi / Chris Lalonde	
Email Address for Result Reporting: Chris.Lalonde@Stantec.com Deb.gray@Stantec.com Nicole.Iannazzi@Stantec.com		

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 plus TICs VOCs	ASTM 5504 Reduce Sulfurs	Comments e.g. Actual Preservative or specific instructions
813U1 - Summa	1	8/13/19	15:45	AS01356	SFC00298	-28 "Hg	-5 "Hg	N/A	X	X	* return and
813U2 - Summa	2		16:34	AS00609	SFC00296	-29 "Hg	-5 "Hg	N/A	X	X	clean unused
813 D1 - Summa	3		16:50	AS01260	SFC00066	-30 "Hg	-5 "Hg	N/A	X	X	canisters.
813 D2 - Summa	4		16:45	AS00940	SFC00031	-29 "Hg	-6 "Hg	N/A	X	X	
813-DUP10	5		N/A	AS01341	SFC00062	-27 "Hg	-6 "Hg	N/A	X	X	
813 - Summa - TB	6			AS01361	No Flow	N/A	N/A	N/A	X	X	
813 - Summa - FB1	7			AS00969	SFC00272	-30 "Hg	-30 "Hg	N/A	X	X	
813 - Summa - FB2	8			AS00866	DVG00278	-29.51	-29.51 "Hg	N/A	X	X	

Report Tier Levels - please select
Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) X
Tier II (Results + QC Summaries) ____ Tier IV (Data Validation Package) 10% Surcharge ____

EDD required (Yes) / No
Type: [illegible] Units: PPB / ug/m3

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date: 8/13/19	Time: 18:15	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date: 8/14/19	Time: 0715

Cooler / Blank Temperature 5 °C

GBR

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

return unused tubes for method validation or disposal

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. R194800

Company Name & Address (Reporting Information)	Stantec
Project Manager	Deb. Gray
Phone	614. 643. 4362
Fax	
Email Address for Result Reporting	Deb.gray@stantec.com, Chris.LaLonde@stantec.com, Nick.Iannuzzi@stantec.com
Project Name	Bridgeton Air Monitor
Project Number	182608047
P.O. # / Billing Information	Bridgeton Landfill LLC
Sampler (Print & Sign)	Nick Iannuzzi / Chris LaLonde
ALS Contact	

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: AQL-101 Amines	Analysis Method: TO-11A aldehydes	Comments e.g. Actual Preservative or specific instructions
813U1 - Amine	9	8/13/19	16:37	N/A	N/A	N/A	N/A	30.7L	X		
813U2 - Amine	10	↓	15:00	↓	↓	↓	↓	25.7L	X		
813D1 - Amine	11		15:11					23.8L	X		
813D2 - Amine	12		15:20					25.6L	X		
813 - DUPE02	13		N/A					24.1L	X		
813 FB - Amine	14		1700					0L	X		
813 TB - Amine	15	↓	1700					0L	X		
813 U1 - ALD	16	8/10/19	15:45					~~278.5L~~ 260.9L	X		ALD = Aldehyde
813 U2 - ALD	17	↓	12:39					123.3L	X		Sample IDs
813D1 - ALD	18		15:11					279.9L	X		should be
813D2 - ALD	19		16:17					281.3L	X		ALD as
813 - DUPE01	20		N/A					~~288.6L~~ 268.2L	X		the suffix.
813 FB - ALD	21		1700					0L	X		813 FB - ALD
813 TB - ALD	22	↓	1700	↓	↓	↓	↓	0L	X		813 TB - ALD

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) X
Tier III (Results + QC & Calibration Summaries) X0
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: ____ Units: ug/m3 ppbv

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	8/13/19	18:15			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
				8/14/19	0818

Cooler / Blank Temperature ____ °C

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Revised Page

Air - Chain of Custody Record & Analytical Service Request

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Phone (805) 526-7161

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. 1904808

Company Name & Address (Reporting Information)	Stantec
Project Manager	Deb Gray
Phone	614-643-4362
Fax	
Email Address for Result Reporting	deb.gray@stantec.com, chris.lalonde@stantec.com, nick.iannazzi@stantec.com
Project Name	Bridgeton Air Monitoring
Project Number	182608047
P.O. # / Billing Information	Bridgeton Landfill LLC
Sampler (Print & Sign)	Nick Iannazzi, Chris Lalonde
ALS Contact:	

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 - 10L carbox	Analysis Method: OSHA-ID 188 NH3	Comments e.g. Actual Preservative or specific instructions
813 U1 - Carbox	23	8/13/19	14:28	N/A	N/A	N/A	N/A	88.4L	X		
813 U2 - Carbox	27		15:00					97.5L	X		
813 D1 - Carbox	25		15:11					93.8L	X		
813 D2 - Carbox	26		15:20					94.2L	X		
813 - DUPE 04	27		[redacted]					99.8L	X		
813 FB - Carbox	28		17:00					0L	X		
813 TB - Carbox	29		17:00					0L	X		
813 U1 - NH3	30		14:56					98.8L		X	NH3 - Ammonia
813 U2 - NH3	31		15:00					95.7L		X	suffix should
813 D1 - NH3	32		15:11					94.0L		X	be NH3 eg.
813 D2 - NH3	33		15:20					96.5L		X	813FB-NH3
813 - DUPE 03	34		[redacted]					95.9L		X	813TB-NH3
813 FB - NH3 ~~Ammonia~~	35		17:00					0L		X	
813 TB - NH3 ~~Ammonia~~	36		17:00					0L		X	

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Report Tier Levels - please select

Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) ✓
Tier II (Results + QC Summaries) ____ Tier IV (Data Validation Package) 10% Surcharge ____

EDD required: Yes / No
Type: ____ Units: PPB / ug/m3

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date: 8/15/19	Time: 18:15	Received by: (Signature)	Date:	Time:	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date: 8/16/19	Time: 0815	Cooler / Blank Temperature ____ °C

ALS Environmental

Sample Acceptance Check Form

Client: Stantec Consulting Services, Inc. Work order: P1904808

Project: Bridgeton Air Monitoring / 182608047

Sample(s) received on: 8/14/19 Date opened: 8/14/19 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?	☒	☐	☐
	Cooler Temperature: 5° C Blank Temperature: ° C			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Box sealing and cooler lid. 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
P1904808-001.01	6.0 L Silonite Can					
P1904808-002.01	6.0 L Silonite Can					
P1904808-003.01	6.0 L Silonite Can					
P1904808-004.01	6.0 L Silonite Can					
P1904808-005.01	6.0 L Silonite Can					
P1904808-006.01	6.0 L Silonite Can					
P1904808-007.01	6.0 L Silonite Can					
P1904808-008.01	6.0 L Silonite Can					
P1904808-009.01	Treated Alumina Tube					
P1904808-010.01	Treated Alumina Tube					
P1904808-011.01	Treated Alumina Tube					
P1904808-012.01	Treated Alumina Tube					
P1904808-013.01	Treated Alumina Tube					
P1904808-014.01	Treated Alumina Tube					
P1904808-015.01	Treated Alumina Tube					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: Stantec Consulting Services, Inc. Work order: P1904808

Project: Bridgeton Air Monitoring / 182608047

Sample(s) received on: 8/14/19 Date opened: 8/14/19 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1904808-016.01	Silica Gel DNPH Tube					
P1904808-017.01	Silica Gel DNPH Tube					
P1904808-018.01	Silica Gel DNPH Tube					
P1904808-019.01	Silica Gel DNPH Tube					
P1904808-020.01	Silica Gel DNPH Tube					
P1904808-021.01	Silica Gel DNPH Tube					
P1904808-022.01	Silica Gel DNPH Tube					
P1904808-023.01	Silica Gel (C. Acids)					
P1904808-024.01	Silica Gel (C. Acids)					
P1904808-025.01	Silica Gel (C. Acids)					
P1904808-026.01	Silica Gel (C. Acids)					
P1904808-027.01	Silica Gel (C. Acids)					
P1904808-028.01	Silica Gel (C. Acids)					
P1904808-029.01	Silica Gel (C. Acids)					
P1904808-030.01	Anasorb 747 Tube					
P1904808-031.01	Anasorb 747 Tube					
P1904808-032.01	Anasorb 747 Tube					
P1904808-033.01	Anasorb 747 Tube					
P1904808-034.01	Anasorb 747 Tube					
P1904808-035.01	Anasorb 747 Tube					
P1904808-036.01	Anasorb 747 Tube					
P1904808-037.01	6.0 L Silonite Can					
P1904808-038.01	6.0 L Silonite Can					
P1904808-039.01	6.0 L Silonite Can					

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

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U1-ALD** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-016

Test Code:	EPA Method TO-11A	Date Collected:	8/13/19
Instrument ID:	Agilent Infinity LC 1220/LC3	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/19/19
Sample Type:	Silica Gel DNPH Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC**	Volume Sampled:	260.9 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	860	**3.3**	0.38	**2.7**	0.31	
75-07-0	Acetaldehyde	480	**1.9**	0.38	**1.0**	0.21	**BT**
123-38-6	Propionaldehyde	< 100	ND	0.38	ND	0.16	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.38	ND	0.13	
123-72-8	Butyraldehyde	< 100	ND	0.38	ND	0.13	
100-52-7	Benzaldehyde	< 100	ND	0.38	ND	0.088	
590-86-3	Isovaleraldehyde	< 100	ND	0.38	ND	0.11	
110-62-3	Valeraldehyde	< 100	ND	0.38	ND	0.11	
529-20-4	o-Tolualdehyde	< 100	ND	0.38	ND	0.078	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.77	ND	0.16	
66-25-1	n-Hexaldehyde	150	**0.58**	0.38	**0.14**	0.094	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.38	ND	0.070	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
BT = Results indicated possible breakthrough; back section > 10% front section.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U2-ALD** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-017

Test Code:	EPA Method TO-11A	Date Collected:	8/13/19
Instrument ID:	Agilent Infinity LC 1220/LC3	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/19/19
Sample Type:	Silica Gel DNPH Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC**	Volume Sampled:	123.3 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	370	**3.0**	0.81	**2.4**	0.66	
75-07-0	Acetaldehyde	170	**1.4**	0.81	**0.76**	0.45	
123-38-6	Propionaldehyde	< 100	ND	0.81	ND	0.34	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.81	ND	0.28	
123-72-8	Butyraldehyde	< 100	ND	0.81	ND	0.28	
100-52-7	Benzaldehyde	< 100	ND	0.81	ND	0.19	
590-86-3	Isovaleraldehyde	< 100	ND	0.81	ND	0.23	
110-62-3	Valeraldehyde	< 100	ND	0.81	ND	0.23	
529-20-4	o-Tolualdehyde	< 100	ND	0.81	ND	0.17	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	1.6	ND	0.33	
66-25-1	n-Hexaldehyde	110	**0.93**	0.81	**0.23**	0.20	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.81	ND	0.15	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D1-ALD** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-018

Test Code:	EPA Method TO-11A	Date Collected:	8/13/19
Instrument ID:	Agilent Infinity LC 1220/LC3	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/19/19
Sample Type:	Silica Gel DNPH Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC**	Volume Sampled:	279.9 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	750	**2.7**	0.36	**2.2**	0.29	
75-07-0	Acetaldehyde	200	**0.72**	0.36	**0.40**	0.20	
123-38-6	Propionaldehyde	< 100	ND	0.36	ND	0.15	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.36	ND	0.12	
123-72-8	Butyraldehyde	< 100	ND	0.36	ND	0.12	
100-52-7	Benzaldehyde	< 100	ND	0.36	ND	0.082	
590-86-3	Isovaleraldehyde	< 100	ND	0.36	ND	0.10	
110-62-3	Valeraldehyde	< 100	ND	0.36	ND	0.10	
529-20-4	o-Tolualdehyde	< 100	ND	0.36	ND	0.073	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.71	ND	0.15	
66-25-1	n-Hexaldehyde	140	**0.51**	0.36	**0.12**	0.087	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.36	ND	0.065	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D2-ALD** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-019

Test Code:	EPA Method TO-11A	Date Collected:	8/13/19
Instrument ID:	Agilent Infinity LC 1220/LC3	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/19/19
Sample Type:	Silica Gel DNPH Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC**	Volume Sampled:	281.3 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	780	**2.8**	0.36	**2.3**	0.29	
75-07-0	Acetaldehyde	340	**1.2**	0.36	**0.67**	0.20	
123-38-6	Propionaldehyde	< 100	ND	0.36	ND	0.15	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.36	ND	0.12	
123-72-8	Butyraldehyde	< 100	ND	0.36	ND	0.12	
100-52-7	Benzaldehyde	< 100	ND	0.36	ND	0.082	
590-86-3	Isovaleraldehyde	< 100	ND	0.36	ND	0.10	
110-62-3	Valeraldehyde	< 100	ND	0.36	ND	0.10	
529-20-4	o-Tolualdehyde	< 100	ND	0.36	ND	0.072	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.71	ND	0.14	
66-25-1	n-Hexaldehyde	130	**0.46**	0.36	**0.11**	0.087	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.36	ND	0.065	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-DUPE01** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-020

Test Code:	EPA Method TO-11A	Date Collected:	8/13/19
Instrument ID:	Agilent Infinity LC 1220/LC3	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/19/19
Sample Type:	Silica Gel DNPH Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC**	Volume Sampled:	288.2 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	820	**2.9**	0.35	**2.3**	0.28	
75-07-0	Acetaldehyde	380	**1.3**	0.35	**0.74**	0.19	
123-38-6	Propionaldehyde	< 100	ND	0.35	ND	0.15	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.35	ND	0.12	
123-72-8	Butyraldehyde	< 100	ND	0.35	ND	0.12	
100-52-7	Benzaldehyde	< 100	ND	0.35	ND	0.080	
590-86-3	Isovaleraldehyde	< 100	ND	0.35	ND	0.099	
110-62-3	Valeraldehyde	< 100	ND	0.35	ND	0.099	
529-20-4	o-Tolualdehyde	< 100	ND	0.35	ND	0.071	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.69	ND	0.14	
66-25-1	n-Hexaldehyde	130	**0.46**	0.35	**0.11**	0.085	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.35	ND	0.063	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 FB-ALD** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-021

Test Code:	EPA Method TO-11A	Date Collected:	8/13/19
Instrument ID:	Agilent Infinity LC 1220/LC3	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/19/19
Sample Type:	Silica Gel DNPH Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC**	Volume Sampled:	NA Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	< 100	NA	NA	NA	NA	
75-07-0	Acetaldehyde	< 100	NA	NA	NA	NA	
123-38-6	Propionaldehyde	< 100	NA	NA	NA	NA	
4170-30-3	Crotonaldehyde, Total	< 100	NA	NA	NA	NA	
123-72-8	Butyraldehyde	< 100	NA	NA	NA	NA	
100-52-7	Benzaldehyde	< 100	NA	NA	NA	NA	
590-86-3	Isovaleraldehyde	< 100	NA	NA	NA	NA	
110-62-3	Valeraldehyde	< 100	NA	NA	NA	NA	
529-20-4	o-Tolualdehyde	< 100	NA	NA	NA	NA	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	NA	NA	NA	NA	
66-25-1	n-Hexaldehyde	< 100	NA	NA	NA	NA	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 TB-ALD** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-022

Test Code:	EPA Method TO-11A	Date Collected:	8/13/19
Instrument ID:	Agilent Infinity LC 1220/LC3	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/19/19
Sample Type:	Silica Gel DNPH Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC**	Volume Sampled:	NA Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	< 100	NA	NA	NA	NA	
75-07-0	Acetaldehyde	< 100	NA	NA	NA	NA	
123-38-6	Propionaldehyde	< 100	NA	NA	NA	NA	
4170-30-3	Crotonaldehyde, Total	< 100	NA	NA	NA	NA	
123-72-8	Butyraldehyde	< 100	NA	NA	NA	NA	
100-52-7	Benzaldehyde	< 100	NA	NA	NA	NA	
590-86-3	Isovaleraldehyde	< 100	NA	NA	NA	NA	
110-62-3	Valeraldehyde	< 100	NA	NA	NA	NA	
529-20-4	o-Tolualdehyde	< 100	NA	NA	NA	NA	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	NA	NA	NA	NA	
66-25-1	n-Hexaldehyde	< 100	NA	NA	NA	NA	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190819-MB

Test Code:	EPA Method TO-11A	Date Collected:	NA
Instrument ID:	Agilent Infinity LC 1220/LC3	Date Received:	NA
Analyst:	Magaly Rodriguez	Date Analyzed:	08/19/19
Sample Type:	Silica Gel DNPH Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC**	Volume Sampled:	NA Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	< 100	NA	NA	NA	NA	
75-07-0	Acetaldehyde	< 100	NA	NA	NA	NA	
123-38-6	Propionaldehyde	< 100	NA	NA	NA	NA	
4170-30-3	Crotonaldehyde, Total	< 100	NA	NA	NA	NA	
123-72-8	Butyraldehyde	< 100	NA	NA	NA	NA	
100-52-7	Benzaldehyde	< 100	NA	NA	NA	NA	
590-86-3	Isovaleraldehyde	< 100	NA	NA	NA	NA	
110-62-3	Valeraldehyde	< 100	NA	NA	NA	NA	
529-20-4	o-Tolualdehyde	< 100	NA	NA	NA	NA	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	NA	NA	NA	NA	
66-25-1	n-Hexaldehyde	< 100	NA	NA	NA	NA	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
NA = Not applicable.

Response Factor Report GCI

Method Path : J:\LC03\METHODS\
Method File : TO11A051319_B.M
Title : TO-11A Method for Aldehydes/Ketones by HPLC
Last Update : Tue May 14 13:57:04 2019
Response Via : Initial Calibration

Calibration Files
100 =0513190000006.D 500 =0513190000009.D 1500 =0513190000012.D
5000 =0513190000015.D 10K =0513190000018.D

		Compound	100	500	1500	5000	10K	Avg		%RSD
1)	T	Formaldehyde	2.080	2.100	2.188	2.125	2.100	2.118	E4	1.98
2)	T	Acetaldehyde	1.602	1.586	1.662	1.620	1.608	1.616	E4	1.77
3)	T	Acetone	1.198	1.206	1.252	1.220	1.212	1.218	E4	1.71
4)	T	Acrolein	1.424	1.452	1.514	1.479	1.468	1.467	E4	2.27
5)	T	Propionaldehyde	1.072	1.106	1.152	1.133	1.124	1.117	E4	2.71
6)	T	Crotonaldehyde	0.980	1.001	1.041	1.015	1.006	1.008	E4	2.19
7)	T	Butyraldehyde	8.396	8.585	8.915	8.714	8.632	8.649	E3	2.19
8)	T	Benzaldehyde	6.495	6.783	7.038	6.892	6.826	6.807	E3	2.93
9)	T	Isovaleraldehyde	8.142	8.245	8.599	8.385	8.332	8.341	E3	2.05
10)	T	Valeraldehyde	6.938	7.044	7.398	7.268	7.230	7.176	E3	2.56
11)	T	o-Tolualdehyde	5.084	5.269	5.519	5.461	5.446	5.356	E3	3.34
12)	T	m,p-Tolualdehyde	5.847	6.079	6.356	6.257	6.216	6.151	E3	3.20
13)	T	Hexaldehyde	5.931	6.218	6.428	6.293	6.256	6.225	E3	2.93
14)	T	2,5-Dimethylbenzal...	4.710	5.080	5.326	5.229	5.195	5.108	E3	4.68

(#) = Out of Range

1st MR 08/21/19
2nd hsr 08/22/19

ALS Environmental

TO11A Aldehyde & Ketone DNPH Analysis by HPLC

Client : Stantec Consulting Services, Inc.
Instrument : LC 03
Detector : UV-VIS 360
Analyst : MR

Service Request : P1904808
Date Acquired : 8/19/2019
Sample Amount : 3.0uL

QC

Sample Information	MRL	TO-11A 1500ng/ml S33-07121901	% Diff	ACN Blank lot#SHBK4555	MB Back Lot#12494/1228 4 1.0ml	MB Front Lot#12494/1228 4 1.0ml			TO-11A 1500ng/ml S33-07121901	% Diff	TO-11A 1500ng/ml S33-07121901	% Diff	TO-11A 1500ng/ml S33-07121901	% Diff	TO-11A 1500ng/ml S33-07121901	% Diff
Dilution	1.0			1.0	1.0	1.0	1.0	1.0								
Sample Volume (L)	NA			NA	NA	NA	NA	NA								
Final Vol.(mL)	1.0			1.0	1.0	1.0	1.0	1.0								
Data File		081919000002.D		081919000003.D	081919000004.D	081919000005.D	0.0	0.0	081919000015.D		081919000025.D		081919000036.D		081919000047.D	
	ng/sample	ng/sample		ng/sample	ng/sample	ng/sample	ng/sample	ng/sample	ng/sample		ng/sample		ng/sample		ng/sample	
Formaldehyde	100.00	1469.7	2.0%	ND	ND	ND			1460.3	2.6%	1457.7	2.8%	1485.3	1.0%	1451.2	3.3%
Acetaldehyde	100.00	1470.3	2.0%	ND	ND	ND			1465.3	2.3%	1465.0	2.3%	1473.7	1.8%	1451.9	3.2%
Propionaldehyde	100.00	1473.6	1.8%	ND	ND	ND			1465.9	2.3%	1469.9	2.0%	1480.0	1.3%	1456.4	2.9%
Crotonaldehyde	100.00	1488.3	0.8%	ND	ND	ND			1487.8	0.8%	1489.6	0.7%	1499.2	0.1%	1483.2	1.1%
Butyraldehyde	100.00	1477.3	1.5%	ND	ND	ND			1469.7	2.0%	1470.1	2.0%	1476.3	1.6%	1457.1	2.9%
Benzaldehyde	100.00	1500.1	0.0%	ND	ND	ND			1503.5	0.2%	1505.1	0.3%	1512.3	0.8%	1496.2	0.3%
Isovaleraldehyde	100.00	1479.6	1.4%	ND	ND	ND			1477.5	1.5%	1478.5	1.4%	1482.7	1.2%	1467.8	2.1%
Valeraldehyde	100.00	1459.0	2.7%	ND	ND	ND			1454.5	3.0%	1455.9	2.9%	1462.3	2.5%	1445.6	3.6%
o-Tolualdehyde	100.00	1500.2	0.0%	ND	ND	ND			1504.9	0.3%	1509.2	0.6%	1518.0	1.2%	1505.3	0.4%
m,p-Tolualdehyde	200.00	2956.5	1.5%	ND	ND	ND			2973.1	0.9%	2972.5	0.9%	2996.4	0.1%	2962.7	1.2%
Hexaldehyde	100.00	1497.0	0.2%	ND	ND	ND			1486.5	0.9%	1487.4	0.8%	1503.2	0.2%	1484.9	1.0%
2,5-Dimethylbenzaldehyde	100.00	1490.3	0.6%	ND	ND	ND			1493.7	0.4%	1498.9	0.1%	1513.6	0.9%	1499.4	0.0%

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U1- Amine**
Client Project ID: **Bridgeton Air Monitoring / 182608047**

ALS Project ID: P1904808
ALS Sample ID: P1904808-009

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC15/NPD
Analyst: Magaly Rodriguez
Sampling Media: Treated Alumina Tube
Test Notes: **BC, DE**

Date Collected: 8/13/19
Date Received: 8/14/19
Date Analyzed: 8/15/19
Desorption Volume: 2.0 ml
Volume Sampled: 30.7 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.1	ND	36	ND	19	
75-04-7	Ethylamine	< 1.1	ND	37	ND	20	
75-50-3	Trimethylamine	< 1.1	ND	35	ND	14	
75-31-0	Isopropylamine	< 1.1	ND	35	ND	14	
75-64-9	tert-Butylamine	< 1.1	ND	34	ND	11	
107-10-8	n-Propylamine	< 1.1	ND	36	ND	15	
109-89-7	Diethylamine	< 1.0	ND	34	ND	11	
13952-84-6	sec-Butylamine	< 1.0	ND	34	ND	11	
78-81-9	Isobutylamine	< 1.1	ND	35	ND	12	
109-73-9	n-Butylamine	< 1.1	ND	35	ND	12	
108-18-9	Diisopropylamine	< 1.0	ND	34	ND	8.2	
121-44-8	Triethylamine	< 1.1	ND	34	ND	8.3	
142-84-7	Dipropylamine	< 1.1	ND	35	ND	8.4	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U2- Amine**
Client Project ID: **Bridgeton Air Monitoring / 182608047**

ALS Project ID: P1904808
ALS Sample ID: P1904808-010

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC15/NPD
Analyst: Magaly Rodriguez
Sampling Media: Treated Alumina Tube
Test Notes: **BC, DE**

Date Collected: 8/13/19
Date Received: 8/14/19
Date Analyzed: 8/15/19
Desorption Volume: 2.0 ml
Volume Sampled: 25.7 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.1	ND	43	ND	23	
75-04-7	Ethylamine	< 1.1	ND	44	ND	24	
75-50-3	Trimethylamine	< 1.1	ND	42	ND	17	
75-31-0	Isopropylamine	< 1.1	ND	41	ND	17	
75-64-9	tert-Butylamine	< 1.1	ND	41	ND	14	
107-10-8	n-Propylamine	< 1.1	ND	43	ND	18	
109-89-7	Diethylamine	< 1.0	ND	41	ND	14	
13952-84-6	sec-Butylamine	< 1.0	ND	41	ND	14	
78-81-9	Isobutylamine	< 1.1	ND	42	ND	14	
109-73-9	n-Butylamine	< 1.1	ND	41	ND	14	
108-18-9	Diisopropylamine	< 1.0	ND	41	ND	9.8	
121-44-8	Triethylamine	< 1.1	ND	41	ND	9.9	
142-84-7	Dipropylamine	< 1.1	ND	41	ND	10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D1- Amine**
Client Project ID: **Bridgeton Air Monitoring / 182608047**

ALS Project ID: P1904808
ALS Sample ID: P1904808-011

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC15/NPD
Analyst: Magaly Rodriguez
Sampling Media: Treated Alumina Tube
Test Notes: **BC, DE**

Date Collected: 8/13/19
Date Received: 8/14/19
Date Analyzed: 8/15/19
Desorption Volume: 2.0 ml
Volume Sampled: 23.8 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.1	ND	46	ND	25	
75-04-7	Ethylamine	< 1.1	ND	47	ND	26	
75-50-3	Trimethylamine	< 1.1	ND	45	ND	19	
75-31-0	Isopropylamine	< 1.1	ND	45	ND	18	
75-64-9	tert-Butylamine	< 1.1	ND	44	ND	15	
107-10-8	n-Propylamine	< 1.1	ND	46	ND	19	
109-89-7	Diethylamine	< 1.0	ND	44	ND	15	
13952-84-6	sec-Butylamine	< 1.0	ND	44	ND	15	
78-81-9	Isobutylamine	< 1.1	ND	45	ND	15	
109-73-9	n-Butylamine	< 1.1	ND	45	ND	15	
108-18-9	Diisopropylamine	< 1.0	ND	44	ND	11	
121-44-8	Triethylamine	< 1.1	ND	44	ND	11	
142-84-7	Dipropylamine	< 1.1	ND	45	ND	11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D2- Amine**
Client Project ID: **Bridgeton Air Monitoring / 182608047**

ALS Project ID: P1904808
ALS Sample ID: P1904808-012

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC15/NPD
Analyst: Magaly Rodriguez
Sampling Media: Treated Alumina Tube
Test Notes: **BC, DE**

Date Collected: 8/13/19
Date Received: 8/14/19
Date Analyzed: 8/16/19
Desorption Volume: 2.0 ml
Volume Sampled: 25.6 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.1	ND	43	ND	23	
75-04-7	Ethylamine	< 1.1	ND	44	ND	24	
75-50-3	Trimethylamine	< 1.1	ND	42	ND	17	
75-31-0	Isopropylamine	< 1.1	ND	42	ND	17	
75-64-9	tert-Butylamine	< 1.1	ND	41	ND	14	
107-10-8	n-Propylamine	< 1.1	ND	43	ND	18	
109-89-7	Diethylamine	< 1.0	ND	41	ND	14	
13952-84-6	sec-Butylamine	< 1.0	ND	41	ND	14	
78-81-9	Isobutylamine	< 1.1	ND	42	ND	14	
109-73-9	n-Butylamine	< 1.1	ND	42	ND	14	
108-18-9	Diisopropylamine	< 1.0	ND	41	ND	9.8	
121-44-8	Triethylamine	< 1.1	ND	41	ND	9.9	
142-84-7	Dipropylamine	< 1.1	ND	42	ND	10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-DUPE 02** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-013

Test Code:	GC/NPD	Date Collected:	8/13/19
Instrument ID:	Agilent 6890N/GC15/NPD	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/16/19
Sampling Media:	Treated Alumina Tube	Desorption Volume:	2.0 ml
Test Notes:	**BC, DE**	Volume Sampled:	24.1 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.1	ND	46	ND	25	
75-04-7	Ethylamine	< 1.1	ND	47	ND	25	
75-50-3	Trimethylamine	< 1.1	ND	45	ND	18	
75-31-0	Isopropylamine	< 1.1	ND	44	ND	18	
75-64-9	tert-Butylamine	< 1.1	ND	44	ND	15	
107-10-8	n-Propylamine	< 1.1	ND	45	ND	19	
109-89-7	Diethylamine	< 1.0	ND	43	ND	15	
13952-84-6	sec-Butylamine	< 1.0	ND	43	ND	15	
78-81-9	Isobutylamine	< 1.1	ND	45	ND	15	
109-73-9	n-Butylamine	< 1.1	ND	44	ND	15	
108-18-9	Diisopropylamine	< 1.0	ND	43	ND	10	
121-44-8	Triethylamine	< 1.1	ND	44	ND	11	
142-84-7	Dipropylamine	< 1.1	ND	44	ND	11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 FB-Amine** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-014

Test Code: GC/NPD Date Collected: 8/13/19
Instrument ID: Agilent 6890N/GC15/NPD Date Received: 8/14/19
Analyst: Magaly Rodriguez Date Analyzed: 8/16/19
Sampling Media: Treated Alumina Tube Desorption Volume: 2.0 ml
Test Notes: **BC, DE** Volume Sampled: NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.1	NA	NA	NA	NA	
75-04-7	Ethylamine	< 1.1	NA	NA	NA	NA	
75-50-3	Trimethylamine	< 1.1	NA	NA	NA	NA	
75-31-0	Isopropylamine	< 1.1	NA	NA	NA	NA	
75-64-9	tert-Butylamine	< 1.1	NA	NA	NA	NA	
107-10-8	n-Propylamine	< 1.1	NA	NA	NA	NA	
109-89-7	Diethylamine	< 1.0	NA	NA	NA	NA	
13952-84-6	sec-Butylamine	< 1.0	NA	NA	NA	NA	
78-81-9	Isobutylamine	< 1.1	NA	NA	NA	NA	
109-73-9	n-Butylamine	< 1.1	NA	NA	NA	NA	
108-18-9	Diisopropylamine	< 1.0	NA	NA	NA	NA	
121-44-8	Triethylamine	< 1.1	NA	NA	NA	NA	
142-84-7	Dipropylamine	< 1.1	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.
NA = Not applicable.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 TB-Amine** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-015

Test Code:	GC/NPD	Date Collected:	8/13/19
Instrument ID:	Agilent 6890N/GC15/NPD	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/16/19
Sampling Media:	Treated Alumina Tube	Desorption Volume:	2.0 ml
Test Notes:	**BC, DE**	Volume Sampled:	NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.1	NA	NA	NA	NA	
75-04-7	Ethylamine	< 1.1	NA	NA	NA	NA	
75-50-3	Trimethylamine	< 1.1	NA	NA	NA	NA	
75-31-0	Isopropylamine	< 1.1	NA	NA	NA	NA	
75-64-9	tert-Butylamine	< 1.1	NA	NA	NA	NA	
107-10-8	n-Propylamine	< 1.1	NA	NA	NA	NA	
109-89-7	Diethylamine	< 1.0	NA	NA	NA	NA	
13952-84-6	sec-Butylamine	< 1.0	NA	NA	NA	NA	
78-81-9	Isobutylamine	< 1.1	NA	NA	NA	NA	
109-73-9	n-Butylamine	< 1.1	NA	NA	NA	NA	
108-18-9	Diisopropylamine	< 1.0	NA	NA	NA	NA	
121-44-8	Triethylamine	< 1.1	NA	NA	NA	NA	
142-84-7	Dipropylamine	< 1.1	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.
NA = Not applicable.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Bridgeton Air Monitoring / 182608047**

ALS Project ID: P1904808
ALS Sample ID: P190815-MB

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC15/NPD
Analyst: Magaly Rodriguez
Sampling Media: Treated Alumina Tube
Test Notes: **BC, DE**

Date Collected: NA
Date Received: NA
Date Analyzed: 8/15/19
Desorption Volume: 2.0 ml
Volume Sampled: NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.1	NA	NA	NA	NA	
75-04-7	Ethylamine	< 1.1	NA	NA	NA	NA	
75-50-3	Trimethylamine	< 1.1	NA	NA	NA	NA	
75-31-0	Isopropylamine	< 1.1	NA	NA	NA	NA	
75-64-9	tert-Butylamine	< 1.1	NA	NA	NA	NA	
107-10-8	n-Propylamine	< 1.1	NA	NA	NA	NA	
109-89-7	Diethylamine	< 1.0	NA	NA	NA	NA	
13952-84-6	sec-Butylamine	< 1.0	NA	NA	NA	NA	
78-81-9	Isobutylamine	< 1.1	NA	NA	NA	NA	
109-73-9	n-Butylamine	< 1.1	NA	NA	NA	NA	
108-18-9	Diisopropylamine	< 1.0	NA	NA	NA	NA	
121-44-8	Triethylamine	< 1.1	NA	NA	NA	NA	
142-84-7	Dipropylamine	< 1.1	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
NA = Not applicable.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190815-DLCS

Test Code: GC/NPD Date Collected: NA
Instrument ID: Agilent 6890N/GC15/NPD Date Received: NA
Analyst: Magaly Rodriguez Date Analyzed: 8/15/19
Sampling Media: Treated Alumina Tube Volume(s) Analyzed: NA Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/ml	Result LCS µg/ml	Result DLCS µg/ml	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-40-3	Dimethylamine	7.44	6.12	6.00	**82**	**81**	79-108	1	13	
75-04-7	Ethylamine	7.53	6.13	6.08	**81**	**81**	77-105	0	15	
75-50-3	Trimethylamine	6.71	5.40	5.49	**80**	**82**	78-112	2	12	
75-31-0	Isopropylamine	7.72	6.76	6.66	**88**	**86**	84-107	2	11	
75-64-9	tert-Butylamine	7.62	6.67	6.72	**88**	**88**	83-110	0	11	
107-10-8	n-Propylamine	8.17	6.81	6.67	**83**	**82**	81-107	1	12	
109-89-7	Diethylamine	7.92	7.01	6.99	**89**	**88**	86-108	1	9	
13952-84-6	sec-Butylamine	8.05	7.17	7.04	**89**	**87**	85-108	2	10	
78-81-9	Isobutylamine	7.83	6.67	6.62	**85**	**85**	83-107	0	11	
109-73-9	n-Butylamine	8.69	7.43	7.27	**86**	**84**	83-108	2	12	
108-18-9	Diisopropylamine	8.02	7.04	7.07	**88**	**88**	83-111	0	13	
121-44-8	Triethylamine	7.67	6.74	6.72	**88**	**88**	85-109	0	12	
142-84-7	Dipropylamine	8.19	7.38	7.24	**90**	**88**	86-110	2	9	

Response Factor Report GC15

Method Path : J:\GC15\METHODS\
Method File : AMINE032619.M
Title : GC #15/ NPD Method For Volatile Amines
Last Update : Tue Mar 26 15:58:12 2019
Response Via : Initial Calibration

Calibration Files
0.5 =03261902.D 5 =03261903.D 10 =03261904.D
25 =03261905.D 50 =03261906.D 100 =03261910.D

		Compound	0.5	5	10	25	50	100	Avg	%RSD
1)	I	3-Chloropyridine	----------ISTD----------							
2)		Dimethylamine	2.456	3.949	4.387	3.904	3.933	3.999	3.771	17.73
3)		Ethylamine	2.904	4.127	4.518	3.972	4.006	4.071	3.933	13.76
4)		Trimethylamine	3.555	3.425	3.549	3.031	2.951	2.929	3.240	9.29
5)		Isopropylamine	2.036	2.241	2.386	2.064	2.073	2.108	2.151	6.31
6)		t-Butylamine	1.046	1.013	1.033	0.897	0.896	0.904	0.965	7.57
7)		Propylamine	1.991	2.862	3.092	2.713	2.751	2.787	2.699	13.79
8)		Diethylamine	2.184	2.410	2.544	2.217	2.241	2.268	2.311	5.99
9)		s-Butylamine	1.589	1.640	1.756	1.532	1.569	1.570	1.609	4.97
10)		Isobutylamine	2.338	2.317	2.416	2.120	2.152	2.157	2.250	5.43
11)		Butylamine	1.388	1.903	2.074	1.854	1.916	1.902	1.840	12.70
12)		Diisopropylamine	1.489	1.411	1.421	1.218	1.223	1.237	1.333	9.03
13)		Triethylamine	1.689	1.714	1.739	1.474	1.462	1.492	1.595	8.24
14)		Dipropylamine	1.792	1.668	1.747	1.486	1.514	1.507	1.619	8.28

(#) = Out of Range

1st MR 08/27/19
2nd hsr 08/27/19

ALS Environmental

Client : Stantec Consulting Services, Inc.
Method : GC #15/ NPD Method For Volatile Amines
Instrument : GC15

Service Request : P1904808
Analyst : MR
Date Acquired : 8/16/2019

QC SAMPLE REPORT SUMMARY

Compounds	ug/ml	% Diff		ug/ml	ug/ml	ug/ml	% Diff	ug/ml	% Diff	ug/ml	% Diff	ug/ml	% Diff
Sample Information	10ug/ml Amine Std	10	Control Limits (%)	RB 0.01N NaOH/MeOH	MB	10ug/ml Amine Std	10	10ug/ml Amine Std	10				
Desorption Volume (mL)			2.0	2.0	2.0	2.0		2.0		2.0		2.0	
Dilution			1.0	1.0	1.0	1.0		1.0		1.0		1.0	
3-Chloropyridine IS	8991			8592	8374	46253		53627					
% Relative to CCV	100.0%			95.6%	93.1%	514.4%		596.5%					
Dimethylamine	8.771	12.3%	Pass	ND	ND	10.330	3.3%	9.781	2.2%				
Ethylamine	8.780	12.2%	Pass	ND	ND	10.066	0.7%	9.507	4.9%				
Trimethylamine	8.296	17.0%	Pass	ND	ND	10.135	1.4%	9.750	2.5%				
Isopropylamine	8.831	11.7%	Pass	ND	ND	10.085	0.9%	9.461	5.4%				
t-Butylamine	8.785	12.2%	Pass	ND	ND	9.685	3.2%	9.203	8.0%				
Propylamine	9.159	8.4%	Pass	ND	ND	10.886	8.9%	10.171	1.7%				
Diethylamine	9.043	9.6%	Pass	ND	ND	10.309	3.1%	9.838	1.6%				
s-Butylamine	9.082	9.2%	Pass	ND	ND	10.227	2.3%	9.613	3.9%				
Isobutylamine	8.819	11.8%	Pass	ND	ND	10.327	3.3%	9.659	3.4%				
Butylamine	9.624	3.8%	Pass	ND	ND	10.855	8.6%	10.204	2.0%				
Diisopropylamine	8.918	10.8%	Pass	ND	ND	9.752	2.5%	9.451	5.5%				
Triethylamine	8.907	10.9%	Pass	ND	ND	9.984	0.2%	9.735	2.7%				
Dipropylamine	9.198	8.0%	Pass	ND	ND	9.769	2.3%	9.315	6.9%				
Acqisition Time	10:17			10:32	12:05	10:01		11:46					
Analyst	MR		MR	MR	MR	MR		MR					

MRL CHECK & LCS/ LCSD RESULT SUMMARIES

0	%						%		%		%		%	
0	0.5ug/ml Amine MRL Check Std	recovery	Control Limits (%)	SS 10ug/ml	LCS 10ug/ml	LCSD 10ug/ml	recovery		recovery		Average Recovery	RPD	RPD (Control Limits)	
Desorption Volume (mL)	2.0			2.0	2.0	2.0								
Dilution	1.0			1.0	1.0	1.0								
3-Chloropyridine IS	7929			7643	10869	10184								
% Relative to CCV	88.2%			85.0%	120.9%	113.3%								
Dimethylamine	0.280	56.0%	P 36-107%	7.442	6.117	5.998	82.2%	Pass	80.6%	Pass	81.4%	2.0%	Pass	
Ethylamine	0.344	68.8%	P 47-105%	7.531	6.130	6.079	81.4%	Pass	80.7%	Pass	81.1%	0.8%	Pass	
Trimethylamine	0.449	89.8%	P 67-139%	6.707	5.398	5.494	80.5%	Pass	81.9%	Pass	81.2%	1.8%	Pass	
Isopropylamine	0.407	81.4%	P 60-122%	7.718	6.757	6.657	87.5%	Pass	86.3%	Pass	86.9%	1.5%	Pass	
t-Butylamine	0.557	111.4%	P 52-150%	7.622	6.669	6.723	87.5%	Pass	88.2%	Pass	87.9%	0.8%	Pass	
Propylamine	0.365	73.0%	P 35-132%	8.172	6.813	6.667	83.4%	Pass	81.6%	Pass	82.5%	2.2%	Pass	
Diethylamine	0.445	89.0%	P 61-123%	7.917	7.006	6.993	88.5%	Pass	88.3%	Pass	88.4%	0.2%	Pass	
s-Butylamine	0.538	107.6%	P 60-126%	8.045	7.168	7.036	89.1%	Pass	87.5%	Pass	88.3%	1.9%	Pass	
Isobutylamine	0.403	80.6%	P 66-118%	7.826	6.674	6.621	85.3%	Pass	84.6%	Pass	84.9%	0.8%	Pass	
Butylamine	0.356	71.2%	P 51-111%	8.685	7.427	7.274	85.5%	Pass	83.8%	Pass	84.6%	2.1%	Pass	
Diisopropylamine	0.566	113.2%	P 62-132%	8.018	7.038	7.067	87.8%	Pass	88.1%	Pass	88.0%	0.4%	Pass	
Triethylamine	0.508	101.6%	P 67-138%	7.668	6.736	6.719	87.8%	Pass	87.6%	Pass	87.7%	0.3%	Pass	
Dipropylamine	0.513	102.6%	P 55-137%	8.192	7.375	7.237	90.0%	Pass	88.3%	Pass	89.2%	1.9%	Pass	
Acqisition Time	10:47			15:57	14:37	14:57								
Analyst	MR			MR	MR	MR								

Response Factor Report MS10

Method Path : J:\MS10\METHODS\
Method File : CA051319.M
Title : Short Chain Carboxylic Acids in Air
Last Update : Tue May 14 09:53:48 2019
Response Via : Initial Calibration

Calibration Files
0.5 =05131908.D 1 =05131909.D 5 =05131910.D 10 =05131911.D 25 =05131912.D 50 =05131913.D
0.25=05131907.D

<30%

		Compound	0.5	1	5	10	25	50	0.25	Avg	%RSD
1)	I	IS1 Bromofluoroben...	----------ISTD----------								
2)	T	Acetic acid		0.096	0.077	0.066	0.073	0.072		0.077	14.80
3)	T	Propanoic acid	0.666	0.653	0.585	0.543	0.580	0.557	0.770	0.622	12.87
4)	T	2-Methylpropan...	0.426	0.412	0.372	0.364	0.380	0.377	0.455	0.398	8.49
5)	T	Butanoic acid	0.837	0.695	0.669	0.621	0.656	0.633	1.006	0.731	19.28
6)		2-Methylbutano...	1.269	1.188	1.227	1.139	1.216	1.191	1.530	1.251	10.32
7)	T	3-Methylbutano...	1.202	1.220	1.256	1.153	1.218	1.201	1.190	1.206	2.60
8)	T	Pentanoic acid	1.038	1.017	1.132	1.060	1.153	1.128	1.009	1.077	5.56
9)	T	2-Methylpentan...	1.747	1.781	1.833	1.791	1.861	1.832	2.042	1.841	5.24
10)	T	3-Methylpentan...	1.635	1.652	1.716	1.676	1.756	1.743	1.854	1.719	4.34
11)	T	4-Methylpentan...	0.650	0.694	0.723	0.673	0.702	0.701	0.803	0.707	6.86
12)	T	Hexanoic acid	1.358	1.322	1.463	1.428	1.483	1.476	1.381	1.416	4.46
13)	I	IS2 1,4-Dibromoben...	----------ISTD----------								
14)	T	Heptanoic acid	3.451	3.983	4.593	4.520	4.366	4.563	3.425	4.129	12.47
15)	T	2-Ethylhexanoi...	4.443	4.470	4.495	4.377	4.154	4.398	5.740	4.582	11.41
16)	T	Cyclohexanecar...	1.823	1.904	1.921	1.829	1.777	1.908	1.666	1.833	4.97
17)	T	Octanoic acid	5.049	4.373	4.893	4.613	4.483	4.715	5.588	4.816	8.54
18)	T	Benzoic acid	4.071	4.148	4.924	4.888	4.854	5.163	3.622	4.524	12.66
19)	I	IS3 Biphenyl	----------ISTD----------								
20)	T	Nonanoic acid	0.520	0.541	0.595	0.571	0.593	0.605	0.511	0.562	6.81
21)	T	Decanoic Acid	0.397	0.402	0.516	0.513	0.540	0.561	0.363	0.470	17.04

(#) = Out of Range

Evaluate Continuing Calibration Report

1st MR 08/23/19
2nd 08/25/19

Data Path : J:\MS10\DATA\ACIDS\2019_08\22\
Data File : 08221903.D
Acq On : 22 Aug 2019 10:54 am
Operator : MR
Sample : 10/20ug/ml Acids
Misc : S33-08131902 x.11/10/19
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 23 16:05:13 2019
Quant Method : J:\MS10\METHODS\CA051319.M
Quant Title : Short Chain Carboxylic Acids in Air
QLast Update : Tue May 14 09:53:48 2019
Response via : Initial Calibration
DataAcq Meth:FAME10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	IS1 Bromofluorobenzene (BFB	10.000	10.000	0.0	95	0.00
2	T	Acetic acid	20.000	17.914	10.4	99	0.00
3	T	Propanoic acid	10.000	8.499	15.0	93	0.00
4	T	2-Methylpropanoic acid	10.000	9.140	8.6	95	0.00
5	T	Butanoic acid	10.000	8.731	12.7	98	0.00
6		2-Methylbutanoic acid	10.000	9.448	5.5	99	0.00
7	T	3-Methylbutanoic acid	10.000	10.114	-1.1	101	0.00
8	T	Pentanoic acid	10.000	10.656	-6.6	103	0.00
9	T	2-Methylpentanoic acid	10.000	10.173	-1.7	100	0.00
10	T	3-Methylpentanoic acid	10.000	10.450	-4.5	102	0.00
11	T	4-Methylpentanoic acid	10.000	9.604	4.0	96	0.00
12	T	Hexanoic acid	10.000	11.008	-10.1	104	0.00
13	I	IS2 1,4-Dibromobenzene	10.000	10.000	0.0	108	0.00
14	T	Heptanoic acid	10.000	10.977	-9.8	108	0.00
15	T	2-Ethylhexanoic acid	10.000	9.238	7.6	104	0.00
16	T	Cyclohexanecarboxylic acid	10.000	10.232	-2.3	110	0.00
17	T	Octanoic acid	10.000	9.997	0.0	112	0.00
18	T	Benzoic acid	10.000	11.143	-11.4	111	0.00
19	I	IS3 Biphenyl	10.000	10.000	0.0	115	-0.01
20	T	Nonanoic acid	10.000	10.073	-0.7	114	0.00
21	T	Decanoic Acid	10.000	11.018	-10.2	116	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Response Factor Report HP G1530A

Method Path : J:\GC13\METHODS\
Method File : GC13_010319.M
Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
Last Update : Thu Jan 03 16:32:49 2019
Response Via : Initial Calibration

Calibration Files
5ppb =01031905.D 20 =01031908.D 100 =01031909.D
1000 =01031910.D 5000 =01031911.D 10k =01031912.D

		Compound	5ppb	20	100	1000	5000	10k	Avg		%RSD
1)	Z	Hydrogen_Sulfide	8.443	9.706	8.029	7.691	7.953	8.186	8.245	E4	8.44
2)	W	Carbonyl_Sulfide	9.281	7.850	9.356	9.016	9.143	9.387	8.985	E4	5.96
3)	T	Methyl_Mercaptan	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
4)	T	Ethyl_Mercaptan	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
5)	T	Dimethyl_Sulfide	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
6)	T	Carbon_Disulfide	1.540	1.226	1.530	1.620	1.684	1.746	1.578	E5	11.12
7)	T	2-Propyl_Merc...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
8)	T	t-Butyl_Merca...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
9)	T	Propyl_Mercaptan	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
10)	T	Ethyl_Methyl_...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
11)	T	Thiophene	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
12)	T	i-Butyl_Merca...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
13)	T	Diethyl_Sulfide	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
14)	t	n-Butyl_Merca...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
15)	t	Dimethyl_Disu...	1.540	1.226	1.530	1.620	1.684	1.746	1.578	E5	11.12
16)	T	2-Methyl_Thio...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
17)	t	3-Methyl_Thio...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
18)	T	Tetrahydrothi...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
19)	t	2,5-Dimethyl_...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
20)	T	2-Ethyl_Thiop...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
21)	T	Diethyl_Disul...	1.540	1.226	1.530	1.620	1.684	1.746	1.578	E5	11.12
22)	T	Methyltrisulfide	2.309	1.840	2.295	2.430	2.525	2.620	2.368	E5	11.10

(#) = Out of Range ### Number of calibration levels exceeded format ###

ALS Environmental

REPORT SUMMARY

Method : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
Client : Stantec Consulting Services, Inc.
Analyst : WH/GG

Service Request : P1904808
Instrument : GC13
Date Acquired : 8/15/19

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)													
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1.0ml							std s32-06191903		std s32-06191903		std s32-06191903									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0				0.10		0.10		0.10		0.10		0.10		0.10		0.10	
Dilution	1.0	1.0	1.00		1.0	1.0																	
Pi:	1.0	1.0	1.0		1.0	1.0																	
Pi:	1.0	1.0	1.0		1.0	1.0																	
PiPf DF:	1.0	1.0	1.0		1.0	1.0																	
Hydrogen_Sulfide	1.900	5.000	ND	P						881.08	11.9%	935.381	6.5%	935.222	6.5%								
Carbonyl_Sulfide	1.700	5.000	ND	P						917.96	8.2%	980.051	2.0%	977.662	2.2%								
Methyl_Mercaptan	1.200	5.000	ND	P						952.35	4.8%	1006.086	0.6%	997.357	0.3%								
Ethyl_Mercaptan	1.200	5.000	ND	P																			
Dimethyl_Sulfide	1.200	5.000	ND	P						6:50 AM		10:15 AM		1:25 PM									
Carbon_Disulfide	0.600	2.500	ND	P						08151901.D		08151911.D		08151918.D									
2-Propyl_Mercaptan	1.200	5.000	ND	P																			
t-Butyl_Mercaptan	1.200	5.000	ND	P																			
Propyl_Mercaptan	1.200	5.000	ND	P																			
Ethyl_Methyl_Sulfide	1.200	5.000	ND	P																			
Thiophene	1.200	5.000	ND	P																			
i-Butyl_Mercaptan	1.200	5.000	ND	P																			
Diethyl_Sulfide	1.200	5.000	ND	P																			
n-Butyl_Mercaptan	1.200	5.000	ND	P																			
Dimethyl_Disulfide	0.600	2.500	ND	P																			
2-Methylthiophene	1.200	5.000	ND	P																			
3-Methylthiophene	1.200	5.000	ND	P																			
Tetrahydrothiophene	1.200	5.000	ND	P																			
2,5-Dimethylthiophene	1.200	5.000	ND	P																			
2-Ethylthiophene	1.200	5.000	ND	P																			
Diethyl_Disulfide	0.600	2.500	ND	P																			
Methyltrisulfide	0.600	2.500	ND	P																			
Acqisition Time			7:47 AM																				
DataFile			08151905.D																				

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	815.22	82.4%		865.54	87.5%	5.99%	989.00
Carbonyl_Sulfide	869.16	82.8%		902.41	85.9%	3.75%	1050.00
Methyl_Mercaptan	918.41	87.5%		942.48	89.8%	2.59%	1050.00
Acqisition Time	6:58 AM			7:05 AM			
DataFile	08151902.D			08151903.D			

Response Factor Report MS13

Method Path : I:\MS13\METHODS\
Method File : R13070219.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jul 03 07:03:24 2019
Response Via : Initial Calibration

Calibration Files
0.1 =07021905.D 0.2 =07021906.D 0.5 =07021907.D 1.0 =07021908.D 5.0 =07021909.D 25 =07021910.D 50 =07021911.D
100 =07021912.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------							
2)	T	Propene	1.797	1.633	1.626	1.717	1.695	1.713	1.703	1.725	1.701	3.18
3)	T	Dichlorodifluo...	2.511	2.420	2.640	2.692	2.761	2.809	2.795	2.534	2.645	5.45
4)	T	Chloromethane	2.331	1.899	1.909	1.926	2.156	2.271	2.353	1.928	2.097	9.65
5)	T	1,2-Dichloro-1...	1.561	1.386	1.527	1.530	1.504	1.550	1.569	1.538	1.521	3.82
6)	T	Vinyl Chloride	1.448	1.426	1.786	1.922	2.040	2.168	2.148	2.092	1.879	15.94
7)	T	1,3-Butadiene	1.244	1.350	1.565	1.603	1.830	1.985	1.976	1.627	1.648	16.46
8)	T	Bromomethane	1.030	0.852	1.141	1.137	1.231	1.316	1.276	1.217	1.150	13.07
9)	T	Chloroethane	0.744	0.753	0.955	1.060	1.071	1.087	1.115	1.047	0.979	15.26
10)	T	Ethanol	1.281	1.083	1.208	1.140	1.094	1.191	1.166	1.071	1.154	6.23
11)	T	Acetonitrile	3.379	2.944	3.067	3.068	3.036	3.112	3.164	2.970	3.093	4.39
12)	T	Acrolein	0.888	0.810	0.955	0.897	0.990	0.982	0.969	0.834	0.916	7.54
13)	T	Acetone			1.150	1.140	1.103	1.118	1.113	0.960	1.097	6.33
14)	T	Trichlorofluor...	2.180	2.032	2.307	2.286	2.318	2.303	2.331	2.180	2.242	4.63
15)	T	2-Propanol (Is...	4.273	3.762	4.088	3.971	4.134	4.159	4.134	3.475	3.999	6.53
16)	T	Acrylonitrile	1.804	1.678	1.944	2.017	2.068	2.135	2.162	2.007	1.977	8.34
17)	T	1,1-Dichloroet...	1.353	1.211	1.379	1.374	1.405	1.460	1.474	1.344	1.375	5.92
18)	T	2-Methyl-2-Pro...	3.663	3.345	3.669	3.818	3.892	3.834	3.819	3.475	3.690	5.23
19)	T	Methylene Chlo...	1.438	1.288	1.400	1.455	1.441	1.470	1.498	1.383	1.422	4.59
20)	T	3-Chloro-1-pro...	2.566	2.076	2.231	2.132	2.253	2.401	2.423	2.256	2.292	7.06
21)	T	Trichlorotrifl...	1.488	1.345	1.419	1.451	1.420	1.459	1.490	1.366	1.430	3.73
22)	T	Carbon Disulfide			5.594	5.462	5.195	5.350	5.365	4.878	5.307	4.68
23)	T	trans-1,2-Dich...	1.954	1.693	1.894	1.980	2.049	2.114	2.138	1.979	1.975	7.10
24)	T	1,1-Dichloroet...	2.375	2.201	2.477	2.558	2.526	2.556	2.588	2.391	2.459	5.30
25)	T	Methyl tert-Bu...	4.080	3.730	4.233	4.274	4.339	4.445	4.474	4.114	4.211	5.70
26)	T	Vinyl Acetate			0.334	0.307	0.351	0.363	0.371	0.350	0.346	6.56
27)	T	2-Butanone (MEK)	0.850	0.895	1.002	1.021	1.048	1.055	1.056	1.014	0.993	7.83
28)	T	cis-1,2-Dichlo...	1.871	1.616	1.916	1.923	1.941	2.015	2.041	1.886	1.901	6.80
29)	T	Diisopropyl Ether	1.384	1.201	1.416	1.410	1.462	1.484	1.489	1.181	1.378	8.81
30)	T	Ethyl Acetate	0.449	0.463	0.525	0.527	0.534	0.535	0.547	0.511	0.511	7.00
31)	T	n-Hexane	2.501	2.391	2.517	2.407	2.391	2.213	2.237	2.121	2.347	6.05
32)	T	Chloroform	2.486	2.145	2.314	2.347	2.411	2.453	2.466	2.306	2.366	4.78
33)	S	1,2-Dichloroet...	1.393	1.367	1.361	1.437	1.386	1.378	1.417	1.364	1.388	1.94
34)	T	Tetrahydrofura...	1.184	0.948	0.938	1.020	1.002	0.998	1.020	0.951	1.008	7.80
35)	T	Ethyl tert-But...	1.557	1.491	1.659	1.700	1.788	1.806	1.825	1.705	1.691	7.07
36)	T	1,2-Dichloroet...	1.751	1.603	1.788	1.853	1.814	1.873	1.876	1.723	1.785	5.17
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------							
38)	T	1,1,1-Trichlor...	0.500	0.440	0.489	0.477	0.488	0.508	0.491	0.460	0.482	4.60
39)	T	Isopropyl Acetate	0.209	0.190	0.211	0.210	0.222	0.226	0.216	0.204	0.211	5.28
40)	T	1-Butanol	0.370	0.342	0.385	0.344	0.372	0.377	0.365	0.340	0.362	4.80
41)	T	Benzene	1.715	1.455	1.388	1.371	1.363	1.403	1.349	1.260	1.413	9.48
42)	T	Carbon Tetrach...	0.402	0.368	0.421	0.427	0.455	0.477	0.458	0.430	0.430	7.99

VOA 7/3/19

Method Path : I:\MS13\METHODS\
Method File : R13070219.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

43)	T	Cyclohexane	0.518	0.487	0.524	0.524	0.530	0.552	0.531	0.493	0.520	4.06
44)	T	tert-Amyl Meth...	0.861	0.813	0.903	0.937	0.944	0.994	0.958	0.891	0.913	6.34
45)	T	1,2-Dichloropr...	0.287	0.289	0.318	0.322	0.328	0.337	0.322	0.307	0.314	5.73
46)	T	Bromodichlorom...	0.397	0.378	0.413	0.419	0.437	0.462	0.438	0.418	0.420	6.17
47)	T	Trichloroethene	0.372	0.348	0.374	0.387	0.386	0.400	0.384	0.377	0.378	4.02
48)	T	1,4-Dioxane	0.250	0.256	0.278	0.286	0.290	0.305	0.289	0.281	0.279	6.57
49)	T	2,2,4-Trimethy...	1.427	1.360	1.424	1.442	1.422	1.477	1.394	1.292	1.405	4.05
50)	T	Methyl Methacr...	0.128	0.133	0.144	0.146	0.147	0.151	0.149	0.145	0.143	5.84
51)	T	n-Heptane	0.292	0.288	0.339	0.336	0.333	0.330	0.322	0.307	0.318	6.35
52)	T	cis-1,3-Dichlo...	0.489	0.464	0.526	0.521	0.546	0.581	0.559	0.520	0.526	7.13
53)	T	4-Methyl-2-pen...	0.318	0.266	0.305	0.310	0.326	0.339	0.324	0.305	0.312	6.97
54)	T	trans-1,3-Dich...	0.435	0.405	0.481	0.443	0.505	0.544	0.520	0.486	0.477	9.77
55)	T	1,1,2-Trichlor...	0.278	0.282	0.313	0.321	0.324	0.342	0.330	0.311	0.313	7.11
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	2.965	2.917	2.933	2.905	2.841	2.885	2.868	2.869	2.898	1.38
58)	T	Toluene	4.019	3.470	3.701	3.586	3.733	3.781	3.655	3.394	3.667	5.28
59)	T	2-Hexanone	2.162	1.927	2.078	1.939	2.133	2.125	2.027	1.904	2.037	5.04
60)	T	Dibromochlorom...	0.920	0.871	0.995	0.981	1.063	1.106	1.092	1.038	1.008	8.22
61)	T	1,2-Dibromoethane	0.911	0.835	0.931	0.939	0.978	1.013	0.984	0.940	0.941	5.75
62)	T	n-Butyl Acetate	2.203	2.125	2.255	2.106	2.334	2.358	2.249	2.095	2.216	4.58
63)	T	n-Octane	0.757	0.701	0.726	0.741	0.758	0.780	0.759	0.717	0.742	3.53
64)	T	Tetrachloroethene	1.136	1.042	1.163	1.144	1.130	1.196	1.189	1.141	1.143	4.16
65)	T	Chlorobenzene	2.453	2.157	2.497	2.449	2.519	2.575	2.517	2.360	2.441	5.37
66)	T	Ethylbenzene	4.240	3.802	4.230	4.103	4.368	4.367	4.224	3.865	4.150	5.14
67)	T	m- & p-Xylenes	3.134	2.807	3.214	3.082	3.251	3.303	3.190	2.991	3.121	5.14
68)	T	Bromoform	0.877	0.768	0.880	0.901	0.992	1.045	1.037	1.006	0.938	10.33
69)	T	Styrene	2.533	2.254	2.519	2.550	2.730	2.840	2.783	2.605	2.602	7.13
70)	T	o-Xylene	3.253	2.795	3.200	3.104	3.272	3.364	3.254	3.037	3.160	5.67
71)	T	n-Nonane	2.059	1.715	1.860	1.800	1.859	1.899	1.818	1.672	1.835	6.46
72)	T	1,1,2,2-Tetrac...	1.474	1.327	1.455	1.457	1.547	1.592	1.555	1.468	1.484	5.53
73)	S	Bromofluoroben...	0.739	0.730	0.743	0.755	0.759	0.742	0.745	0.736	0.744	1.29
74)	T	Cumene	4.180	3.764	4.170	4.148	4.358	4.405	4.221	3.849	4.137	5.43
75)	T	alpha-Pinene	1.980	1.878	2.116	2.100	2.290	2.295	2.209	2.110	2.122	6.81
76)	T	n-Propylbenzene	5.212	4.480	4.801	4.845	5.058	5.086	4.779	4.330	4.824	6.26
77)	T	3-Ethyltoluene	4.095	3.880	4.293	4.241	4.533	4.451	4.158	3.891	4.193	5.66
78)	T	4-Ethyltoluene	3.806	3.423	3.774	3.779	3.924	4.149	4.091	3.662	3.826	6.08
79)	T	1,3,5-Trimethy...	3.463	3.225	3.429	3.394	3.572	3.663	3.517	3.255	3.440	4.34
80)	T	alpha-Methylst...	1.749	1.622	1.918	1.901	2.060	2.087	2.003	1.941	1.910	8.22
81)	T	2-Ethyltoluene	4.076	3.640	4.047	4.048	4.202	4.290	4.131	3.776	4.026	5.36
82)	T	1,2,4-Trimethy...	3.387	3.044	3.443	3.335	3.569	3.691	3.539	3.297	3.413	5.81
83)	T	n-Decane	1.913	1.734	1.852	1.830	1.918	1.921	1.851	1.707	1.841	4.46
84)	T	Benzyl Chloride			2.591	2.488	3.007	3.366	3.291	3.087	2.972	12.14
85)	T	1,3-Dichlorobe...	2.045	1.846	2.057	2.080	2.209	2.299	2.275	2.199	2.126	7.02
86)	T	1,4-Dichlorobe...	1.887	1.838	2.040	2.051	2.180	2.320	2.261	2.154	2.091	8.14
87)	T	sec-Butylbenzene	4.853	4.226	4.592	4.621	4.866	4.904	4.637	4.251	4.619	5.71
88)	T	4-Isopropyltol...	4.481	4.073	4.516	4.438	4.733	4.678	4.509	4.055	4.435	5.64
89)	T	1,2,3-Trimethy...	3.658	3.156	3.471	3.382	3.612	3.634	3.552	3.334	3.475	5.03
90)	T	1,2-Dichlorobe...	2.015	1.786	2.010	1.983	2.122	2.118	2.136	2.047	2.027	5.60
91)	T	d-Limonene	1.332	1.272	1.419	1.416	1.487	1.500	1.482	1.382	1.411	5.69
92)	T	1,2-Dibromo-3-...	0.667	0.664	0.733	0.710	0.802	0.825	0.838	0.800	0.755	9.30
93)	T	n-Undecane	2.218	1.890	1.997	1.938	2.061	2.017	1.927	1.779	1.978	6.56
94)	T	1,2,4-Trichlor...	1.573	1.194	1.350	1.423	1.588	1.706	1.680	1.662	1.522	11.96

Method Path : I:\MS13\METHODS\
Method File : R13070219.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95)	T	Naphthalene	5.301	3.753	3.545	3.754	4.462	5.094	5.015	4.673	4.450	15.42
96)	T	n-Dodecane	2.457	1.820	1.790	1.832	2.045	1.915	1.842	1.691	1.924	12.38
97)	T	Hexachlorobuta...	1.427	1.099	1.139	1.098	1.134	1.150	1.135	1.128	1.164	9.29
98)	T	Cyclohexanone	1.495	1.259	1.376	1.220	1.417	1.365	1.345	1.268	1.343	6.76
99)	T	tert-Butylbenzene	3.584	3.200	3.479	3.492	3.643	3.668	3.512	3.246	3.478	4.94
100)	T	n-Butylbenzene	3.535	3.296	3.618	3.569	3.787	3.796	3.683	3.339	3.578	5.20

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS13\DATA\2019_08\26\08261904.D
Sample : CCV R13082619_25ng Inst : MS13
Acq On : 26 Aug 2019 9:38 Operator: RS
Misc : S31-06261901/S31-08131905
ALS Vial : 16 Sample Multiplier: 1 RS 8/26/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Quant Time: Aug 26 10:18:07 2019
Quant Method : I:\MS13\METHODS\R13070219.M
QLast Update : Wed Jul 03 07:03:24 2019
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	163	-0.02
2	T	Propene	1.701	1.572	7.6	150	-0.02
3	T	Dichlorodifluoromethane (CF	2.645	2.468	6.7	143	-0.03
4	T	Chloromethane	2.097	1.842	12.2	132	-0.03
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.521	1.480	2.7	156	-0.03
6	T	Vinyl Chloride	1.879	2.075	-10.4	156	-0.03
7	T	1,3-Butadiene	1.648	1.355	17.8	111	-0.03
8	T	Bromomethane	1.150	1.012	12.0	125	-0.03
9	T	Chloroethane	0.979	0.854	12.8	128	-0.03
10	T	Ethanol	1.154	0.888	23.1	121	-0.09
11	T	Acetonitrile	3.093	2.350	24.0	123	-0.06
12	T	Acrolein	0.916	0.749	18.2	124	-0.03
13	T	Acetone	1.097	0.891	18.8	130	-0.05
14	T	Trichlorofluoromethane	2.242	1.948	13.1	138	-0.02
15	T	2-Propanol (Isopropanol)	3.999	3.504	12.4	137	-0.07
16	T	Acrylonitrile	1.977	1.829	7.5	140	-0.04
17	T	1,1-Dichloroethene	1.375	1.215	11.6	136	-0.02
18	T	2-Methyl-2-Propanol (tert-B	3.690	3.093	16.2	132	-0.07
19	T	Methylene Chloride	1.422	1.248	12.2	138	-0.02
20	T	3-Chloro-1-propene (Allyl C	2.292	2.057	10.3	140	-0.02
21	T	Trichlorotrifluoroethane	1.430	1.218	14.8	136	-0.02
22	T	Carbon Disulfide	5.307	4.535	14.5	138	-0.02
23	T	trans-1,2-Dichloroethene	1.975	1.712	13.3	132	-0.02
24	T	1,1-Dichloroethane	2.459	2.007	18.4	128	-0.02
25	T	Methyl tert-Butyl Ether	4.211	3.356	20.3	123	-0.02
26	T	Vinyl Acetate	0.346	0.289	16.5	130	-0.03
27	T	2-Butanone (MEK)	0.993	0.891	10.3	138	-0.02
28	T	cis-1,2-Dichloroethene	1.901	1.548	18.6	125	-0.02
29	T	Diisopropyl Ether	1.378	1.140	17.3	125	-0.02
30	T	Ethyl Acetate	0.511	0.423	17.2	129	-0.02
31	T	n-Hexane	2.347	1.860	20.7	137	-0.01
32	T	Chloroform	2.366	1.879	20.6	125	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.388	1.422	-2.4	168	-0.02
34	T	Tetrahydrofuran (THF)	1.008	0.771	23.5	126	-0.01
35	T	Ethyl tert-Butyl Ether	1.691	1.390	17.8	125	-0.02
36	T	1,2-Dichloroethane	1.785	1.480	17.1	129	-0.02
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	159	-0.01
38	T	1,1,1-Trichloroethane	0.482	0.408	15.4	127	-0.02
39	T	Isopropyl Acetate	0.211	0.184	12.8	130	-0.01
40	T	1-Butanol	0.362	0.308	14.9	130	-0.04
41	T	Benzene	1.413	1.157	18.1	131	-0.01
42	T	Carbon Tetrachloride	0.430	0.383	10.9	127	-0.01
43	T	Cyclohexane	0.520	0.441	15.2	127	-0.01
44	T	tert-Amyl Methyl Ether	0.913	0.768	15.9	122	-0.02
45	T	1,2-Dichloropropane	0.314	0.265	15.6	125	-0.01
46	T	Bromodichloromethane	0.420	0.364	13.3	125	-0.01
47	T	Trichloroethene	0.378	0.317	16.1	126	-0.01
48	T	1,4-Dioxane	0.279	0.233	16.5	121	-0.02
49	T	2,2,4-Trimethylpentane (Iso	1.405	1.142	18.7	123	-0.01
50	T	Methyl Methacrylate	0.143	0.129	9.8	135	-0.02
51	T	n-Heptane	0.318	0.298	6.3	143	-0.01
52	T	cis-1,3-Dichloropropene	0.526	0.448	14.8	122	-0.01
53	T	4-Methyl-2-pentanone	0.312	0.262	16.0	122	-0.02
54	T	trans-1,3-Dichloropropene	0.477	0.412	13.6	120	-0.01
55	T	1,1,2-Trichloroethane	0.313	0.263	16.0	122	-0.01

Evaluate Continuing Calibration Report

Data File: I:\MS13\DATA\2019_08\26\08261904.D
Sample : CCV R13082619_25ng Inst : MS13
Acq On : 26 Aug 2019 9:38 Operator: RS
Misc : S31-06261901/S31-08131905
ALS Vial : 16 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Quant Time: Aug 26 10:18:07 2019
Quant Method : I:\MS13\METHODS\R13070219.M
QLast Update : Wed Jul 03 07:03:24 2019
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	154	0.00
57	S	Toluene-d8 (SS2)	2.898	2.870	1.0	153	0.00
58	T	Toluene	3.667	3.037	17.2	123	-0.01
59	T	2-Hexanone	2.037	1.678	17.6	121	-0.01
60	T	Dibromochloromethane	1.008	0.894	11.3	124	-0.01
61	T	1,2-Dibromoethane	0.941	0.807	14.2	122	-0.01
62	T	n-Butyl Acetate	2.216	1.856	16.2	121	-0.01
63	T	n-Octane	0.742	0.627	15.5	123	0.00
64	T	Tetrachloroethene	1.143	0.951	16.8	122	-0.01
65	T	Chlorobenzene	2.441	2.031	16.8	121	0.00
66	T	Ethylbenzene	4.150	3.759	9.4	132	-0.01
67	T	m- & p-Xylenes	3.121	2.832	9.3	132	-0.02
68	T	Bromoform	0.938	0.915	2.5	134	-0.01
69	T	Styrene	2.602	2.321	10.8	125	0.00
70	T	o-Xylene	3.160	2.826	10.6	129	0.00
71	T	n-Nonane	1.835	1.611	12.2	130	0.00
72	T	1,1,2,2-Tetrachloroethane	1.484	1.336	10.0	129	-0.01
73	S	Bromofluorobenzene (SS3)	0.744	0.647	13.0	134	0.00
74	T	Cumene	4.137	3.493	15.6	122	0.00
75	T	alpha-Pinene	2.122	1.783	16.0	119	0.00
76	T	n-Propylbenzene	4.824	4.024	16.6	121	-0.01
77	T	3-Ethyltoluene	4.193	3.660	12.7	126	-0.01
78	T	4-Ethyltoluene	3.826	3.095	19.1	115	-0.01
79	T	1,3,5-Trimethylbenzene	3.440	2.851	17.1	119	-0.01
80	T	alpha-Methylstyrene	1.910	1.573	17.6	116	-0.01
81	T	2-Ethyltoluene	4.026	3.518	12.6	126	-0.01
82	T	1,2,4-Trimethylbenzene	3.413	2.945	13.7	122	-0.01
83	T	n-Decane	1.841	1.510	18.0	121	-0.01
84	T	Benzyl Chloride	2.972	2.307	22.4	105	-0.01
85	T	1,3-Dichlorobenzene	2.126	1.715	19.3	115	-0.01
86	T	1,4-Dichlorobenzene	2.091	1.711	18.2	113	-0.01
87	T	sec-Butylbenzene	4.619	3.842	16.8	120	0.00
88	T	4-Isopropyltoluene (p-Cymen	4.435	3.794	14.5	125	-0.01
89	T	1,2,3-Trimethylbenzene	3.475	2.947	15.2	124	-0.01
90	T	1,2-Dichlorobenzene	2.027	1.652	18.5	120	-0.01
91	T	d-Limonene	1.411	1.121	20.6	115	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.755	0.652	13.6	121	0.00
93	T	n-Undecane	1.978	1.606	18.8	122	0.00
94	T	1,2,4-Trichlorobenzene	1.522	1.186	22.1	107	0.00
95	T	Naphthalene	4.450	3.244	27.1	98	0.00
96	T	n-Dodecane	1.924	1.563	18.8	125	0.00
97	T	Hexachlorobutadiene	1.164	0.906	22.2	121	0.00
98	T	Cyclohexanone	1.343	1.211	9.8	136	-0.02
99	T	tert-Butylbenzene	3.478	2.950	15.2	123	-0.01
100	T	n-Butylbenzene	3.578	2.997	16.2	121	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Project ID: P1904808

Ammonia

Test Code: OSHA ID-188/ID-164 Date(s) Collected: 8/13/19
Instrument ID: PH01/Thermo Orion 920A+/Ammonia ISE Date Received: 8/14/19
Analyst: Sue Anderson Date Analyzed: 8/22/19
Sampling Media: Anasorb 747 Tube(s) (Sulfuric Treated) Desorption Volume: 0.10 Liter(s)
Test Notes: **BC, DE**

Client Sample ID	ALS Sample ID	Sample Volume Liter(s)	Dilution Factor	Result mg/Tube	Result mg/m³	MRL mg/m³	**Result ppmV**	MRL ppmV	Data Qualifier
813 U1-NH3	P1904808-030	98.8	1.0	< 0.010	ND	0.11	ND	0.15	
813 U2-NH3	P1904808-031	95.7	1.0	< 0.010	ND	0.11	ND	0.16	
813 D1-NH3	P1904808-032	94	1.0	< 0.010	ND	0.11	ND	0.16	
813 D1-NH3	P1904808-033	96.5	1.0	< 0.010	ND	0.11	ND	0.16	
813-DUPE 03	P1904808-034	95.9	1.0	< 0.010	ND	0.11	ND	0.16	
813 FB-NH3	P1904808-035	NA	1.0	< 0.010	NA	NA	NA	NA	
813 TB-NH3	P1904808-036	NA	1.0	< 0.010	NA	NA	NA	NA	
Method Blank	P190822-MB	NA	1.0	< 0.010	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
NA = Not applicable.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190822-LCS, P190822-DLCS

Laboratory Control Sample/Duplicate Laboratory Control Sample Summary

Test Code: OSHA ID-188/ID-164 Date Sampled: N/A
Instrument ID: PH01/Thermo Orion 920A+/Ammonia ISE Date Received: N/A
Analyst: Sue Anderson Date Analyzed: 8/22/19
Sampling Media: Anasorb 747 Tube(s) (Sulfuric Treated) Volume(s) Analyzed: N/A
Test Notes:

Compound	Spike Amount LCS / DLCS mg/L	Result LCS mg/L	Result DLCS mg/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	Relative Percent Difference	RPD Limit	Data Qualifier
Ammonia	1.00	1.01	1.03	101	103	80-111	2	2	

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Ammonia in Air

OSHA ID-188/ID-164

Filling solution changed prior to analysis: **Yes** ☑ **No** ☐

Prep. Run# 342766	Run # 648441

Stds.	Conc. mg/L	millivolts mV	Slope: Range [-54~-60]
Std 1:	0.10	167.6	
Std 2:	1.00	108.9	
Std 3:	5.00	68.6	-58.7
Std 4:	10.00	50.6	
Std 5:	100.00	8.3	

	Ref#	Exp.Date	Prep
Stock 1000 ppm	524-07161902	1/16/20	—
ICV/CCV 1214 ppm	524-12241801	6/6/20	70 · 0.05/50 = 70.121 mg/L
pH Buffer; ISA	524-04161902B	4/16/20	--
Filling Soln	524-04111901	4/11/20	--

DE = 0.955

Sample I.D.	Volume mL	Millivolts mV	Conc. mg/L	DE Corrected Conc. mg/L	Final Value mg	Final Value mg/m³	Final Value ppmV
ICB	50	182.9	0.0542	<0.1			
ICV 0.121 mg/L		164.4	0.113	93%			
MB 2		191.4	0.0388	0.0406	<0.010		
LCS 2 1.00 mg/L		110.0	0.969	1.01	0.101	2% RPD	101%
DLCS2 J		109.6	0.984	1.03	0.103		103%
P1904800-30.01B		191.2	0.0390	0.0408	<0.010	<0.11 J	<0.16 J
-30.01F		188.9	0.0427	0.0447			
-31.01B		200.0	0.0274	0.0287		<0.11 J	<0.16 J
-31.01F		206.0	0.0216	0.0226			
-32.01B		202.3	0.0250	0.0262		<0.12 J	<0.16 J
-32.01F		197.7	0.0342	0.0358			
-33.01B		201.4	0.0260	0.0272		<0.11 J	<0.16 J
CCV 0.121 mg/L		164.2	0.115	95%			
CCB1		206.0	0.0216	<0.1			
P1904800-33.01F		198.8	0.0290	0.0304	<0.010	<0.11 J	<0.16 J
-34.01B		198.8	0.0290	0.0304			
-34.01F		200.0	0.0274	0.0287			
-35.01B		200.7	0.0269	0.0282			
-35.01F		199.7	0.0280	0.0293			
-36.01B		201.7	0.0258	0.0270			
-36.01F		200.5	0.0270	0.0283			
P1904846-1.01B		180.3	0.0600	0.0628		<0.44 J	<0.63 J
-1.01F		195.0	0.0336	0.0352			

Comments: B = Back, F = Front

Analyst: _____ Date/Time: 8/20/19 @ 1000 Reviewer: _____ Date: 8/23/19

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Ammonia in Air

OSHA ID-188/ID-164

Filling solution changed prior to analysis: Yes ☑ No ☐

Prep. Run# 342766	Run # 64844

Stds.	Conc.	millivolts	Slope:
	mg/L	mV	Range [-54~-60]
Std 1:	0.10	167.6	
Std 2:	1.00	108.9	
Std 3:	5.00	68.6	-58.7
Std 4:	10.00	50.6	
Std 5:	100.00	-8.3	

	Ref#	Exp.Date	Prep
Stock 1000 ppm	524-0716/902	1/16/20	—
ICV/CCV 1214 ppm	524-1224/801	06/20	to. 0.05/5 => 0.121 mg/L
pH Buffer; ISA	524-0416/502	4/16/20	--
Filling Soln	524-0411/901	4/11/20	--

DE = 0.955

Sample I.D.	Volume mL	Millivolts mV	Conc. mg/L	DE Corrected Conc. mg/L	Final Value mg	Final Value mg/m³	Final Value ppmV
IOB P1904846-20B	50	199.5	0.0281	0.0294	<0.010	<0.44	<0.63
ICV CCV2 0.121 mg/L		164.2	0.115	95%			
MB CCB2		206.4	0.0210	<0.1			
LCS P1904846-2WF		201.6	0.0259	0.0271	<0.010	<0.44	<0.63
T 3.0B		198.8	0.0289	0.0303	T	T	T
↓ 3.0F		197.0	0.0310	0.0325	↓	↓	↓
CCV3 0.121 mg/L		164.2	0.115	95%			
CCB3	↓	201.4	0.0260	<0.1			

Space not used

Jm 8/23/19

Comments: B = Back, F = Front

Analyst: _____ Date/Time: 8/23/19 @ 1000 Reviewer: _____ Date: 8/23/19

ALS Environmental

ISE Method for Ammonia in Air

Printed: 8/23/19
Client: Stantec Consulting Group, Inc.
Analyst: SMA
CAS Job: P1904808
Method: OSHA ID-188/ ID-164

Instrument: pH02
Date Analyzed: 8/22/19
Sample Amt: 0.100 L
Solvent: 0.1 N H2SO4
Matrix: Anasorb 747 (sulfuric treated)

SAMPLE RESULTS

Sample		Ammonia (mg/L)	Desorption Vol (L)	Dilution	Sample Vol (L)	Ammonia (mg/tube)*	Ammonia mg/m3	Ammonia ppm
	MW	17.03						
	MRL	0.100	0.1	1.0	NA	0.01		
RB		0.0542	NA	NA	NA			
MB		0.0388	0.100	1.0	NA	ND	ND	ND
P1904808-030.01	back	0.0390	0.050	1.0	98.8	ND	ND	ND
P1904808-031.01	back	0.0274	0.050	1.0	95.7	ND	ND	ND
P1904808-032.01	back	0.0250	0.050	1.0	94.0	ND	ND	ND
P1904808-033.01	back	0.0260	0.050	1.0	96.5	ND	ND	ND
P1904808-034.01	back	0.0290	0.050	1.0	95.9	ND	ND	ND
P1904808-035.01	back	0.0269	0.050	1.0	NA	ND	ND	ND
P1904808-036.01	back	0.0258	0.050	1.0	NA	ND	ND	ND
P1904808-030.01	front	0.0427	0.100	1.0	98.8	ND	ND	ND
P1904808-031.01	front	0.0216	0.100	1.0	95.7	ND	ND	ND
P1904808-032.01	front	0.0342	0.100	1.0	94.0	ND	ND	ND
P1904808-033.01	front	0.0290	0.100	1.0	96.5	ND	ND	ND
P1904808-034.01	front	0.0274	0.100	1.0	95.9	ND	ND	ND
P1904808-035.01	front	0.0280	0.100	1.0	NA	ND	ND	ND
P1904808-036.01	front	0.0270	0.100	1.0	NA	ND	ND	ND

*Samples are DE corrected
Desorption Efficiency (DE): 0.955

QC RESULTS

0.121 mg/L NH3 ICV S24-12241801 (06/20	0.121	LCS	1.00	
ACTUAL	0.113	SPIKE STD	1.01	
% RECOVERY	93.4%	% RECOVERY	101.0%	
0.121 mg/L NH3 CCV1 S24-12241801 (06/20	0.121	LCSD	1.00	
ACTUAL	0.115	SPIKE STD	1.03	
% RECOVERY	95.0%	% RECOVERY	103.0%	
		%RPD:	2.0%	
0.121 mg/L NH3 CCV2 S24-12241801 (06/20	0.121	0.121 mg/L NH3 CCV3 S24-12241801 (06/20		0.121
ACTUAL	0.115	ACTUAL		0.115
% RECOVERY	95.0%	% RECOVERY		95.0%

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U1-CARBOX** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-023

Test Code: GC/MS Date Collected: 8/13/19
Instrument ID: Agilent 5973/Agilent 6890/MS10 Date Received: 8/14/19
Analyst: Magaly Rodriguez Date Analyzed: 8/22/19
Sampling Media: Silica Gel Tube Desorption Volume: 1.0 ml
Test Notes: **BC, DE** Volume Sampled: 88.4 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	23	ND	9.3	
79-09-4	Propionic Acid (Propanoic)	< 0.25	ND	2.8	ND	0.93	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.8	ND	0.77	
107-92-6	Butanoic Acid (Butyric)	< 0.25	ND	2.8	ND	0.77	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.8	ND	0.68	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.8	ND	0.67	
109-52-4	Pentanoic Acid (Valeric)	< 0.25	ND	2.8	ND	0.68	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.9	ND	0.60	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.8	ND	0.59	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.9	ND	0.60	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.8	ND	0.59	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.8	ND	0.53	
149-57-5	2-Ethylhexanoic Acid	< 0.27	ND	3.0	ND	0.51	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.8	ND	0.53	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.8	ND	0.47	
65-85-0	Benzoic Acid	< 0.28	ND	3.2	ND	0.64	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.8	ND	0.43	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U2-CARBOX** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-024

Test Code:	GC/MS	Date Collected:	8/13/19
Instrument ID:	Agilent 5973/Agilent 6890/MS10	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/22/19
Sampling Media:	Silica Gel Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC, DE**	Volume Sampled:	97.5 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	21	ND	8.4	
79-09-4	Propionic Acid (Propanoic)	< 0.25	ND	2.6	ND	0.84	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.5	ND	0.70	
107-92-6	Butanoic Acid (Butyric)	< 0.25	ND	2.5	ND	0.70	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.6	ND	0.62	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.5	ND	0.60	
109-52-4	Pentanoic Acid (Valeric)	< 0.25	ND	2.6	ND	0.62	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.6	ND	0.54	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.6	ND	0.54	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.6	ND	0.55	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.5	ND	0.54	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.6	ND	0.48	
149-57-5	2-Ethylhexanoic Acid	< 0.27	ND	2.7	ND	0.46	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.5	ND	0.48	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.5	ND	0.43	
65-85-0	Benzoic Acid	< 0.28	ND	2.9	ND	0.58	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.6	ND	0.39	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D1-CARBOX** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-025

Test Code:	GC/MS	Date Collected:	8/13/19
Instrument ID:	Agilent 5973/Agilent 6890/MS10	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/22/19
Sampling Media:	Silica Gel Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC, DE**	Volume Sampled:	93.8 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	21	ND	8.7	
79-09-4	Propionic Acid (Propanoic)	< 0.25	ND	2.7	ND	0.88	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.6	ND	0.73	
107-92-6	Butanoic Acid (Butyric)	< 0.25	ND	2.6	ND	0.73	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.7	ND	0.64	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.6	ND	0.63	
109-52-4	Pentanoic Acid (Valeric)	< 0.25	ND	2.7	ND	0.64	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.57	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.56	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.7	ND	0.57	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.6	ND	0.56	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.7	ND	0.50	
149-57-5	2-Ethylhexanoic Acid	< 0.27	ND	2.8	ND	0.48	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.6	ND	0.50	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.6	ND	0.45	
65-85-0	Benzoic Acid	< 0.28	ND	3.0	ND	0.61	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.7	ND	0.41	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D2-CARBOX** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-026

Test Code:	GC/MS	Date Collected:	8/13/19
Instrument ID:	Agilent 5973/Agilent 6890/MS10	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/22/19
Sampling Media:	Silica Gel Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC, DE**	Volume Sampled:	94.2 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	21	ND	8.7	
79-09-4	Propionic Acid (Propanoic)	< 0.25	ND	2.6	ND	0.87	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.6	ND	0.73	
107-92-6	Butanoic Acid (Butyric)	< 0.25	ND	2.6	ND	0.73	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.7	ND	0.64	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.6	ND	0.63	
109-52-4	Pentanoic Acid (Valeric)	< 0.25	ND	2.7	ND	0.64	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.56	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.6	ND	0.56	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.7	ND	0.57	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.6	ND	0.55	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.7	ND	0.50	
149-57-5	2-Ethylhexanoic Acid	< 0.27	ND	2.8	ND	0.48	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.6	ND	0.50	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.6	ND	0.45	
65-85-0	Benzoic Acid	< 0.28	ND	3.0	ND	0.60	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.6	ND	0.41	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-DUPE 04** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-027

Test Code:	GC/MS	Date Collected:	8/13/19
Instrument ID:	Agilent 5973/Agilent 6890/MS10	Date Received:	8/14/19
Analyst:	Magaly Rodriguez	Date Analyzed:	8/22/19
Sampling Media:	Silica Gel Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC, DE**	Volume Sampled:	99.8 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	20	ND	8.2	
79-09-4	Propionic Acid (Propanoic)	< 0.25	ND	2.5	ND	0.83	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.5	ND	0.69	
107-92-6	Butanoic Acid (Butyric)	< 0.25	ND	2.5	ND	0.69	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.5	ND	0.60	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.5	ND	0.59	
109-52-4	Pentanoic Acid (Valeric)	< 0.25	ND	2.5	ND	0.60	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.5	ND	0.53	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.5	ND	0.53	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.5	ND	0.53	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.5	ND	0.52	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.5	ND	0.47	
149-57-5	2-Ethylhexanoic Acid	< 0.27	ND	2.7	ND	0.45	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.5	ND	0.47	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.5	ND	0.42	
65-85-0	Benzoic Acid	< 0.28	ND	2.8	ND	0.57	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.5	ND	0.39	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 FB-CARBOX** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-028

Test Code: GC/MS Date Collected: 8/13/19
Instrument ID: Agilent 5973/Agilent 6890/MS10 Date Received: 8/14/19
Analyst: Magaly Rodriguez Date Analyzed: 8/22/19
Sampling Media: Silica Gel Tube Desorption Volume: 1.0 ml
Test Notes: **BC, DE** Volume Sampled: NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	NA	NA	NA	NA	
79-09-4	Propionic Acid (Propanoic)	< 0.25	NA	NA	NA	NA	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	NA	NA	NA	NA	
107-92-6	Butanoic Acid (Butyric)	< 0.25	NA	NA	NA	NA	
116-53-0	2-Methylbutanoic Acid	< 0.25	NA	NA	NA	NA	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	NA	NA	NA	NA	
109-52-4	Pentanoic Acid (Valeric)	< 0.25	NA	NA	NA	NA	
97-61-0	2-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
105-43-1	3-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	NA	NA	NA	NA	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	NA	NA	NA	NA	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	NA	NA	NA	NA	
149-57-5	2-Ethylhexanoic Acid	< 0.27	NA	NA	NA	NA	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	NA	NA	NA	NA	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	NA	NA	NA	NA	
65-85-0	Benzoic Acid	< 0.28	NA	NA	NA	NA	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.
NA = Not applicable.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 TB-CARBOX** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-029

Test Code: GC/MS Date Collected: 8/13/19
Instrument ID: Agilent 5973/Agilent 6890/MS10 Date Received: 8/14/19
Analyst: Magaly Rodriguez Date Analyzed: 8/22/19
Sampling Media: Silica Gel Tube Desorption Volume: 1.0 ml
Test Notes: **BC, DE** Volume Sampled: NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	NA	NA	NA	NA	
79-09-4	Propionic Acid (Propanoic)	< 0.25	NA	NA	NA	NA	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	NA	NA	NA	NA	
107-92-6	Butanoic Acid (Butyric)	< 0.25	NA	NA	NA	NA	
116-53-0	2-Methylbutanoic Acid	< 0.25	NA	NA	NA	NA	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	NA	NA	NA	NA	
109-52-4	Pentanoic Acid (Valeric)	< 0.25	NA	NA	NA	NA	
97-61-0	2-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
105-43-1	3-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	NA	NA	NA	NA	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	NA	NA	NA	NA	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	NA	NA	NA	NA	
149-57-5	2-Ethylhexanoic Acid	< 0.27	NA	NA	NA	NA	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	NA	NA	NA	NA	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	NA	NA	NA	NA	
65-85-0	Benzoic Acid	< 0.28	NA	NA	NA	NA	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.
NA = Not applicable.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190822-MB

Test Code:	GC/MS	Date Collected:	NA
Instrument ID:	Agilent 5973/Agilent 6890/MS10	Date Received:	NA
Analyst:	Magaly Rodriguez	Date Analyzed:	8/22/19
Sampling Media:	Silica Gel Tube	Desorption Volume:	1.0 ml
Test Notes:	**BC, DE**	Volume Sampled:	NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	NA	NA	NA	NA	
79-09-4	Propionic Acid (Propanoic)	< 0.25	NA	NA	NA	NA	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	NA	NA	NA	NA	
107-92-6	Butanoic Acid (Butyric)	< 0.25	NA	NA	NA	NA	
116-53-0	2-Methylbutanoic Acid	< 0.25	NA	NA	NA	NA	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	NA	NA	NA	NA	
109-52-4	Pentanoic Acid (Valeric)	< 0.25	NA	NA	NA	NA	
97-61-0	2-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
105-43-1	3-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	NA	NA	NA	NA	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	NA	NA	NA	NA	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	NA	NA	NA	NA	
149-57-5	2-Ethylhexanoic Acid	< 0.27	NA	NA	NA	NA	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	NA	NA	NA	NA	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	NA	NA	NA	NA	
65-85-0	Benzoic Acid	< 0.28	NA	NA	NA	NA	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
NA = Not applicable.
BC = Results reported are not blank corrected.
DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190822-DLCS

Test Code: GC/MS Date Collected: NA
Instrument ID: Agilent 5973/Agilent 6890/MS10 Date Received: NA
Analyst: Magaly Rodriguez Date Analyzed: 8/22/19
Sampling Media: Silica Gel Tube Volume(s) Analyzed: NA Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/ml	Result LCS µg/ml	Result DLCS µg/ml	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
64-19-7	Acetic Acid	16.4	16.9	16.6	**103**	**101**	69-131	2	29	
79-09-4	Propionic Acid (Propanoic)	7.93	8.19	8.20	**103**	**103**	78-121	0	19	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	8.48	8.37	8.38	**99**	**99**	83-116	0	15	
107-92-6	Butanoic Acid (Butyric)	7.95	7.80	7.97	**98**	**100**	85-113	2	12	
116-53-0	2-Methylbutanoic Acid	8.49	8.35	8.29	**98**	**98**	86-113	0	14	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	9.19	9.07	9.02	**99**	**98**	85-113	1	12	
109-52-4	Pentanoic Acid (Valeric)	9.64	9.58	9.44	**99**	**98**	87-113	1	11	
97-61-0	2-Methylpentanoic Acid	9.03	8.93	8.89	**99**	**99**	86-112	0	12	
105-43-1	3-Methylpentanoic Acid	9.51	9.35	9.17	**98**	**96**	87-112	2	12	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	8.51	8.65	8.55	**102**	**100**	86-113	2	14	
142-62-1	Hexanoic Acid (Caproic)	9.87	9.76	9.68	**99**	**98**	85-113	1	13	
111-14-8	Heptanoic Acid (Enanthoic)	9.55	9.58	9.68	**100**	**101**	86-113	1	11	
149-57-5	2-Ethylhexanoic Acid	7.80	6.85	7.26	**88**	**93**	81-114	6	20	
98-89-5	Cyclohexanecarboxylic Acid	9.49	9.42	9.59	**99**	**101**	87-113	2	14	
124-07-2	Octanoic Acid (Caprylic)	8.64	8.60	8.73	**100**	**101**	85-114	1	13	
65-85-0	Benzoic Acid	8.80	6.71	7.67	**76**	**87**	67-118	13	21	
112-05-0	Nonanoic Acid (Pelargonic)	8.76	8.81	8.89	**101**	**101**	84-112	0	17	

Response Factor Report MS10

Method Path : J:\MS10\METHODS\
Method File : CA051319.M
Title : Short Chain Carboxylic Acids in Air
Last Update : Tue May 14 09:53:48 2019
Response Via : Initial Calibration

Calibration Files
0.5 =05131908.D 1 =05131909.D 5 =05131910.D 10 =05131911.D 25 =05131912.D 50 =05131913.D
0.25=05131907.D

<30%

		Compound	0.5	1	5	10	25	50	0.25	Avg	%RSD
1)	I	IS1 Bromofluoroben...	----------ISTD----------								
2)	T	Acetic acid		0.096	0.077	0.066	0.073	0.072		0.077	14.80
3)	T	Propanoic acid	0.666	0.653	0.585	0.543	0.580	0.557	0.770	0.622	12.87
4)	T	2-Methylpropan...	0.426	0.412	0.372	0.364	0.380	0.377	0.455	0.398	8.49
5)	T	Butanoic acid	0.837	0.695	0.669	0.621	0.656	0.633	1.006	0.731	19.28
6)		2-Methylbutano...	1.269	1.188	1.227	1.139	1.216	1.191	1.530	1.251	10.32
7)	T	3-Methylbutano...	1.202	1.220	1.256	1.153	1.218	1.201	1.190	1.206	2.60
8)	T	Pentanoic acid	1.038	1.017	1.132	1.060	1.153	1.128	1.009	1.077	5.56
9)	T	2-Methylpentan...	1.747	1.781	1.833	1.791	1.861	1.832	2.042	1.841	5.24
10)	T	3-Methylpentan...	1.635	1.652	1.716	1.676	1.756	1.743	1.854	1.719	4.34
11)	T	4-Methylpentan...	0.650	0.694	0.723	0.673	0.702	0.701	0.803	0.707	6.86
12)	T	Hexanoic acid	1.358	1.322	1.463	1.428	1.483	1.476	1.381	1.416	4.46
13)	I	IS2 1,4-Dibromoben...	----------ISTD----------								
14)	T	Heptanoic acid	3.451	3.983	4.593	4.520	4.366	4.563	3.425	4.129	12.47
15)	T	2-Ethylhexanoi...	4.443	4.470	4.495	4.377	4.154	4.398	5.740	4.582	11.41
16)	T	Cyclohexanecar...	1.823	1.904	1.921	1.829	1.777	1.908	1.666	1.833	4.97
17)	T	Octanoic acid	5.049	4.373	4.893	4.613	4.483	4.715	5.588	4.816	8.54
18)	T	Benzoic acid	4.071	4.148	4.924	4.888	4.854	5.163	3.622	4.524	12.66
19)	I	IS3 Biphenyl	----------ISTD----------								
20)	T	Nonanoic acid	0.520	0.541	0.595	0.571	0.593	0.605	0.511	0.562	6.81
21)	T	Decanoic Acid	0.397	0.402	0.516	0.513	0.540	0.561	0.363	0.470	17.04

(#) = Out of Range

Evaluate Continuing Calibration Report

1st MR 08/23/19
2nd 08/25/19

Data Path : J:\MS10\DATA\ACIDS\2019_08\22\
Data File : 08221903.D
Acq On : 22 Aug 2019 10:54 am
Operator : MR
Sample : 10/20ug/ml Acids
Misc : S33-08131902 x.11/10/19
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 23 16:05:13 2019
Quant Method : J:\MS10\METHODS\CA051319.M
Quant Title : Short Chain Carboxylic Acids in Air
QLast Update : Tue May 14 09:53:48 2019
Response via : Initial Calibration
DataAcq Meth:FAME10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	IS1 Bromofluorobenzene (BFB	10.000	10.000	0.0	95	0.00
2	T	Acetic acid	20.000	17.914	10.4	99	0.00
3	T	Propanoic acid	10.000	8.499	15.0	93	0.00
4	T	2-Methylpropanoic acid	10.000	9.140	8.6	95	0.00
5	T	Butanoic acid	10.000	8.731	12.7	98	0.00
6		2-Methylbutanoic acid	10.000	9.448	5.5	99	0.00
7	T	3-Methylbutanoic acid	10.000	10.114	-1.1	101	0.00
8	T	Pentanoic acid	10.000	10.656	-6.6	103	0.00
9	T	2-Methylpentanoic acid	10.000	10.173	-1.7	100	0.00
10	T	3-Methylpentanoic acid	10.000	10.450	-4.5	102	0.00
11	T	4-Methylpentanoic acid	10.000	9.604	4.0	96	0.00
12	T	Hexanoic acid	10.000	11.008	-10.1	104	0.00
13	I	IS2 1,4-Dibromobenzene	10.000	10.000	0.0	108	0.00
14	T	Heptanoic acid	10.000	10.977	-9.8	108	0.00
15	T	2-Ethylhexanoic acid	10.000	9.238	7.6	104	0.00
16	T	Cyclohexanecarboxylic acid	10.000	10.232	-2.3	110	0.00
17	T	Octanoic acid	10.000	9.997	0.0	112	0.00
18	T	Benzoic acid	10.000	11.143	-11.4	111	0.00
19	I	IS3 Biphenyl	10.000	10.000	0.0	115	-0.01
20	T	Nonanoic acid	10.000	10.073	-0.7	114	0.00
21	T	Decanoic Acid	10.000	11.018	-10.2	116	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U1-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-001

Test Code: ASTM D 5504-12 Date Collected: 8/13/19
Instrument ID: Agilent 6890A/GC13/SCD Time Collected: 15:45
Analyst: Wade Henton/Gilbert Gutierrez Date Received: 8/14/19
Sample Type: 6.0 L Silonite Canister Date Analyzed: 8/15/19
Test Notes: Time Analyzed: 09:31
Container ID: AS01356 Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -3.21 Final Pressure (psig): 3.63

Container Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	11	ND	8.0	
463-58-1	Carbonyl Sulfide	ND	20	ND	8.0	
74-93-1	Methyl Mercaptan	ND	16	ND	8.0	
75-08-1	Ethyl Mercaptan	ND	20	ND	8.0	
75-18-3	Dimethyl Sulfide	ND	20	ND	8.0	
75-15-0	Carbon Disulfide	ND	12	ND	4.0	
75-33-2	Isopropyl Mercaptan	ND	25	ND	8.0	
75-66-1	tert-Butyl Mercaptan	ND	29	ND	8.0	
107-03-9	n-Propyl Mercaptan	ND	25	ND	8.0	
624-89-5	Ethyl Methyl Sulfide	ND	25	ND	8.0	
110-02-1	Thiophene	ND	28	ND	8.0	
513-44-0	Isobutyl Mercaptan	ND	29	ND	8.0	
352-93-2	Diethyl Sulfide	ND	29	ND	8.0	
109-79-5	n-Butyl Mercaptan	ND	29	ND	8.0	
624-92-0	Dimethyl Disulfide	ND	15	ND	4.0	
616-44-4	3-Methylthiophene	ND	32	ND	8.0	
110-01-0	Tetrahydrothiophene	ND	29	ND	8.0	
638-02-8	2,5-Dimethylthiophene	ND	37	ND	8.0	
872-55-9	2-Ethylthiophene	ND	37	ND	8.0	
110-81-6	Diethyl Disulfide	ND	20	ND	4.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U2-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-002

Test Code:	ASTM D 5504-12	Date Collected:	8/13/19
Instrument ID:	Agilent 6890A/GC13/SCD	Time Collected:	16:34
Analyst:	Wade Henton/Gilbert Gutierrez	Date Received:	8/14/19
Sample Type:	6.0 L Silonite Canister	Date Analyzed:	8/15/19
Test Notes:		Time Analyzed:	09:54
Container ID:	AS00609	Volume(s) Analyzed:	1.0 ml(s)

Initial Pressure (psig): -2.47 Final Pressure (psig): 3.86

Container Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	11	ND	7.6	
463-58-1	Carbonyl Sulfide	ND	19	ND	7.6	
74-93-1	Methyl Mercaptan	ND	15	ND	7.6	
75-08-1	Ethyl Mercaptan	ND	19	ND	7.6	
75-18-3	Dimethyl Sulfide	ND	19	ND	7.6	
75-15-0	Carbon Disulfide	ND	12	ND	3.8	
75-33-2	Isopropyl Mercaptan	ND	24	ND	7.6	
75-66-1	tert-Butyl Mercaptan	ND	28	ND	7.6	
107-03-9	n-Propyl Mercaptan	ND	24	ND	7.6	
624-89-5	Ethyl Methyl Sulfide	ND	24	ND	7.6	
110-02-1	Thiophene	ND	26	ND	7.6	
513-44-0	Isobutyl Mercaptan	ND	28	ND	7.6	
352-93-2	Diethyl Sulfide	ND	28	ND	7.6	
109-79-5	n-Butyl Mercaptan	ND	28	ND	7.6	
624-92-0	Dimethyl Disulfide	ND	15	ND	3.8	
616-44-4	3-Methylthiophene	ND	31	ND	7.6	
110-01-0	Tetrahydrothiophene	ND	27	ND	7.6	
638-02-8	2,5-Dimethylthiophene	ND	35	ND	7.6	
872-55-9	2-Ethylthiophene	ND	35	ND	7.6	
110-81-6	Diethyl Disulfide	ND	19	ND	3.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D1-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-003

Test Code:	ASTM D 5504-12	Date Collected:	8/13/19
Instrument ID:	Agilent 6890A/GC13/SCD	Time Collected:	16:50
Analyst:	Wade Henton/Gilbert Gutierrez	Date Received:	8/14/19
Sample Type:	6.0 L Silonite Canister	Date Analyzed:	8/15/19
Test Notes:		Time Analyzed:	10:27
Container ID:	AS01260	Volume(s) Analyzed:	1.0 ml(s)

Initial Pressure (psig): -2.31 Final Pressure (psig): 3.73

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	10	ND	7.5	
463-58-1	Carbonyl Sulfide	ND	18	ND	7.5	
74-93-1	Methyl Mercaptan	ND	15	ND	7.5	
75-08-1	Ethyl Mercaptan	ND	19	ND	7.5	
75-18-3	Dimethyl Sulfide	ND	19	ND	7.5	
75-15-0	Carbon Disulfide	ND	12	ND	3.7	
75-33-2	Isopropyl Mercaptan	ND	23	ND	7.5	
75-66-1	tert-Butyl Mercaptan	ND	27	ND	7.5	
107-03-9	n-Propyl Mercaptan	ND	23	ND	7.5	
624-89-5	Ethyl Methyl Sulfide	ND	23	ND	7.5	
110-02-1	Thiophene	ND	26	ND	7.5	
513-44-0	Isobutyl Mercaptan	ND	27	ND	7.5	
352-93-2	Diethyl Sulfide	ND	27	ND	7.5	
109-79-5	n-Butyl Mercaptan	ND	27	ND	7.5	
624-92-0	Dimethyl Disulfide	ND	14	ND	3.7	
616-44-4	3-Methylthiophene	ND	30	ND	7.5	
110-01-0	Tetrahydrothiophene	ND	27	ND	7.5	
638-02-8	2,5-Dimethylthiophene	ND	34	ND	7.5	
872-55-9	2-Ethylthiophene	ND	34	ND	7.5	
110-81-6	Diethyl Disulfide	ND	19	ND	3.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D2-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-004

Test Code:	ASTM D 5504-12	Date Collected:	8/13/19
Instrument ID:	Agilent 6890A/GC13/SCD	Time Collected:	16:45
Analyst:	Wade Henton/Gilbert Gutierrez	Date Received:	8/14/19
Sample Type:	6.0 L Silonite Canister	Date Analyzed:	8/15/19
Test Notes:		Time Analyzed:	10:46
Container ID:	AS00940	Volume(s) Analyzed:	1.0 ml(s)

Initial Pressure (psig): -2.36 Final Pressure (psig): 3.63

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	10	ND	7.5	
463-58-1	Carbonyl Sulfide	ND	18	ND	7.5	
74-93-1	Methyl Mercaptan	ND	15	ND	7.5	
75-08-1	Ethyl Mercaptan	ND	19	ND	7.5	
75-18-3	Dimethyl Sulfide	ND	19	ND	7.5	
75-15-0	Carbon Disulfide	ND	12	ND	3.7	
75-33-2	Isopropyl Mercaptan	ND	23	ND	7.5	
75-66-1	tert-Butyl Mercaptan	ND	27	ND	7.5	
107-03-9	n-Propyl Mercaptan	ND	23	ND	7.5	
624-89-5	Ethyl Methyl Sulfide	ND	23	ND	7.5	
110-02-1	Thiophene	ND	26	ND	7.5	
513-44-0	Isobutyl Mercaptan	ND	27	ND	7.5	
352-93-2	Diethyl Sulfide	ND	27	ND	7.5	
109-79-5	n-Butyl Mercaptan	ND	27	ND	7.5	
624-92-0	Dimethyl Disulfide	ND	14	ND	3.7	
616-44-4	3-Methylthiophene	ND	30	ND	7.5	
110-01-0	Tetrahydrothiophene	ND	27	ND	7.5	
638-02-8	2,5-Dimethylthiophene	ND	34	ND	7.5	
872-55-9	2-Ethylthiophene	ND	34	ND	7.5	
110-81-6	Diethyl Disulfide	ND	19	ND	3.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-DUPE10** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-005

Test Code:	ASTM D 5504-12	Date Collected:	8/13/19
Instrument ID:	Agilent 6890A/GC13/SCD	Time Collected:	NA
Analyst:	Wade Henton/Gilbert Gutierrez	Date Received:	8/14/19
Sample Type:	6.0 L Silonite Canister	Date Analyzed:	8/15/19
Test Notes:		Time Analyzed:	11:12
Container ID:	AS01341	Volume(s) Analyzed:	1.0 ml(s)

Initial Pressure (psig): -2.81 Final Pressure (psig): 3.51

Container Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	11	ND	7.7	
463-58-1	Carbonyl Sulfide	ND	19	ND	7.7	
74-93-1	Methyl Mercaptan	ND	15	ND	7.7	
75-08-1	Ethyl Mercaptan	ND	19	ND	7.7	
75-18-3	Dimethyl Sulfide	ND	19	ND	7.7	
75-15-0	Carbon Disulfide	ND	12	ND	3.8	
75-33-2	Isopropyl Mercaptan	ND	24	ND	7.7	
75-66-1	tert-Butyl Mercaptan	ND	28	ND	7.7	
107-03-9	n-Propyl Mercaptan	ND	24	ND	7.7	
624-89-5	Ethyl Methyl Sulfide	ND	24	ND	7.7	
110-02-1	Thiophene	ND	26	ND	7.7	
513-44-0	Isobutyl Mercaptan	ND	28	ND	7.7	
352-93-2	Diethyl Sulfide	ND	28	ND	7.7	
109-79-5	n-Butyl Mercaptan	ND	28	ND	7.7	
624-92-0	Dimethyl Disulfide	ND	15	ND	3.8	
616-44-4	3-Methylthiophene	ND	31	ND	7.7	
110-01-0	Tetrahydrothiophene	ND	28	ND	7.7	
638-02-8	2,5-Dimethylthiophene	ND	35	ND	7.7	
872-55-9	2-Ethylthiophene	ND	35	ND	7.7	
110-81-6	Diethyl Disulfide	ND	19	ND	3.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-TB** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-006

Test Code:	ASTM D 5504-12	Date Collected:	8/13/19
Instrument ID:	Agilent 6890A/GC13/SCD	Time Collected:	NA
Analyst:	Wade Henton/Gilbert Gutierrez	Date Received:	8/14/19
Sample Type:	6.0 L Silonite Canister	Date Analyzed:	8/15/19
Test Notes:		Time Analyzed:	08:12
Container ID:	AS01361	Volume(s) Analyzed:	1.0 ml(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-FB1** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-007

Test Code:	ASTM D 5504-12	Date Collected:	8/13/19
Instrument ID:	Agilent 6890A/GC13/SCD	Time Collected:	NA
Analyst:	Wade Henton/Gilbert Gutierrez	Date Received:	8/14/19
Sample Type:	6.0 L Silonite Canister	Date Analyzed:	8/15/19
Test Notes:		Time Analyzed:	08:31
Container ID:	AS00969	Volume(s) Analyzed:	1.0 ml(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-FB2** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-008

Test Code: ASTM D 5504-12 Date Collected: 8/13/19
Instrument ID: Agilent 6890A/GC13/SCD Time Collected: NA
Analyst: Wade Henton/Gilbert Gutierrez Date Received: 8/14/19
Sample Type: 6.0 L Silonite Canister Date Analyzed: 8/15/19
Test Notes: Time Analyzed: 08:58
Container ID: AS00866 Volume(s) Analyzed: 1.0 ml(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190815-MB

Test Code: ASTM D 5504-12 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Time Collected: NA
Analyst: Wade Henton/Gilbert Gutierrez Date Received: NA
Sample Type: 6.0 L Silonite Canister Date Analyzed: 8/15/19
Test Notes: Time Analyzed: 07:47
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190815-LCS

Test Code: ASTM D 5504-12 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Wade Henton/Gilbert Gutierrez Date Analyzed: 8/15/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	989	**815**	**82**	72-122	
463-58-1	Carbonyl Sulfide	1,050	**869**	**83**	72-121	
74-93-1	Methyl Mercaptan	1,050	**918**	**87**	74-127	

Method Path : J:\GC13\METHODS\
Method File : GC13_010319.M
Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
Last Update : Thu Jan 03 16:32:49 2019
Response Via : Initial Calibration

Calibration Files
5ppb =01031905.D 20 =01031908.D 100 =01031909.D
1000 =01031910.D 5000 =01031911.D 10k =01031912.D

		Compound	5ppb	20	100	1000	5000	10k	Avg		%RSD
1)	Z	Hydrogen_Sulfide	8.443	9.706	8.029	7.691	7.953	8.186	8.245	E4	8.44
2)	W	Carbonyl_Sulfide	9.281	7.850	9.356	9.016	9.143	9.387	8.985	E4	5.96
3)	T	Methyl_Mercaptan	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
4)	T	Ethyl_Mercaptan	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
5)	T	Dimethyl_Sulfide	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
6)	T	Carbon_Disulfide	1.540	1.226	1.530	1.620	1.684	1.746	1.578	E5	11.12
7)	T	2-Propyl_Merc...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
8)	T	t-Butyl_Merca...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
9)	T	Propyl_Mercaptan	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
10)	T	Ethyl_Methyl_...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
11)	T	Thiophene	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
12)	T	i-Butyl_Merca...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
13)	T	Diethyl_Sulfide	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
14)	t	n-Butyl_Merca...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
15)	t	Dimethyl_Disu...	1.540	1.226	1.530	1.620	1.684	1.746	1.578	E5	11.12
16)	T	2-Methyl_Thio...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
17)	t	3-Methyl_Thio...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
18)	T	Tetrahydrothi...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
19)	t	2,5-Dimethyl_...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
20)	T	2-Ethyl_Thiop...	7.699	6.129	7.648	8.099	8.418	8.732	7.892	E4	11.12
21)	T	Diethyl_Disul...	1.540	1.226	1.530	1.620	1.684	1.746	1.578	E5	11.12
22)	T	Methyltrisulfide	2.309	1.840	2.295	2.430	2.525	2.620	2.368	E5	11.10

(#) = Out of Range ### Number of calibration levels exceeded format ###

ALS Environmental

REPORT SUMMARY

Method : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
Client : Stantec Consulting Services, Inc.
Analyst : WH/GG

Service Request : P1904808
Instrument : GC13
Date Acquired : 8/15/19

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB				dup	%RSD		ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1.0ml							std s32-06191903		std s32-06191903		std s32-06191903							
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0				0.10		0.10		0.10		0.10		0.10		0.10	
Dilution	1.0	1.0	1.00		1.0	1.0															
Pi:	1.0	1.0	1.0		1.0	1.0															
Pi:	1.0	1.0	1.0		1.0	1.0															
PiPf DF:	1.0	1.0	1.0		1.0	1.0															
Hydrogen_Sulfide	1.900	5.000	ND	P						881.08	11.9%	935.381	6.5%	935.222	6.5%						
Carbonyl_Sulfide	1.700	5.000	ND	P						917.96	8.2%	980.051	2.0%	977.662	2.2%						
Methyl_Mercaptan	1.200	5.000	ND	P						952.35	4.8%	1006.086	0.6%	997.357	0.3%						
Ethyl_Mercaptan	1.200	5.000	ND	P																	
Dimethyl_Sulfide	1.200	5.000	ND	P						6:50 AM		10:15 AM		1:25 PM							
Carbon_Disulfide	0.600	2.500	ND	P						08151901.D		08151911.D		08151918.D							
2-Propyl_Mercaptan	1.200	5.000	ND	P																	
t-Butyl_Mercaptan	1.200	5.000	ND	P																	
Propyl_Mercaptan	1.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	1.200	5.000	ND	P																	
Thiophene	1.200	5.000	ND	P																	
i-Butyl_Mercaptan	1.200	5.000	ND	P																	
Diethyl_Sulfide	1.200	5.000	ND	P																	
n-Butyl_Mercaptan	1.200	5.000	ND	P																	
Dimethyl_Disulfide	0.600	2.500	ND	P																	
2-Methylthiophene	1.200	5.000	ND	P																	
3-Methylthiophene	1.200	5.000	ND	P																	
Tetrahydrothiophene	1.200	5.000	ND	P																	
2,5-Dimethylthiophene	1.200	5.000	ND	P																	
2-Ethylthiophene	1.200	5.000	ND	P																	
Diethyl_Disulfide	0.600	2.500	ND	P																	
Methyltrisulfide	0.600	2.500	ND	P																	
Acqisition Time			7:47 AM																		
DataFile			08151905.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	815.22	82.4%		865.54	87.5%	5.99%	989.00
Carbonyl_Sulfide	869.16	82.8%		902.41	85.9%	3.75%	1050.00
Methyl_Mercaptan	918.41	87.5%		942.48	89.8%	2.59%	1050.00
Acqisition Time	6:58 AM			7:05 AM			
DataFile	08151902.D			08151903.D			

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U1-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-001

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01356

Initial Pressure (psig): -3.21 Final Pressure (psig): 3.63

Container Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.83	ND	0.48	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.5**	0.83	**0.51**	0.17	
74-87-3	Chloromethane	ND	0.80	ND	0.39	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.82	ND	0.12	
75-01-4	Vinyl Chloride	ND	0.85	ND	0.33	
106-99-0	1,3-Butadiene	ND	0.83	ND	0.38	
74-83-9	Bromomethane	ND	0.80	ND	0.21	
75-00-3	Chloroethane	ND	0.82	ND	0.31	
64-17-5	Ethanol	**21**	8.2	**11**	4.3	
75-05-8	Acetonitrile	**1.6**	0.83	**0.98**	0.50	
107-02-8	Acrolein	ND	1.6	ND	0.70	
67-64-1	Acetone	**9.1**	8.6	**3.8**	3.6	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	0.85	**0.21**	0.15	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	3.4	ND	1.4	
107-13-1	Acrylonitrile	ND	0.83	ND	0.38	
75-35-4	1,1-Dichloroethene	ND	0.86	ND	0.22	
75-09-2	Methylene Chloride	ND	0.86	ND	0.25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.85	ND	0.27	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.85	ND	0.11	
75-15-0	Carbon Disulfide	ND	1.8	ND	0.57	
156-60-5	trans-1,2-Dichloroethene	ND	0.85	ND	0.21	
75-34-3	1,1-Dichloroethane	ND	0.83	ND	0.21	
1634-04-4	Methyl tert-Butyl Ether	ND	0.86	ND	0.24	
108-05-4	Vinyl Acetate	ND	8.5	ND	2.4	
78-93-3	2-Butanone (MEK)	ND	1.6	ND	0.54	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U1-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-001

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01356

Initial Pressure (psig): -3.21 Final Pressure (psig): 3.63

Container Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.85	ND	0.21	
141-78-6	Ethyl Acetate	**7.6**	1.8	**2.1**	0.49	
110-54-3	n-Hexane	ND	0.86	ND	0.25	
67-66-3	Chloroform	ND	0.86	ND	0.18	
109-99-9	Tetrahydrofuran (THF)	ND	0.85	ND	0.29	
107-06-2	1,2-Dichloroethane	ND	0.85	ND	0.21	
71-55-6	1,1,1-Trichloroethane	ND	0.86	ND	0.16	
71-43-2	Benzene	ND	0.83	ND	0.26	
56-23-5	Carbon Tetrachloride	ND	0.83	ND	0.13	
110-82-7	Cyclohexane	ND	1.6	ND	0.47	
78-87-5	1,2-Dichloropropane	ND	0.86	ND	0.19	
75-27-4	Bromodichloromethane	ND	0.85	ND	0.13	
79-01-6	Trichloroethene	ND	0.85	ND	0.16	
123-91-1	1,4-Dioxane	ND	0.85	ND	0.24	
80-62-6	Methyl Methacrylate	ND	1.8	ND	0.43	
142-82-5	n-Heptane	ND	0.86	ND	0.21	
10061-01-5	cis-1,3-Dichloropropene	ND	0.90	ND	0.20	
108-10-1	4-Methyl-2-pentanone	ND	0.85	ND	0.21	
10061-02-6	trans-1,3-Dichloropropene	ND	0.85	ND	0.19	
79-00-5	1,1,2-Trichloroethane	ND	0.86	ND	0.16	
108-88-3	Toluene	ND	0.85	ND	0.23	
591-78-6	2-Hexanone	ND	0.86	ND	0.21	
124-48-1	Dibromochloromethane	ND	0.86	ND	0.10	
106-93-4	1,2-Dibromoethane	ND	0.86	ND	0.11	
123-86-4	n-Butyl Acetate	ND	0.86	ND	0.18	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U1-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-001

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01356

Initial Pressure (psig): -3.21 Final Pressure (psig): 3.63

Container Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.86	ND	0.19	
127-18-4	Tetrachloroethene	ND	0.85	ND	0.13	
108-90-7	Chlorobenzene	ND	0.85	ND	0.18	
100-41-4	Ethylbenzene	ND	0.83	ND	0.19	
179601-23-1	m,p-Xylenes	ND	1.8	ND	0.41	
75-25-2	Bromoform	ND	0.85	ND	0.082	
100-42-5	Styrene	ND	0.85	ND	0.20	
95-47-6	o-Xylene	ND	0.85	ND	0.20	
111-84-2	n-Nonane	ND	0.86	ND	0.16	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.85	ND	0.12	
98-82-8	Cumene	ND	0.85	ND	0.17	
80-56-8	alpha-Pinene	ND	0.83	ND	0.15	
103-65-1	n-Propylbenzene	ND	0.86	ND	0.18	
622-96-8	4-Ethyltoluene	ND	0.85	ND	0.17	
108-67-8	1,3,5-Trimethylbenzene	ND	0.85	ND	0.17	
95-63-6	1,2,4-Trimethylbenzene	ND	0.85	ND	0.17	
100-44-7	Benzyl Chloride	ND	1.8	ND	0.34	
541-73-1	1,3-Dichlorobenzene	ND	0.86	ND	0.14	
106-46-7	1,4-Dichlorobenzene	ND	0.86	ND	0.14	
95-50-1	1,2-Dichlorobenzene	ND	0.86	ND	0.14	
5989-27-5	d-Limonene	ND	0.82	ND	0.15	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.83	ND	0.086	
120-82-1	1,2,4-Trichlorobenzene	ND	0.85	ND	0.11	
91-20-3	Naphthalene	ND	0.82	ND	0.16	
87-68-3	Hexachlorobutadiene	ND	0.85	ND	0.080	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**

Client Sample ID: **813 U1-Summa** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-001

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	8/13/19
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	8/14/19
Analyst:	Raneem Sahtah	Date Analyzed:	8/26/19
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS01356		

Initial Pressure (psig): -3.21 Final Pressure (psig): 3.63

Container Dilution Factor: 1.60

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.23	Propane	**3.1**	
10.21	Trimethylsilanol	**3.2**	
11.91	Isobutanol	**3.5**	
17.33	Hexamethylcyclotrisiloxane	**13**	
20.45	2-Ethyl-1-hexanol	**3.4**	
21.25	n-Nonanal	**4.6**	
21.69	2-Ethylhexylacetate	**4.0**	

T = Analyte is a tentatively identified compound, result is estimated.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U2-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-002

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00609

Initial Pressure (psig): -2.47 Final Pressure (psig): 3.86

Container Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.79	ND	0.46	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	0.79	**0.48**	0.16	
74-87-3	Chloromethane	ND	0.76	ND	0.37	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.78	ND	0.11	
75-01-4	Vinyl Chloride	ND	0.81	ND	0.32	
106-99-0	1,3-Butadiene	ND	0.79	ND	0.36	
74-83-9	Bromomethane	ND	0.76	ND	0.20	
75-00-3	Chloroethane	ND	0.78	ND	0.29	
64-17-5	Ethanol	**20**	7.8	**11**	4.1	
75-05-8	Acetonitrile	**10**	0.79	**6.1**	0.47	
107-02-8	Acrolein	ND	1.5	ND	0.66	
67-64-1	Acetone	**9.6**	8.2	**4.0**	3.5	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	0.81	**0.20**	0.14	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	3.2	ND	1.3	
107-13-1	Acrylonitrile	ND	0.79	ND	0.36	
75-35-4	1,1-Dichloroethene	ND	0.82	ND	0.21	
75-09-2	Methylene Chloride	ND	0.82	ND	0.24	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.81	ND	0.26	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.81	ND	0.11	
75-15-0	Carbon Disulfide	ND	1.7	ND	0.54	
156-60-5	trans-1,2-Dichloroethene	ND	0.81	ND	0.20	
75-34-3	1,1-Dichloroethane	ND	0.79	ND	0.20	
1634-04-4	Methyl tert-Butyl Ether	ND	0.82	ND	0.23	
108-05-4	Vinyl Acetate	ND	8.1	ND	2.3	
78-93-3	2-Butanone (MEK)	ND	1.5	ND	0.52	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U2-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-002

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00609

Initial Pressure (psig): -2.47 Final Pressure (psig): 3.86

Container Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.81	ND	0.20	
141-78-6	Ethyl Acetate	**8.0**	1.7	**2.2**	0.46	
110-54-3	n-Hexane	ND	0.82	ND	0.23	
67-66-3	Chloroform	ND	0.82	ND	0.17	
109-99-9	Tetrahydrofuran (THF)	ND	0.81	ND	0.27	
107-06-2	1,2-Dichloroethane	ND	0.81	ND	0.20	
71-55-6	1,1,1-Trichloroethane	ND	0.82	ND	0.15	
71-43-2	Benzene	**1.1**	0.79	**0.35**	0.25	
56-23-5	Carbon Tetrachloride	ND	0.79	ND	0.13	
110-82-7	Cyclohexane	ND	1.5	ND	0.44	
78-87-5	1,2-Dichloropropane	ND	0.82	ND	0.18	
75-27-4	Bromodichloromethane	ND	0.81	ND	0.12	
79-01-6	Trichloroethene	ND	0.81	ND	0.15	
123-91-1	1,4-Dioxane	ND	0.81	ND	0.22	
80-62-6	Methyl Methacrylate	ND	1.7	ND	0.41	
142-82-5	n-Heptane	ND	0.82	ND	0.20	
10061-01-5	cis-1,3-Dichloropropene	ND	0.85	ND	0.19	
108-10-1	4-Methyl-2-pentanone	ND	0.81	ND	0.20	
10061-02-6	trans-1,3-Dichloropropene	ND	0.81	ND	0.18	
79-00-5	1,1,2-Trichloroethane	ND	0.82	ND	0.15	
108-88-3	Toluene	ND	0.81	ND	0.21	
591-78-6	2-Hexanone	ND	0.82	ND	0.20	
124-48-1	Dibromochloromethane	ND	0.82	ND	0.096	
106-93-4	1,2-Dibromoethane	ND	0.82	ND	0.11	
123-86-4	n-Butyl Acetate	ND	0.82	ND	0.17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 U2-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-002

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00609

Initial Pressure (psig): -2.47 Final Pressure (psig): 3.86

Container Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.82	ND	0.18	
127-18-4	Tetrachloroethene	ND	0.81	ND	0.12	
108-90-7	Chlorobenzene	ND	0.81	ND	0.17	
100-41-4	Ethylbenzene	ND	0.79	ND	0.18	
179601-23-1	m,p-Xylenes	ND	1.7	ND	0.39	
75-25-2	Bromoform	ND	0.81	ND	0.078	
100-42-5	Styrene	ND	0.81	ND	0.19	
95-47-6	o-Xylene	ND	0.81	ND	0.19	
111-84-2	n-Nonane	ND	0.82	ND	0.16	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.81	ND	0.12	
98-82-8	Cumene	ND	0.81	ND	0.16	
80-56-8	alpha-Pinene	ND	0.79	ND	0.14	
103-65-1	n-Propylbenzene	ND	0.82	ND	0.17	
622-96-8	4-Ethyltoluene	ND	0.81	ND	0.16	
108-67-8	1,3,5-Trimethylbenzene	ND	0.81	ND	0.16	
95-63-6	1,2,4-Trimethylbenzene	ND	0.81	ND	0.16	
100-44-7	Benzyl Chloride	ND	1.7	ND	0.32	
541-73-1	1,3-Dichlorobenzene	ND	0.82	ND	0.14	
106-46-7	1,4-Dichlorobenzene	ND	0.82	ND	0.14	
95-50-1	1,2-Dichlorobenzene	ND	0.82	ND	0.14	
5989-27-5	d-Limonene	ND	0.78	ND	0.14	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.79	ND	0.082	
120-82-1	1,2,4-Trichlorobenzene	ND	0.81	ND	0.11	
91-20-3	Naphthalene	ND	0.78	ND	0.15	
87-68-3	Hexachlorobutadiene	ND	0.81	ND	0.076	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**

Client Sample ID: **813 U2-Summa** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-002

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	8/13/19
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	8/14/19
Analyst:	Raneem Sahtah	Date Analyzed:	8/26/19
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS00609		

Initial Pressure (psig): -2.47 Final Pressure (psig): 3.86

Container Dilution Factor: 1.52

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.94	Acetaldehyde	**3.6**	
17.33	Hexamethylcyclotrisiloxane	**3.5**	
21.25	n-Nonanal	**6.1**	
22.21	n-Decanal	**2.9**	

T = Analyte is a tentatively identified compound, result is estimated.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D1-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-003

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01260

Initial Pressure (psig): -2.31 Final Pressure (psig): 3.73

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.77	ND	0.45	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.5**	0.77	**0.51**	0.16	
74-87-3	Chloromethane	ND	0.75	ND	0.36	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.76	ND	0.11	
75-01-4	Vinyl Chloride	ND	0.79	ND	0.31	
106-99-0	1,3-Butadiene	ND	0.77	ND	0.35	
74-83-9	Bromomethane	ND	0.75	ND	0.19	
75-00-3	Chloroethane	ND	0.76	ND	0.29	
64-17-5	Ethanol	**14**	7.6	**7.3**	4.0	
75-05-8	Acetonitrile	ND	0.77	ND	0.46	
107-02-8	Acrolein	ND	1.5	ND	0.65	
67-64-1	Acetone	**11**	8.0	**4.7**	3.4	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	0.79	**0.22**	0.14	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	3.1	ND	1.3	
107-13-1	Acrylonitrile	ND	0.77	ND	0.36	
75-35-4	1,1-Dichloroethene	ND	0.80	ND	0.20	
75-09-2	Methylene Chloride	ND	0.80	ND	0.23	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.79	ND	0.25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.79	ND	0.10	
75-15-0	Carbon Disulfide	ND	1.6	ND	0.53	
156-60-5	trans-1,2-Dichloroethene	ND	0.79	ND	0.20	
75-34-3	1,1-Dichloroethane	ND	0.77	ND	0.19	
1634-04-4	Methyl tert-Butyl Ether	ND	0.80	ND	0.22	
108-05-4	Vinyl Acetate	ND	7.9	ND	2.2	
78-93-3	2-Butanone (MEK)	ND	1.5	ND	0.51	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D1-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-003

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01260

Initial Pressure (psig): -2.31 Final Pressure (psig): 3.73

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.79	ND	0.20	
141-78-6	Ethyl Acetate	**7.7**	1.6	**2.1**	0.46	
110-54-3	n-Hexane	ND	0.80	ND	0.23	
67-66-3	Chloroform	ND	0.80	ND	0.16	
109-99-9	Tetrahydrofuran (THF)	ND	0.79	ND	0.27	
107-06-2	1,2-Dichloroethane	ND	0.79	ND	0.20	
71-55-6	1,1,1-Trichloroethane	ND	0.80	ND	0.15	
71-43-2	Benzene	ND	0.77	ND	0.24	
56-23-5	Carbon Tetrachloride	ND	0.77	ND	0.12	
110-82-7	Cyclohexane	ND	1.5	ND	0.43	
78-87-5	1,2-Dichloropropane	ND	0.80	ND	0.17	
75-27-4	Bromodichloromethane	ND	0.79	ND	0.12	
79-01-6	Trichloroethene	ND	0.79	ND	0.15	
123-91-1	1,4-Dioxane	ND	0.79	ND	0.22	
80-62-6	Methyl Methacrylate	ND	1.6	ND	0.40	
142-82-5	n-Heptane	ND	0.80	ND	0.20	
10061-01-5	cis-1,3-Dichloropropene	ND	0.83	ND	0.18	
108-10-1	4-Methyl-2-pentanone	ND	0.79	ND	0.19	
10061-02-6	trans-1,3-Dichloropropene	ND	0.79	ND	0.17	
79-00-5	1,1,2-Trichloroethane	ND	0.80	ND	0.15	
108-88-3	Toluene	ND	0.79	ND	0.21	
591-78-6	2-Hexanone	ND	0.80	ND	0.20	
124-48-1	Dibromochloromethane	ND	0.80	ND	0.094	
106-93-4	1,2-Dibromoethane	ND	0.80	ND	0.10	
123-86-4	n-Butyl Acetate	ND	0.80	ND	0.17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D1-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-003

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01260

Initial Pressure (psig): -2.31 Final Pressure (psig): 3.73

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.80	ND	0.17	
127-18-4	Tetrachloroethene	ND	0.79	ND	0.12	
108-90-7	Chlorobenzene	ND	0.79	ND	0.17	
100-41-4	Ethylbenzene	ND	0.77	ND	0.18	
179601-23-1	m,p-Xylenes	ND	1.6	ND	0.38	
75-25-2	Bromoform	ND	0.79	ND	0.076	
100-42-5	Styrene	ND	0.79	ND	0.19	
95-47-6	o-Xylene	ND	0.79	ND	0.18	
111-84-2	n-Nonane	ND	0.80	ND	0.15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.79	ND	0.12	
98-82-8	Cumene	ND	0.79	ND	0.16	
80-56-8	alpha-Pinene	ND	0.77	ND	0.14	
103-65-1	n-Propylbenzene	ND	0.80	ND	0.16	
622-96-8	4-Ethyltoluene	ND	0.79	ND	0.16	
108-67-8	1,3,5-Trimethylbenzene	ND	0.79	ND	0.16	
95-63-6	1,2,4-Trimethylbenzene	ND	0.79	ND	0.16	
100-44-7	Benzyl Chloride	ND	1.6	ND	0.32	
541-73-1	1,3-Dichlorobenzene	ND	0.80	ND	0.13	
106-46-7	1,4-Dichlorobenzene	ND	0.80	ND	0.13	
95-50-1	1,2-Dichlorobenzene	ND	0.80	ND	0.13	
5989-27-5	d-Limonene	ND	0.76	ND	0.14	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.77	ND	0.080	
120-82-1	1,2,4-Trichlorobenzene	ND	0.79	ND	0.11	
91-20-3	Naphthalene	ND	0.76	ND	0.15	
87-68-3	Hexachlorobutadiene	ND	0.79	ND	0.074	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**

Client Sample ID: **813 D1-Summa** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-003

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	8/13/19
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	8/14/19
Analyst:	Raneem Sahtah	Date Analyzed:	8/26/19
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS01260		

Initial Pressure (psig): -2.31 Final Pressure (psig): 3.73

Container Dilution Factor: 1.49

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
17.33	Hexamethylcyclotrisiloxane	**7.1**	
20.45	2-Ethyl-1-hexanol	**4.0**	
21.25	n-Nonanal	**6.4**	
21.69	2-Ethylhexylacetate	**5.1**	
22.21	n-Decanal	**3.5**	

T = Analyte is a tentatively identified compound, result is estimated.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D2-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-004

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00940

Initial Pressure (psig): -2.36 Final Pressure (psig): 3.63

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	**1.5**	0.77	**0.85**	0.45	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.5**	0.77	**0.50**	0.16	
74-87-3	Chloromethane	ND	0.75	ND	0.36	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.76	ND	0.11	
75-01-4	Vinyl Chloride	ND	0.79	ND	0.31	
106-99-0	1,3-Butadiene	ND	0.77	ND	0.35	
74-83-9	Bromomethane	ND	0.75	ND	0.19	
75-00-3	Chloroethane	ND	0.76	ND	0.29	
64-17-5	Ethanol	**47**	7.6	**25**	4.0	
75-05-8	Acetonitrile	**0.79**	0.77	**0.47**	0.46	
107-02-8	Acrolein	ND	1.5	ND	0.65	
67-64-1	Acetone	**13**	8.0	**5.5**	3.4	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	0.79	**0.21**	0.14	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	3.1	ND	1.3	
107-13-1	Acrylonitrile	ND	0.77	ND	0.36	
75-35-4	1,1-Dichloroethene	ND	0.80	ND	0.20	
75-09-2	Methylene Chloride	ND	0.80	ND	0.23	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.79	ND	0.25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.79	ND	0.10	
75-15-0	Carbon Disulfide	ND	1.6	ND	0.53	
156-60-5	trans-1,2-Dichloroethene	ND	0.79	ND	0.20	
75-34-3	1,1-Dichloroethane	ND	0.77	ND	0.19	
1634-04-4	Methyl tert-Butyl Ether	ND	0.80	ND	0.22	
108-05-4	Vinyl Acetate	ND	7.9	ND	2.2	
78-93-3	2-Butanone (MEK)	ND	1.5	ND	0.51	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D2-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-004

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00940

Initial Pressure (psig): -2.36 Final Pressure (psig): 3.63

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.79	ND	0.20	
141-78-6	Ethyl Acetate	**46**	1.6	**13**	0.46	
110-54-3	n-Hexane	ND	0.80	ND	0.23	
67-66-3	Chloroform	ND	0.80	ND	0.16	
109-99-9	Tetrahydrofuran (THF)	ND	0.79	ND	0.27	
107-06-2	1,2-Dichloroethane	ND	0.79	ND	0.20	
71-55-6	1,1,1-Trichloroethane	ND	0.80	ND	0.15	
71-43-2	Benzene	ND	0.77	ND	0.24	
56-23-5	Carbon Tetrachloride	ND	0.77	ND	0.12	
110-82-7	Cyclohexane	ND	1.5	ND	0.43	
78-87-5	1,2-Dichloropropane	ND	0.80	ND	0.17	
75-27-4	Bromodichloromethane	ND	0.79	ND	0.12	
79-01-6	Trichloroethene	ND	0.79	ND	0.15	
123-91-1	1,4-Dioxane	ND	0.79	ND	0.22	
80-62-6	Methyl Methacrylate	ND	1.6	ND	0.40	
142-82-5	n-Heptane	ND	0.80	ND	0.20	
10061-01-5	cis-1,3-Dichloropropene	ND	0.83	ND	0.18	
108-10-1	4-Methyl-2-pentanone	ND	0.79	ND	0.19	
10061-02-6	trans-1,3-Dichloropropene	ND	0.79	ND	0.17	
79-00-5	1,1,2-Trichloroethane	ND	0.80	ND	0.15	
108-88-3	Toluene	**1.6**	0.79	**0.42**	0.21	
591-78-6	2-Hexanone	ND	0.80	ND	0.20	
124-48-1	Dibromochloromethane	ND	0.80	ND	0.094	
106-93-4	1,2-Dibromoethane	ND	0.80	ND	0.10	
123-86-4	n-Butyl Acetate	ND	0.80	ND	0.17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813 D2-Summa** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-004

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00940

Initial Pressure (psig): -2.36 Final Pressure (psig): 3.63

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.80	ND	0.17	
127-18-4	Tetrachloroethene	ND	0.79	ND	0.12	
108-90-7	Chlorobenzene	ND	0.79	ND	0.17	
100-41-4	Ethylbenzene	ND	0.77	ND	0.18	
179601-23-1	m,p-Xylenes	ND	1.6	ND	0.38	
75-25-2	Bromoform	ND	0.79	ND	0.076	
100-42-5	Styrene	ND	0.79	ND	0.19	
95-47-6	o-Xylene	ND	0.79	ND	0.18	
111-84-2	n-Nonane	ND	0.80	ND	0.15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.79	ND	0.12	
98-82-8	Cumene	ND	0.79	ND	0.16	
80-56-8	alpha-Pinene	ND	0.77	ND	0.14	
103-65-1	n-Propylbenzene	ND	0.80	ND	0.16	
622-96-8	4-Ethyltoluene	ND	0.79	ND	0.16	
108-67-8	1,3,5-Trimethylbenzene	ND	0.79	ND	0.16	
95-63-6	1,2,4-Trimethylbenzene	ND	0.79	ND	0.16	
100-44-7	Benzyl Chloride	ND	1.6	ND	0.32	
541-73-1	1,3-Dichlorobenzene	ND	0.80	ND	0.13	
106-46-7	1,4-Dichlorobenzene	ND	0.80	ND	0.13	
95-50-1	1,2-Dichlorobenzene	ND	0.80	ND	0.13	
5989-27-5	d-Limonene	**1.7**	0.76	**0.31**	0.14	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.77	ND	0.080	
120-82-1	1,2,4-Trichlorobenzene	ND	0.79	ND	0.11	
91-20-3	Naphthalene	ND	0.76	ND	0.15	
87-68-3	Hexachlorobutadiene	ND	0.79	ND	0.074	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**

Client Sample ID: **813 D2-Summa** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-004

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	8/13/19
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	8/14/19
Analyst:	Raneem Sahtah	Date Analyzed:	8/26/19
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS00940		

Initial Pressure (psig): -2.36 Final Pressure (psig): 3.63

Container Dilution Factor: 1.49

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.89	Isobutane	**15**	
5.44	n-Butane	**3.6**	
10.21	Trimethylsilanol	**5.4**	
11.89	Isobutanol	**14**	
20.08	n-Octanal	**3.2**	
20.45	2-Ethyl-1-hexanol	**6.1**	
21.25	n-Nonanal	**5.1**	
21.69	2-Ethylhexylacetate	**11**	
21.85	unknown Siloxane	**2.9**	

T = Analyte is a tentatively identified compound, result is estimated.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-DUPE10** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-005

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01341

Initial Pressure (psig): -2.81 Final Pressure (psig): 3.51

Container Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.80	ND	0.46	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	0.80	**0.49**	0.16	
74-87-3	Chloromethane	ND	0.77	ND	0.37	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.78	ND	0.11	
75-01-4	Vinyl Chloride	ND	0.81	ND	0.32	
106-99-0	1,3-Butadiene	ND	0.80	ND	0.36	
74-83-9	Bromomethane	ND	0.77	ND	0.20	
75-00-3	Chloroethane	ND	0.78	ND	0.30	
64-17-5	Ethanol	**16**	7.8	**8.3**	4.1	
75-05-8	Acetonitrile	ND	0.80	ND	0.47	
107-02-8	Acrolein	ND	1.5	ND	0.67	
67-64-1	Acetone	ND	8.3	ND	3.5	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	0.81	**0.21**	0.14	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	3.2	ND	1.3	
107-13-1	Acrylonitrile	ND	0.80	ND	0.37	
75-35-4	1,1-Dichloroethene	ND	0.83	ND	0.21	
75-09-2	Methylene Chloride	ND	0.83	ND	0.24	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.81	ND	0.26	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.81	ND	0.11	
75-15-0	Carbon Disulfide	ND	1.7	ND	0.54	
156-60-5	trans-1,2-Dichloroethene	ND	0.81	ND	0.20	
75-34-3	1,1-Dichloroethane	ND	0.80	ND	0.20	
1634-04-4	Methyl tert-Butyl Ether	ND	0.83	ND	0.23	
108-05-4	Vinyl Acetate	ND	8.1	ND	2.3	
78-93-3	2-Butanone (MEK)	ND	1.5	ND	0.52	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-DUPE10** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-005

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01341

Initial Pressure (psig): -2.81 Final Pressure (psig): 3.51

Container Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.81	ND	0.20	
141-78-6	Ethyl Acetate	**8.4**	1.7	**2.3**	0.47	
110-54-3	n-Hexane	ND	0.83	ND	0.23	
67-66-3	Chloroform	ND	0.83	ND	0.17	
109-99-9	Tetrahydrofuran (THF)	ND	0.81	ND	0.28	
107-06-2	1,2-Dichloroethane	ND	0.81	ND	0.20	
71-55-6	1,1,1-Trichloroethane	ND	0.83	ND	0.15	
71-43-2	Benzene	ND	0.80	ND	0.25	
56-23-5	Carbon Tetrachloride	ND	0.80	ND	0.13	
110-82-7	Cyclohexane	ND	1.5	ND	0.44	
78-87-5	1,2-Dichloropropane	ND	0.83	ND	0.18	
75-27-4	Bromodichloromethane	ND	0.81	ND	0.12	
79-01-6	Trichloroethene	ND	0.81	ND	0.15	
123-91-1	1,4-Dioxane	ND	0.81	ND	0.23	
80-62-6	Methyl Methacrylate	ND	1.7	ND	0.41	
142-82-5	n-Heptane	ND	0.83	ND	0.20	
10061-01-5	cis-1,3-Dichloropropene	ND	0.86	ND	0.19	
108-10-1	4-Methyl-2-pentanone	ND	0.81	ND	0.20	
10061-02-6	trans-1,3-Dichloropropene	ND	0.81	ND	0.18	
79-00-5	1,1,2-Trichloroethane	ND	0.83	ND	0.15	
108-88-3	Toluene	ND	0.81	ND	0.22	
591-78-6	2-Hexanone	ND	0.83	ND	0.20	
124-48-1	Dibromochloromethane	ND	0.83	ND	0.097	
106-93-4	1,2-Dibromoethane	ND	0.83	ND	0.11	
123-86-4	n-Butyl Acetate	ND	0.83	ND	0.17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-DUPE10** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-005

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01341

Initial Pressure (psig): -2.81 Final Pressure (psig): 3.51

Container Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.83	ND	0.18	
127-18-4	Tetrachloroethene	ND	0.81	ND	0.12	
108-90-7	Chlorobenzene	ND	0.81	ND	0.18	
100-41-4	Ethylbenzene	ND	0.80	ND	0.18	
179601-23-1	m,p-Xylenes	ND	1.7	ND	0.39	
75-25-2	Bromoform	ND	0.81	ND	0.078	
100-42-5	Styrene	ND	0.81	ND	0.19	
95-47-6	o-Xylene	ND	0.81	ND	0.19	
111-84-2	n-Nonane	ND	0.83	ND	0.16	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.81	ND	0.12	
98-82-8	Cumene	ND	0.81	ND	0.17	
80-56-8	alpha-Pinene	ND	0.80	ND	0.14	
103-65-1	n-Propylbenzene	ND	0.83	ND	0.17	
622-96-8	4-Ethyltoluene	ND	0.81	ND	0.17	
108-67-8	1,3,5-Trimethylbenzene	ND	0.81	ND	0.17	
95-63-6	1,2,4-Trimethylbenzene	ND	0.81	ND	0.17	
100-44-7	Benzyl Chloride	ND	1.7	ND	0.33	
541-73-1	1,3-Dichlorobenzene	ND	0.83	ND	0.14	
106-46-7	1,4-Dichlorobenzene	ND	0.83	ND	0.14	
95-50-1	1,2-Dichlorobenzene	ND	0.83	ND	0.14	
5989-27-5	d-Limonene	ND	0.78	ND	0.14	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.80	ND	0.082	
120-82-1	1,2,4-Trichlorobenzene	ND	0.81	ND	0.11	
91-20-3	Naphthalene	ND	0.78	ND	0.15	
87-68-3	Hexachlorobutadiene	ND	0.81	ND	0.076	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**

Client Sample ID: **813-DUPE10** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-005

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	8/13/19
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	8/14/19
Analyst:	Raneem Sahtah	Date Analyzed:	8/27/19
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS01341		

Initial Pressure (psig): -2.81 Final Pressure (psig): 3.51

Container Dilution Factor: 1.53

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.24	Propane	**3.0**	
11.91	Isobutanol	**4.4**	
17.32	Hexamethylcyclotrisiloxane	**3.6**	
20.45	2-Ethyl-1-hexanol	**3.0**	
21.25	n-Nonanal	**3.5**	
21.69	2-Ethylhexylacetate	**4.2**	

T = Analyte is a tentatively identified compound, result is estimated.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-TB** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-006

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01361

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	ND	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	ND	0.11	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	ND	0.073	
75-01-4	Vinyl Chloride	ND	0.53	ND	0.21	
106-99-0	1,3-Butadiene	ND	0.52	ND	0.24	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.51	ND	0.19	
64-17-5	Ethanol	ND	5.1	ND	2.7	
75-05-8	Acetonitrile	ND	0.52	ND	0.31	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.4	ND	2.3	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	ND	0.094	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	ND	0.85	
107-13-1	Acrylonitrile	ND	0.52	ND	0.24	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.54	ND	0.16	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	ND	0.17	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	ND	0.069	
75-15-0	Carbon Disulfide	ND	1.1	ND	0.35	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.52	ND	0.13	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.3	ND	1.5	
78-93-3	2-Butanone (MEK)	ND	1.0	ND	0.34	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-TB** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-006

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01361

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.1	ND	0.31	
110-54-3	n-Hexane	ND	0.54	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	ND	0.18	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.54	ND	0.099	
71-43-2	Benzene	ND	0.52	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.52	ND	0.083	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.54	ND	0.12	
75-27-4	Bromodichloromethane	ND	0.53	ND	0.079	
79-01-6	Trichloroethene	ND	0.53	ND	0.099	
123-91-1	1,4-Dioxane	ND	0.53	ND	0.15	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.54	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	ND	0.12	
108-10-1	4-Methyl-2-pentanone	ND	0.53	ND	0.13	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	ND	0.12	
79-00-5	1,1,2-Trichloroethane	ND	0.54	ND	0.099	
108-88-3	Toluene	ND	0.53	ND	0.14	
591-78-6	2-Hexanone	ND	0.54	ND	0.13	
124-48-1	Dibromochloromethane	ND	0.54	ND	0.063	
106-93-4	1,2-Dibromoethane	ND	0.54	ND	0.070	
123-86-4	n-Butyl Acetate	ND	0.54	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-TB** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-006

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01361

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	ND	0.12	
127-18-4	Tetrachloroethene	ND	0.53	ND	0.078	
108-90-7	Chlorobenzene	ND	0.53	ND	0.12	
100-41-4	Ethylbenzene	ND	0.52	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
75-25-2	Bromoform	ND	0.53	ND	0.051	
100-42-5	Styrene	ND	0.53	ND	0.12	
95-47-6	o-Xylene	ND	0.53	ND	0.12	
111-84-2	n-Nonane	ND	0.54	ND	0.10	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	ND	0.077	
98-82-8	Cumene	ND	0.53	ND	0.11	
80-56-8	alpha-Pinene	ND	0.52	ND	0.093	
103-65-1	n-Propylbenzene	ND	0.54	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.53	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.54	ND	0.090	
106-46-7	1,4-Dichlorobenzene	ND	0.54	ND	0.090	
95-50-1	1,2-Dichlorobenzene	ND	0.54	ND	0.090	
5989-27-5	d-Limonene	ND	0.51	ND	0.092	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	ND	0.054	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	ND	0.071	
91-20-3	Naphthalene	ND	0.51	ND	0.097	
87-68-3	Hexachlorobutadiene	ND	0.53	ND	0.050	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**

Client Sample ID: **813-Summa-TB** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-006

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	8/13/19
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	8/14/19
Analyst:	Raneem Sahtah	Date Analyzed:	8/27/19
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS01361		

Container Dilution Factor: 1.00

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
20.45	2-Ethyl-1-hexanol	**3.5**	

T = Analyte is a tentatively identified compound, result is estimated.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-FB1** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-007

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00969

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	ND	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	ND	0.11	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	ND	0.073	
75-01-4	Vinyl Chloride	ND	0.53	ND	0.21	
106-99-0	1,3-Butadiene	ND	0.52	ND	0.24	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.51	ND	0.19	
64-17-5	Ethanol	**28**	5.1	**15**	2.7	
75-05-8	Acetonitrile	ND	0.52	ND	0.31	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.4	ND	2.3	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	ND	0.094	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	ND	0.85	
107-13-1	Acrylonitrile	ND	0.52	ND	0.24	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.54	ND	0.16	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	ND	0.17	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	ND	0.069	
75-15-0	Carbon Disulfide	ND	1.1	ND	0.35	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.52	ND	0.13	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.3	ND	1.5	
78-93-3	2-Butanone (MEK)	ND	1.0	ND	0.34	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-FB1** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-007

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00969

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.1	ND	0.31	
110-54-3	n-Hexane	ND	0.54	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	ND	0.18	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.54	ND	0.099	
71-43-2	Benzene	ND	0.52	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.52	ND	0.083	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.54	ND	0.12	
75-27-4	Bromodichloromethane	ND	0.53	ND	0.079	
79-01-6	Trichloroethene	ND	0.53	ND	0.099	
123-91-1	1,4-Dioxane	ND	0.53	ND	0.15	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.54	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	ND	0.12	
108-10-1	4-Methyl-2-pentanone	ND	0.53	ND	0.13	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	ND	0.12	
79-00-5	1,1,2-Trichloroethane	ND	0.54	ND	0.099	
108-88-3	Toluene	ND	0.53	ND	0.14	
591-78-6	2-Hexanone	ND	0.54	ND	0.13	
124-48-1	Dibromochloromethane	ND	0.54	ND	0.063	
106-93-4	1,2-Dibromoethane	ND	0.54	ND	0.070	
123-86-4	n-Butyl Acetate	ND	0.54	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-FB1** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-007

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00969

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	ND	0.12	
127-18-4	Tetrachloroethene	ND	0.53	ND	0.078	
108-90-7	Chlorobenzene	ND	0.53	ND	0.12	
100-41-4	Ethylbenzene	ND	0.52	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
75-25-2	Bromoform	ND	0.53	ND	0.051	
100-42-5	Styrene	ND	0.53	ND	0.12	
95-47-6	o-Xylene	ND	0.53	ND	0.12	
111-84-2	n-Nonane	ND	0.54	ND	0.10	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	ND	0.077	
98-82-8	Cumene	ND	0.53	ND	0.11	
80-56-8	alpha-Pinene	ND	0.52	ND	0.093	
103-65-1	n-Propylbenzene	ND	0.54	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.53	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.54	ND	0.090	
106-46-7	1,4-Dichlorobenzene	ND	0.54	ND	0.090	
95-50-1	1,2-Dichlorobenzene	ND	0.54	ND	0.090	
5989-27-5	d-Limonene	ND	0.51	ND	0.092	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	ND	0.054	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	ND	0.071	
91-20-3	Naphthalene	ND	0.51	ND	0.097	
87-68-3	Hexachlorobutadiene	ND	0.53	ND	0.050	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**

Client Sample ID: **813-Summa-FB1** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-007

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	8/13/19
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	8/14/19
Analyst:	Raneem Sahtah	Date Analyzed:	8/27/19
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS00969		

Container Dilution Factor: 1.00

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
10.21	Trimethylsilanol	**2.0**	
14.81	Propylene Glycol	**3.2**	

T = Analyte is a tentatively identified compound, result is estimated.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-FB2** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-008

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00866

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	ND	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	ND	0.11	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	ND	0.073	
75-01-4	Vinyl Chloride	ND	0.53	ND	0.21	
106-99-0	1,3-Butadiene	ND	0.52	ND	0.24	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.51	ND	0.19	
64-17-5	Ethanol	ND	5.1	ND	2.7	
75-05-8	Acetonitrile	ND	0.52	ND	0.31	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.4	ND	2.3	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	ND	0.094	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	ND	0.85	
107-13-1	Acrylonitrile	ND	0.52	ND	0.24	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.54	ND	0.16	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	ND	0.17	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	ND	0.069	
75-15-0	Carbon Disulfide	**1.5**	1.1	**0.49**	0.35	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.52	ND	0.13	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.3	ND	1.5	
78-93-3	2-Butanone (MEK)	ND	1.0	ND	0.34	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-FB2** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-008

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00866

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.1	ND	0.31	
110-54-3	n-Hexane	ND	0.54	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	ND	0.18	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.54	ND	0.099	
71-43-2	Benzene	ND	0.52	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.52	ND	0.083	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.54	ND	0.12	
75-27-4	Bromodichloromethane	ND	0.53	ND	0.079	
79-01-6	Trichloroethene	ND	0.53	ND	0.099	
123-91-1	1,4-Dioxane	ND	0.53	ND	0.15	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.54	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	ND	0.12	
108-10-1	4-Methyl-2-pentanone	ND	0.53	ND	0.13	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	ND	0.12	
79-00-5	1,1,2-Trichloroethane	ND	0.54	ND	0.099	
108-88-3	Toluene	ND	0.53	ND	0.14	
591-78-6	2-Hexanone	ND	0.54	ND	0.13	
124-48-1	Dibromochloromethane	ND	0.54	ND	0.063	
106-93-4	1,2-Dibromoethane	ND	0.54	ND	0.070	
123-86-4	n-Butyl Acetate	ND	0.54	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **813-Summa-FB2** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-008

Test Code: EPA TO-15 Date Collected: 8/13/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/14/19
Analyst: Raneem Sahtah Date Analyzed: 8/27/19
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00866

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	ND	0.12	
127-18-4	Tetrachloroethene	ND	0.53	ND	0.078	
108-90-7	Chlorobenzene	ND	0.53	ND	0.12	
100-41-4	Ethylbenzene	ND	0.52	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
75-25-2	Bromoform	ND	0.53	ND	0.051	
100-42-5	Styrene	ND	0.53	ND	0.12	
95-47-6	o-Xylene	ND	0.53	ND	0.12	
111-84-2	n-Nonane	ND	0.54	ND	0.10	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	ND	0.077	
98-82-8	Cumene	ND	0.53	ND	0.11	
80-56-8	alpha-Pinene	ND	0.52	ND	0.093	
103-65-1	n-Propylbenzene	ND	0.54	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.53	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.54	ND	0.090	
106-46-7	1,4-Dichlorobenzene	ND	0.54	ND	0.090	
95-50-1	1,2-Dichlorobenzene	ND	0.54	ND	0.090	
5989-27-5	d-Limonene	ND	0.51	ND	0.092	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	ND	0.054	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	ND	0.071	
91-20-3	Naphthalene	**3.2**	0.51	**0.61**	0.097	
87-68-3	Hexachlorobutadiene	ND	0.53	ND	0.050	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: **Stantec Consulting Services, Inc.**

Client Sample ID: **813-Summa-FB2** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P1904808-008

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	8/13/19
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	8/14/19
Analyst:	Raneem Sahtah	Date Analyzed:	8/27/19
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS00866		

Container Dilution Factor: 1.00

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.30	Sulfur Dioxide	**>180**	**!**
9.56	unknown	**3.7**	
11.17	Acetic Acid	**2.0**	
15.18	Dimethyl disulfide	**35**	
17.33	Hexamethylcyclotrisiloxane	**53**	
17.44	Methyl ethyl disulfide	**2.6**	
18.53	2-Methyl-2-cyclopenten-1-one	**7.2**	
19.81	Dimethyl trisulfide	**77**	
20.15	unknown	**7.9**	
20.92	unknown	**4.7**	
21.85	unknown Siloxane	**6.6**	
22.55	Dimethyltetrasulfide	**4.0**	

T = Analyte is a tentatively identified compound, result is estimated.

! = Previous studies have shown that EPA Method TO-15 is not an appropriate method for quantifying Sulfur Dioxide. The TIC result for this compound is reported as "greater than" since the numeric value is probably biased low.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190826-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
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	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	ND	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	ND	0.11	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	ND	0.073	
75-01-4	Vinyl Chloride	ND	0.53	ND	0.21	
106-99-0	1,3-Butadiene	ND	0.52	ND	0.24	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.51	ND	0.19	
64-17-5	Ethanol	ND	5.1	ND	2.7	
75-05-8	Acetonitrile	ND	0.52	ND	0.31	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.4	ND	2.3	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	ND	0.094	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	ND	0.85	
107-13-1	Acrylonitrile	ND	0.52	ND	0.24	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.54	ND	0.16	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	ND	0.17	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	ND	0.069	
75-15-0	Carbon Disulfide	ND	1.1	ND	0.35	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.52	ND	0.13	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.3	ND	1.5	
78-93-3	2-Butanone (MEK)	ND	1.0	ND	0.34	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190826-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Raneem Sahtah Date Analyzed: 8/26/19

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	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.1	ND	0.31	
110-54-3	n-Hexane	ND	0.54	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	ND	0.18	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.54	ND	0.099	
71-43-2	Benzene	ND	0.52	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.52	ND	0.083	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.54	ND	0.12	
75-27-4	Bromodichloromethane	ND	0.53	ND	0.079	
79-01-6	Trichloroethene	ND	0.53	ND	0.099	
123-91-1	1,4-Dioxane	ND	0.53	ND	0.15	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.54	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	ND	0.12	
108-10-1	4-Methyl-2-pentanone	ND	0.53	ND	0.13	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	ND	0.12	
79-00-5	1,1,2-Trichloroethane	ND	0.54	ND	0.099	
108-88-3	Toluene	ND	0.53	ND	0.14	
591-78-6	2-Hexanone	ND	0.54	ND	0.13	
124-48-1	Dibromochloromethane	ND	0.54	ND	0.063	
106-93-4	1,2-Dibromoethane	ND	0.54	ND	0.070	
123-86-4	n-Butyl Acetate	ND	0.54	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Stantec Consulting Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1904808

Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190826-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Raneem Sahtah Date Analyzed: 8/26/19

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	**Result ppbV**	MRL ppbV	**Data Qualifier**
111-65-9	n-Octane	ND	0.54	ND	0.12	
127-18-4	Tetrachloroethene	ND	0.53	ND	0.078	
108-90-7	Chlorobenzene	ND	0.53	ND	0.12	
100-41-4	Ethylbenzene	ND	0.52	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
75-25-2	Bromoform	ND	0.53	ND	0.051	
100-42-5	Styrene	ND	0.53	ND	0.12	
95-47-6	o-Xylene	ND	0.53	ND	0.12	
111-84-2	n-Nonane	ND	0.54	ND	0.10	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	ND	0.077	
98-82-8	Cumene	ND	0.53	ND	0.11	
80-56-8	alpha-Pinene	ND	0.52	ND	0.093	
103-65-1	n-Propylbenzene	ND	0.54	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.53	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.54	ND	0.090	
106-46-7	1,4-Dichlorobenzene	ND	0.54	ND	0.090	
95-50-1	1,2-Dichlorobenzene	ND	0.54	ND	0.090	
5989-27-5	d-Limonene	ND	0.51	ND	0.092	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	ND	0.054	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	ND	0.071	
91-20-3	Naphthalene	ND	0.51	ND	0.097	
87-68-3	Hexachlorobutadiene	ND	0.53	ND	0.050	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client:	**Stantec Consulting Services, Inc.**		
Client Sample ID:	**Method Blank**	ALS Project ID:	P1904808
Client Project ID:	**Bridgeton Air Monitoring / 182608047**	ALS Sample ID:	P190826-MB

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	NA
Analyst:	Raneem Sahtah	Date Analyzed:	8/26/19
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

Client: **Stantec Consulting Services, Inc.**
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Project ID: P1904808

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 8/13/19
Analyst: Raneem Sahtah Date(s) Received: 8/14/19
Sample Type: 6.0 L Silonite Canister(s) Date(s) Analyzed: 8/26 - 8/27/19
Test Notes:

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	P190826-MB	**104**	**101**	**86**	70-130	
Lab Control Sample	P190826-LCS	**108**	**100**	**86**	70-130	
813 U1-Summa	P1904808-001	**113**	**102**	**90**	70-130	
813 U2-Summa	P1904808-002	**107**	**98**	**89**	70-130	
813 D1-Summa	P1904808-003	**109**	**99**	**89**	70-130	
813 D2-Summa	P1904808-004	**109**	**99**	**88**	70-130	
813-DUPE10	P1904808-005	**110**	**98**	**88**	70-130	
813-Summa-TB	P1904808-006	**103**	**98**	**85**	70-130	
813-Summa-FB1	P1904808-007	**110**	**101**	**92**	70-130	
813-Summa-FB2	P1904808-008	**109**	**99**	**95**	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

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190826-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
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	**171**	**81**	53-112	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	**187**	**89**	62-103	
74-87-3	Chloromethane	211	**214**	**101**	51-121	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**218**	**103**	56-111	
75-01-4	Vinyl Chloride	214	**248**	**116**	57-117	
106-99-0	1,3-Butadiene	210	**170**	**81**	53-134	
74-83-9	Bromomethane	212	**218**	**103**	65-110	
75-00-3	Chloroethane	214	**194**	**91**	64-111	
64-17-5	Ethanol	1,020	**818**	**80**	57-124	
75-05-8	Acetonitrile	206	**162**	**79**	57-126	
107-02-8	Acrolein	205	**162**	**79**	62-121	
67-64-1	Acetone	1,060	**859**	**81**	60-113	
75-69-4	Trichlorofluoromethane (CFC 11)	211	**189**	**90**	63-104	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	**346**	**84**	60-124	
107-13-1	Acrylonitrile	207	**178**	**86**	66-125	
75-35-4	1,1-Dichloroethene	218	**177**	**81**	68-107	
75-09-2	Methylene Chloride	217	**183**	**84**	66-105	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**198**	**92**	63-127	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	**188**	**87**	59-109	
75-15-0	Carbon Disulfide	218	**185**	**85**	67-109	
156-60-5	trans-1,2-Dichloroethene	214	**182**	**85**	70-115	
75-34-3	1,1-Dichloroethane	216	**183**	**85**	66-106	
1634-04-4	Methyl tert-Butyl Ether	214	**185**	**86**	67-109	
108-05-4	Vinyl Acetate	1,060	**968**	**91**	68-136	
78-93-3	2-Butanone (MEK)	208	**195**	**94**	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.

Client: **Stantec Consulting Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190826-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
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**
156-59-2	cis-1,2-Dichloroethene	211	**182**	**86**	67-110	
141-78-6	Ethyl Acetate	436	**388**	**89**	64-127	
110-54-3	n-Hexane	216	**188**	**87**	60-115	
67-66-3	Chloroform	217	**192**	**88**	66-105	
109-99-9	Tetrahydrofuran (THF)	216	**187**	**87**	65-110	
107-06-2	1,2-Dichloroethane	215	**199**	**93**	60-110	
71-55-6	1,1,1-Trichloroethane	215	**190**	**88**	64-108	
71-43-2	Benzene	211	**175**	**83**	67-106	
56-23-5	Carbon Tetrachloride	212	**199**	**94**	64-112	
110-82-7	Cyclohexane	416	**367**	**88**	67-110	
78-87-5	1,2-Dichloropropane	216	**191**	**88**	66-112	
75-27-4	Bromodichloromethane	215	**197**	**92**	67-113	
79-01-6	Trichloroethene	213	**186**	**87**	66-108	
123-91-1	1,4-Dioxane	214	**187**	**87**	70-116	
80-62-6	Methyl Methacrylate	431	**395**	**92**	73-118	
142-82-5	n-Heptane	215	**203**	**94**	66-110	
10061-01-5	cis-1,3-Dichloropropene	214	**191**	**89**	75-120	
108-10-1	4-Methyl-2-pentanone	209	**188**	**90**	65-124	
10061-02-6	trans-1,3-Dichloropropene	213	**196**	**92**	77-123	
79-00-5	1,1,2-Trichloroethane	215	**190**	**88**	68-112	
108-88-3	Toluene	212	**184**	**87**	62-111	
591-78-6	2-Hexanone	214	**196**	**92**	59-128	
124-48-1	Dibromochloromethane	213	**205**	**96**	67-123	
106-93-4	1,2-Dibromoethane	216	**198**	**92**	66-122	
123-86-4	n-Butyl Acetate	219	**196**	**89**	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: **Stantec Consulting Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1904808
Client Project ID: **Bridgeton Air Monitoring / 182608047** ALS Sample ID: P190826-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/26/19
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
111-65-9	n-Octane	217	**200**	**92**	65-114	
127-18-4	Tetrachloroethene	213	**189**	**89**	55-120	
108-90-7	Chlorobenzene	215	**193**	**90**	61-114	
100-41-4	Ethylbenzene	212	**184**	**87**	64-113	
179601-23-1	m,p-Xylenes	426	**381**	**89**	64-114	
75-25-2	Bromoform	213	**207**	**97**	65-132	
100-42-5	Styrene	212	**199**	**94**	67-124	
95-47-6	o-Xylene	214	**192**	**90**	65-114	
111-84-2	n-Nonane	215	**192**	**89**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	214	**191**	**89**	66-119	
98-82-8	Cumene	214	**190**	**89**	61-116	
80-56-8	alpha-Pinene	211	**194**	**92**	65-120	
103-65-1	n-Propylbenzene	218	**189**	**87**	63-117	
622-96-8	4-Ethyltoluene	214	**209**	**98**	63-124	
108-67-8	1,3,5-Trimethylbenzene	214	**187**	**87**	60-117	
95-63-6	1,2,4-Trimethylbenzene	215	**207**	**96**	61-122	
100-44-7	Benzyl Chloride	217	**201**	**93**	77-142	
541-73-1	1,3-Dichlorobenzene	216	**207**	**96**	61-125	
106-46-7	1,4-Dichlorobenzene	216	**210**	**97**	59-123	
95-50-1	1,2-Dichlorobenzene	216	**208**	**96**	61-126	
5989-27-5	d-Limonene	211	**208**	**99**	66-124	
96-12-8	1,2-Dibromo-3-chloropropane	209	**195**	**93**	67-138	
120-82-1	1,2,4-Trichlorobenzene	214	**190**	**89**	62-141	
91-20-3	Naphthalene	203	**177**	**87**	62-145	
87-68-3	Hexachlorobutadiene	209	**166**	**79**	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.

Response Factor Report MS13

Method Path : I:\MS13\METHODS\
Method File : R13070219.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jul 03 07:03:24 2019
Response Via : Initial Calibration

Calibration Files
0.1 =07021905.D 0.2 =07021906.D 0.5 =07021907.D 1.0 =07021908.D 5.0 =07021909.D 25 =07021910.D 50 =07021911.D
100 =07021912.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------									
2)	T	Propene	1.797	1.633	1.626	1.717	1.695	1.713	1.703	1.725	1.701	3.18
3)	T	Dichlorodifluo...	2.511	2.420	2.640	2.692	2.761	2.809	2.795	2.534	2.645	5.45
4)	T	Chloromethane	2.331	1.899	1.909	1.926	2.156	2.271	2.353	1.928	2.097	9.65
5)	T	1,2-Dichloro-1...	1.561	1.386	1.527	1.530	1.504	1.550	1.569	1.538	1.521	3.82
6)	T	Vinyl Chloride	1.448	1.426	1.786	1.922	2.040	2.168	2.148	2.092	1.879	15.94
7)	T	1,3-Butadiene	1.244	1.350	1.565	1.603	1.830	1.985	1.976	1.627	1.648	16.46
8)	T	Bromomethane	1.030	0.852	1.141	1.137	1.231	1.316	1.276	1.217	1.150	13.07
9)	T	Chloroethane	0.744	0.753	0.955	1.060	1.071	1.087	1.115	1.047	0.979	15.26
10)	T	Ethanol	1.281	1.083	1.208	1.140	1.094	1.191	1.166	1.071	1.154	6.23
11)	T	Acetonitrile	3.379	2.944	3.067	3.068	3.036	3.112	3.164	2.970	3.093	4.39
12)	T	Acrolein	0.888	0.810	0.955	0.897	0.990	0.982	0.969	0.834	0.916	7.54
13)	T	Acetone			1.150	1.140	1.103	1.118	1.113	0.960	1.097	6.33
14)	T	Trichlorofluor...	2.180	2.032	2.307	2.286	2.318	2.303	2.331	2.180	2.242	4.63
15)	T	2-Propanol (Is...	4.273	3.762	4.088	3.971	4.134	4.159	4.134	3.475	3.999	6.53
16)	T	Acrylonitrile	1.804	1.678	1.944	2.017	2.068	2.135	2.162	2.007	1.977	8.34
17)	T	1,1-Dichloroet...	1.353	1.211	1.379	1.374	1.405	1.460	1.474	1.344	1.375	5.92
18)	T	2-Methyl-2-Pro...	3.663	3.345	3.669	3.818	3.892	3.834	3.819	3.475	3.690	5.23
19)	T	Methylene Chlo...	1.438	1.288	1.400	1.455	1.441	1.470	1.498	1.383	1.422	4.59
20)	T	3-Chloro-1-pro...	2.566	2.076	2.231	2.132	2.253	2.401	2.423	2.256	2.292	7.06
21)	T	Trichlorotrifl...	1.488	1.345	1.419	1.451	1.420	1.459	1.490	1.366	1.430	3.73
22)	T	Carbon Disulfide			5.594	5.462	5.195	5.350	5.365	4.878	5.307	4.68
23)	T	trans-1,2-Dich...	1.954	1.693	1.894	1.980	2.049	2.114	2.138	1.979	1.975	7.10
24)	T	1,1-Dichloroet...	2.375	2.201	2.477	2.558	2.526	2.556	2.588	2.391	2.459	5.30
25)	T	Methyl tert-Bu...	4.080	3.730	4.233	4.274	4.339	4.445	4.474	4.114	4.211	5.70
26)	T	Vinyl Acetate			0.334	0.307	0.351	0.363	0.371	0.350	0.346	6.56
27)	T	2-Butanone (MEK)	0.850	0.895	1.002	1.021	1.048	1.055	1.056	1.014	0.993	7.83
28)	T	cis-1,2-Dichlo...	1.871	1.616	1.916	1.923	1.941	2.015	2.041	1.886	1.901	6.80
29)	T	Diisopropyl Ether	1.384	1.201	1.416	1.410	1.462	1.484	1.489	1.181	1.378	8.81
30)	T	Ethyl Acetate	0.449	0.463	0.525	0.527	0.534	0.535	0.547	0.511	0.511	7.00
31)	T	n-Hexane	2.501	2.391	2.517	2.407	2.391	2.213	2.237	2.121	2.347	6.05
32)	T	Chloroform	2.486	2.145	2.314	2.347	2.411	2.453	2.466	2.306	2.366	4.78
33)	S	1,2-Dichloroet...	1.393	1.367	1.361	1.437	1.386	1.378	1.417	1.364	1.388	1.94
34)	T	Tetrahydrofura...	1.184	0.948	0.938	1.020	1.002	0.998	1.020	0.951	1.008	7.80
35)	T	Ethyl tert-But...	1.557	1.491	1.659	1.700	1.788	1.806	1.825	1.705	1.691	7.07
36)	T	1,2-Dichloroet...	1.751	1.603	1.788	1.853	1.814	1.873	1.876	1.723	1.785	5.17
37)	IR	1,4-Difluorobenzen...	----------ISTD----------									
38)	T	1,1,1-Trichlor...	0.500	0.440	0.489	0.477	0.488	0.508	0.491	0.460	0.482	4.60
39)	T	Isopropyl Acetate	0.209	0.190	0.211	0.210	0.222	0.226	0.216	0.204	0.211	5.28
40)	T	1-Butanol	0.370	0.342	0.385	0.344	0.372	0.377	0.365	0.340	0.362	4.80
41)	T	Benzene	1.715	1.455	1.388	1.371	1.363	1.403	1.349	1.260	1.413	9.48
42)	T	Carbon Tetrach...	0.402	0.368	0.421	0.427	0.455	0.477	0.458	0.430	0.430	7.99

WDA 7/3/19

Method Path : I:\MS13\METHODS\
Method File : R13070219.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

43)	T	Cyclohexane	0.518	0.487	0.524	0.524	0.530	0.552	0.531	0.493	0.520	4.06
44)	T	tert-Amyl Meth...	0.861	0.813	0.903	0.937	0.944	0.994	0.958	0.891	0.913	6.34
45)	T	1,2-Dichloropr...	0.287	0.289	0.318	0.322	0.328	0.337	0.322	0.307	0.314	5.73
46)	T	Bromodichlorom...	0.397	0.378	0.413	0.419	0.437	0.462	0.438	0.418	0.420	6.17
47)	T	Trichloroethene	0.372	0.348	0.374	0.387	0.386	0.400	0.384	0.377	0.378	4.02
48)	T	1,4-Dioxane	0.250	0.256	0.278	0.286	0.290	0.305	0.289	0.281	0.279	6.57
49)	T	2,2,4-Trimethy...	1.427	1.360	1.424	1.442	1.422	1.477	1.394	1.292	1.405	4.05
50)	T	Methyl Methacr...	0.128	0.133	0.144	0.146	0.147	0.151	0.149	0.145	0.143	5.84
51)	T	n-Heptane	0.292	0.288	0.339	0.336	0.333	0.330	0.322	0.307	0.318	6.35
52)	T	cis-1,3-Dichlo...	0.489	0.464	0.526	0.521	0.546	0.581	0.559	0.520	0.526	7.13
53)	T	4-Methyl-2-pen...	0.318	0.266	0.305	0.310	0.326	0.339	0.324	0.305	0.312	6.97
54)	T	trans-1,3-Dich...	0.435	0.405	0.481	0.443	0.505	0.544	0.520	0.486	0.477	9.77
55)	T	1,1,2-Trichlor...	0.278	0.282	0.313	0.321	0.324	0.342	0.330	0.311	0.313	7.11
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	2.965	2.917	2.933	2.905	2.841	2.885	2.868	2.869	2.898	1.38
58)	T	Toluene	4.019	3.470	3.701	3.586	3.733	3.781	3.655	3.394	3.667	5.28
59)	T	2-Hexanone	2.162	1.927	2.078	1.939	2.133	2.125	2.027	1.904	2.037	5.04
60)	T	Dibromochlorom...	0.920	0.871	0.995	0.981	1.063	1.106	1.092	1.038	1.008	8.22
61)	T	1,2-Dibromoethane	0.911	0.835	0.931	0.939	0.978	1.013	0.984	0.940	0.941	5.75
62)	T	n-Butyl Acetate	2.203	2.125	2.255	2.106	2.334	2.358	2.249	2.095	2.216	4.58
63)	T	n-Octane	0.757	0.701	0.726	0.741	0.758	0.780	0.759	0.717	0.742	3.53
64)	T	Tetrachloroethene	1.136	1.042	1.163	1.144	1.130	1.196	1.189	1.141	1.143	4.16
65)	T	Chlorobenzene	2.453	2.157	2.497	2.449	2.519	2.575	2.517	2.360	2.441	5.37
66)	T	Ethylbenzene	4.240	3.802	4.230	4.103	4.368	4.367	4.224	3.865	4.150	5.14
67)	T	m- & p-Xylenes	3.134	2.807	3.214	3.082	3.251	3.303	3.190	2.991	3.121	5.14
68)	T	Bromoform	0.877	0.768	0.880	0.901	0.992	1.045	1.037	1.006	0.938	10.33
69)	T	Styrene	2.533	2.254	2.519	2.550	2.730	2.840	2.783	2.605	2.602	7.13
70)	T	o-Xylene	3.253	2.795	3.200	3.104	3.272	3.364	3.254	3.037	3.160	5.67
71)	T	n-Nonane	2.059	1.715	1.860	1.800	1.859	1.899	1.818	1.672	1.835	6.46
72)	T	1,1,2,2-Tetrac...	1.474	1.327	1.455	1.457	1.547	1.592	1.555	1.468	1.484	5.53
73)	S	Bromofluoroben...	0.739	0.730	0.743	0.755	0.759	0.742	0.745	0.736	0.744	1.29
74)	T	Cumene	4.180	3.764	4.170	4.148	4.358	4.405	4.221	3.849	4.137	5.43
75)	T	alpha-Pinene	1.980	1.878	2.116	2.100	2.290	2.295	2.209	2.110	2.122	6.81
76)	T	n-Propylbenzene	5.212	4.480	4.801	4.845	5.058	5.086	4.779	4.330	4.824	6.26
77)	T	3-Ethyltoluene	4.095	3.880	4.293	4.241	4.533	4.451	4.158	3.891	4.193	5.66
78)	T	4-Ethyltoluene	3.806	3.423	3.774	3.779	3.924	4.149	4.091	3.662	3.826	6.08
79)	T	1,3,5-Trimethy...	3.463	3.225	3.429	3.394	3.572	3.663	3.517	3.255	3.440	4.34
80)	T	alpha-Methylst...	1.749	1.622	1.918	1.901	2.060	2.087	2.003	1.941	1.910	8.22
81)	T	2-Ethyltoluene	4.076	3.640	4.047	4.048	4.202	4.290	4.131	3.776	4.026	5.36
82)	T	1,2,4-Trimethy...	3.387	3.044	3.443	3.335	3.569	3.691	3.539	3.297	3.413	5.81
83)	T	n-Decane	1.913	1.734	1.852	1.830	1.918	1.921	1.851	1.707	1.841	4.46
84)	T	Benzyl Chloride			2.591	2.488	3.007	3.366	3.291	3.087	2.972	12.14
85)	T	1,3-Dichlorobe...	2.045	1.846	2.057	2.080	2.209	2.299	2.275	2.199	2.126	7.02
86)	T	1,4-Dichlorobe...	1.887	1.838	2.040	2.051	2.180	2.320	2.261	2.154	2.091	8.14
87)	T	sec-Butylbenzene	4.853	4.226	4.592	4.621	4.866	4.904	4.637	4.251	4.619	5.71
88)	T	4-Isopropyltol...	4.481	4.073	4.516	4.438	4.733	4.678	4.509	4.055	4.435	5.64
89)	T	1,2,3-Trimethy...	3.658	3.156	3.471	3.382	3.612	3.634	3.552	3.334	3.475	5.03
90)	T	1,2-Dichlorobe...	2.015	1.786	2.010	1.983	2.122	2.118	2.136	2.047	2.027	5.60
91)	T	d-Limonene	1.332	1.272	1.419	1.416	1.487	1.500	1.482	1.382	1.411	5.69
92)	T	1,2-Dibromo-3-...	0.667	0.664	0.733	0.710	0.802	0.825	0.838	0.800	0.755	9.30
93)	T	n-Undecane	2.218	1.890	1.997	1.938	2.061	2.017	1.927	1.779	1.978	6.56
94)	T	1,2,4-Trichlor...	1.573	1.194	1.350	1.423	1.588	1.706	1.680	1.662	1.522	11.96

Method Path : I:\MS13\METHODS\
Method File : R13070219.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95)	T	Naphthalene	5.301	3.753	3.545	3.754	4.462	5.094	5.015	4.673	4.450	15.42
96)	T	n-Dodecane	2.457	1.820	1.790	1.832	2.045	1.915	1.842	1.691	1.924	12.38
97)	T	Hexachlorobuta...	1.427	1.099	1.139	1.098	1.134	1.150	1.135	1.128	1.164	9.29
98)	T	Cyclohexanone	1.495	1.259	1.376	1.220	1.417	1.365	1.345	1.268	1.343	6.76
99)	T	tert-Butylbenzene	3.584	3.200	3.479	3.492	3.643	3.668	3.512	3.246	3.478	4.94
100)	T	n-Butylbenzene	3.535	3.296	3.618	3.569	3.787	3.796	3.683	3.339	3.578	5.20

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS13\DATA\2019_08\26\08261904.D
Sample : CCV R13082619_25ng Inst : MS13
Acq On : 26 Aug 2019 9:38 Operator: RS
Misc : S31-06261901/S31-08131905
ALS Vial : 16 Sample Multiplier: 1 RS 8/26/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Quant Time: Aug 26 10:18:07 2019
Quant Method : I:\MS13\METHODS\R13070219.M
QLast Update : Wed Jul 03 07:03:24 2019
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	163	-0.02
2	T	Propene	1.701	1.572	7.6	150	-0.02
3	T	Dichlorodifluoromethane (CF	2.645	2.468	6.7	143	-0.03
4	T	Chloromethane	2.097	1.842	12.2	132	-0.03
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.521	1.480	2.7	156	-0.03
6	T	Vinyl Chloride	1.879	2.075	-10.4	156	-0.03
7	T	1,3-Butadiene	1.648	1.355	17.8	111	-0.03
8	T	Bromomethane	1.150	1.012	12.0	125	-0.03
9	T	Chloroethane	0.979	0.854	12.8	128	-0.03
10	T	Ethanol	1.154	0.888	23.1	121	-0.09
11	T	Acetonitrile	3.093	2.350	24.0	123	-0.06
12	T	Acrolein	0.916	0.749	18.2	124	-0.03
13	T	Acetone	1.097	0.891	18.8	130	-0.05
14	T	Trichlorofluoromethane	2.242	1.948	13.1	138	-0.02
15	T	2-Propanol (Isopropanol)	3.999	3.504	12.4	137	-0.07
16	T	Acrylonitrile	1.977	1.829	7.5	140	-0.04
17	T	1,1-Dichloroethene	1.375	1.215	11.6	136	-0.02
18	T	2-Methyl-2-Propanol (tert-B	3.690	3.093	16.2	132	-0.07
19	T	Methylene Chloride	1.422	1.248	12.2	138	-0.02
20	T	3-Chloro-1-propene (Allyl C	2.292	2.057	10.3	140	-0.02
21	T	Trichlorotrifluoroethane	1.430	1.218	14.8	136	-0.02
22	T	Carbon Disulfide	5.307	4.535	14.5	138	-0.02
23	T	trans-1,2-Dichloroethene	1.975	1.712	13.3	132	-0.02
24	T	1,1-Dichloroethane	2.459	2.007	18.4	128	-0.02
25	T	Methyl tert-Butyl Ether	4.211	3.356	20.3	123	-0.02
26	T	Vinyl Acetate	0.346	0.289	16.5	130	-0.03
27	T	2-Butanone (MEK)	0.993	0.891	10.3	138	-0.02
28	T	cis-1,2-Dichloroethene	1.901	1.548	18.6	125	-0.02
29	T	Diisopropyl Ether	1.378	1.140	17.3	125	-0.02
30	T	Ethyl Acetate	0.511	0.423	17.2	129	-0.02
31	T	n-Hexane	2.347	1.860	20.7	137	-0.01
32	T	Chloroform	2.366	1.879	20.6	125	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.388	1.422	-2.4	168	-0.02
34	T	Tetrahydrofuran (THF)	1.008	0.771	23.5	126	-0.01
35	T	Ethyl tert-Butyl Ether	1.691	1.390	17.8	125	-0.02
36	T	1,2-Dichloroethane	1.785	1.480	17.1	129	-0.02
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	159	-0.01
38	T	1,1,1-Trichloroethane	0.482	0.408	15.4	127	-0.02
39	T	Isopropyl Acetate	0.211	0.184	12.8	130	-0.01
40	T	1-Butanol	0.362	0.308	14.9	130	-0.04
41	T	Benzene	1.413	1.157	18.1	131	-0.01
42	T	Carbon Tetrachloride	0.430	0.383	10.9	127	-0.01
43	T	Cyclohexane	0.520	0.441	15.2	127	-0.01
44	T	tert-Amyl Methyl Ether	0.913	0.768	15.9	122	-0.02
45	T	1,2-Dichloropropane	0.314	0.265	15.6	125	-0.01
46	T	Bromodichloromethane	0.420	0.364	13.3	125	-0.01
47	T	Trichloroethene	0.378	0.317	16.1	126	-0.01
48	T	1,4-Dioxane	0.279	0.233	16.5	121	-0.02
49	T	2,2,4-Trimethylpentane (Iso	1.405	1.142	18.7	123	-0.01
50	T	Methyl Methacrylate	0.143	0.129	9.8	135	-0.02
51	T	n-Heptane	0.318	0.298	6.3	143	-0.01
52	T	cis-1,3-Dichloropropene	0.526	0.448	14.8	122	-0.01
53	T	4-Methyl-2-pentanone	0.312	0.262	16.0	122	-0.02
54	T	trans-1,3-Dichloropropene	0.477	0.412	13.6	120	-0.01
55	T	1,1,2-Trichloroethane	0.313	0.263	16.0	122	-0.01

Evaluate Continuing Calibration Report

Data File: I:\MS13\DATA\2019_08\26\08261904.D
Sample : CCV R13082619_25ng Inst : MS13
Acq On : 26 Aug 2019 9:38 Operator: RS
Misc : S31-06261901/S31-08131905
ALS Vial : 16 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Quant Time: Aug 26 10:18:07 2019
Quant Method : I:\MS13\METHODS\R13070219.M
QLast Update : Wed Jul 03 07:03:24 2019
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	154	0.00
57	S	Toluene-d8 (SS2)	2.898	2.870	1.0	153	0.00
58	T	Toluene	3.667	3.037	17.2	123	-0.01
59	T	2-Hexanone	2.037	1.678	17.6	121	-0.01
60	T	Dibromochloromethane	1.008	0.894	11.3	124	-0.01
61	T	1,2-Dibromoethane	0.941	0.807	14.2	122	-0.01
62	T	n-Butyl Acetate	2.216	1.856	16.2	121	-0.01
63	T	n-Octane	0.742	0.627	15.5	123	0.00
64	T	Tetrachloroethene	1.143	0.951	16.8	122	-0.01
65	T	Chlorobenzene	2.441	2.031	16.8	121	0.00
66	T	Ethylbenzene	4.150	3.759	9.4	132	-0.01
67	T	m- & p-Xylenes	3.121	2.832	9.3	132	-0.02
68	T	Bromoform	0.938	0.915	2.5	134	-0.01
69	T	Styrene	2.602	2.321	10.8	125	0.00
70	T	o-Xylene	3.160	2.826	10.6	129	0.00
71	T	n-Nonane	1.835	1.611	12.2	130	0.00
72	T	1,1,2,2-Tetrachloroethane	1.484	1.336	10.0	129	-0.01
73	S	Bromofluorobenzene (SS3)	0.744	0.647	13.0	134	0.00
74	T	Cumene	4.137	3.493	15.6	122	0.00
75	T	alpha-Pinene	2.122	1.783	16.0	119	0.00
76	T	n-Propylbenzene	4.824	4.024	16.6	121	-0.01
77	T	3-Ethyltoluene	4.193	3.660	12.7	126	-0.01
78	T	4-Ethyltoluene	3.826	3.095	19.1	115	-0.01
79	T	1,3,5-Trimethylbenzene	3.440	2.851	17.1	119	-0.01
80	T	alpha-Methylstyrene	1.910	1.573	17.6	116	-0.01
81	T	2-Ethyltoluene	4.026	3.518	12.6	126	-0.01
82	T	1,2,4-Trimethylbenzene	3.413	2.945	13.7	122	-0.01
83	T	n-Decane	1.841	1.510	18.0	121	-0.01
84	T	Benzyl Chloride	2.972	2.307	22.4	105	-0.01
85	T	1,3-Dichlorobenzene	2.126	1.715	19.3	115	-0.01
86	T	1,4-Dichlorobenzene	2.091	1.711	18.2	113	-0.01
87	T	sec-Butylbenzene	4.619	3.842	16.8	120	0.00
88	T	4-Isopropyltoluene (p-Cymen	4.435	3.794	14.5	125	-0.01
89	T	1,2,3-Trimethylbenzene	3.475	2.947	15.2	124	-0.01
90	T	1,2-Dichlorobenzene	2.027	1.652	18.5	120	-0.01
91	T	d-Limonene	1.411	1.121	20.6	115	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.755	0.652	13.6	121	0.00
93	T	n-Undecane	1.978	1.606	18.8	122	0.00
94	T	1,2,4-Trichlorobenzene	1.522	1.186	22.1	107	0.00
95	T	Naphthalene	4.450	3.244	27.1	98	0.00
96	T	n-Dodecane	1.924	1.563	18.8	125	0.00
97	T	Hexachlorobutadiene	1.164	0.906	22.2	121	0.00
98	T	Cyclohexanone	1.343	1.211	9.8	136	-0.02
99	T	tert-Butylbenzene	3.478	2.950	15.2	123	-0.01
100	T	n-Butylbenzene	3.578	2.997	16.2	121	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

APPENDIX C

Data Validation Report

Stantec Analytical Validation Checklist **Report No. 090219-EC-01**

Project Name: Bridgeton, MO	Project Number: 182608045
Stantec Validator: Elizabeth A. Crowley	Laboratory: ALS –Semi-Valley, CA
Date Validated: 09/02/19 – 10/30/19	Laboratory Project Number: P1904808
Sample Start-End Date: 08/13/19	Laboratory Report Date: 10/29/19

Parameters Validated: Aldehydes by TO-11A, Amines by GC/NPD, Ammonia by ID-188/ID-164, Carboxylic Acids by GC/MS, Sulfur Compounds by ASTM D5504-12 and Volatile Organic Compounds with TICs by EPA TO-15

Samples Validated: 5 air field samples, 2 Field Blank and 1 Trip Blank

VALIDATION CRITERIA CHECK

Validation Flags Applicable to this Review:

U The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

B The analyte was detected in the method, field, and/or trip blank.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

	Yes	No
1. Were all the analyses requested for the samples submitted with each COC completed by the lab?	X	
Comments:		
2. Did the laboratory identify any non-conformances related to the analytical result?	Yes X	No
Comments: Refer to laboratory report "Case Narrative" for minor issues. Only issues requiring qualifying action are detailed in this report.		
3. Were sample Chain-of-Custody forms complete?	Yes X	No
Comments:		
4. Were samples received in good condition and at the appropriate temperature?	Yes X	No
Comments:		
5. Were sample holding times met?	Yes X	No
Comments:		
6. Were correct concentration units reported?	Yes X	No
Comments:		
7. Were detections found in laboratory blank samples?	Yes	No X

Comments:			
8. Were detections found in field blank, equipment rinse blank, and/or trip blank samples?		Yes X	No
Comments: Summa FB1 – Ethanol = 28 µg/m³; 15 ppbv. Associated sample results below the blank concentration are validated to non-detect and flagged "UJB". Sample results greater than the blank concentration are flagged "JB". The reporting limit and/or the detection limit is changed to the blank concentration. Sample results greater than 10 times the blank concentration require no qualifying action. Reason Code – FB			
9. Were instrument calibrations within method criteria?		Yes X	No
Comments:			
10. Were surrogate recoveries within control limits?		Yes X	No
Comments:			
11. Were laboratory control (LC/LD) sample recoveries within control limits?		Yes X	No
Comments:			
12. Were site specific matrix spike (MS/MD) recoveries within control limits?	NA	Yes	No
Comment: No matrix samples required by method.			
13. Were RPDs within control limits?		Yes X	No
Comments:			
14. Were dilutions required on any samples?		Yes X	No
Comments: No qualifying action required.			
15. Were Tentatively Identified Compounds (TIC) present?		Yes X	No
Comments: TO-15 - Analytes not listed by the method but detected and tentatively identified are reported. Associated sample results are flagged "NJ". Reason Code – NTC			
16. Were organic system performance criteria met?	NA	Yes	No
Comments: Level III data package, no data provided.			
17. Were GC/MS internal standards within method criteria?	NA	Yes	No
Comments: Level III data package, no data provided.			
18. Were inorganic system performance criteria met?	NA	Yes	No
Comments: Level III data package, no data provided.			

19. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	Yes	No
	X	

Duplicate Sample Nos.

813-DUPE02	813 U1-ALD
813-DUPE01	813 D1-Amine
813-DUPE03	813 U2-NH3
813-DUPE04	813 D2-Carbox
813-DUPE10	813 U1-Summa (sulfur and TO-15)

Comments: All RPDs within limits except Acetonitrile and Acetaldehyde, associated results flagged "J".
Reason Code – FDUP

20. Were at least 10 percent of the hard copy results compared to the Electronic Data Deliverable Results?	Yes	No	Initials
	X		EAC

Comments:

21. Other:	Yes	No
	X	

Comments: TO-11A – The chromatogram peaks for Formaldehyde and Acetaldehyde overlap making the concentration of the analytes questionable for 813 U2-Summa. Associated results flagged "J".
Reason Code - ID

PRECISION, ACCURACY, METHOD COMPLIANCE AND COMPLETENESS ASSESSMENT

Precision:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Sensitivity:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Accuracy:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Representativeness:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Method Compliance:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Completeness:	Acceptable X	Unacceptable	Initials EAC
Comments:			

APPENDIX D

1st Semi-Annual Ambient Air Sampling Event 2019

Summary Tables

Table D-1.
First Semi-Annual Sampling Event 2019
Summary of Sampling Activities
January 10, 2019

Perimeter			
Upwind Locations		**Downwind Locations**	
Aldehydes/Carbonyl Compounds – Method: EPA TO-11a			
110U1-ALD ***110-DUPE01***	**110U2-ALD**	**110D1-ALD**	**110D2-ALD**
Amine Compounds – AQL 101			
110U1-AMINE	**110U2-AMINE**	**110D1-AMINE** ***110-DUPE02***	**110D2-AMINE**
Ammonia – Method: OSHA ID 188			
110U1-NH3	**110U2-NH3** ***110-DUPE03***	**110D1-NH3**	**110D2-NH3**
Carboxylic Acid Compounds – Method: CAS AQL 102			
110U1-CARBOX	**110U2-CARBOX**	**110D1-CARBOX**	**110D2-CARBOX** ***110DUPE-04***
Volatile Organic Compounds (VOCs) – Method: EPA TO15 + TICs – Standard Analyte List			
110U1-SUMMA	**110U2-SUMMA**	**110D1-SUMMA** ***110-DUPE10***	**110D2-SUMMA**
Reduced Sulfur Compound – ASTM D5504 (Lab Report - P1503125)			
110U1-SUMMA	**110U2-SUMMA**	**110D1-SUMMA** ***110-DUPE10***	**110D2-SUMMA**

Notes:
Field Blanks and Trip Blanks were submitted for all analytical methods.

Table D-2.
First Semi-Annual Sampling Event 2019
Ambient Air Sampling Results (Concentrations µg/m^3)
January 10, 2019

Analyte	Screening Levels (µg/m^3)				Perimeter Sampling Locations			
	USEPA Industrial RSL	USEPA Residential RSL	OSHA PEL	ACGIH TLV	Upwind 1 (Old C&D Landfill/Grassy Knoll)	Upwind 2 (Old C&D Landfill/Grassy Knoll)	Downwind 1 (East Fence)	Downwind 2 (South Fence)
Aldehydes/Carbonyl Compounds – Method: EPA TO-11a								
Sample ID					**110U1-ALD (110-DUPE01)**	**110U2-ALD**	**110D1-ALD**	**110D2-ALD**
2,5-Dimethylbenzaldehyde	--	--	--	--	ND (Range of MRLs - <0.31 to <0.42)			
Acetaldehyde	5.6	1.3	360,000	45,000	**0.94 (0.81)**	**0.87**	**0.89**	**0.91**
Benzaldehyde	--	--	--	--	ND (Range of MRLs - <0.31 to <0.42)			
Butyraldehyde	--	--	--	--	ND (Range of MRLs - <0.31 to <0.42)			
Crotonaldehyde, Total	--	--	6,000	860	ND (Range of MRLs - <0.31 to <0.42)			
Formaldehyde	0.94	0.22	920	400	**0.73 (0.77)**	**0.81**	**0.84**	**0.86**
Isovaleraldehyde	--	--	--	--	ND (Range of MRLs - <0.31 to <0.42)			
m,p-Tolualdehyde	--	--	--	--	ND (Range of MRLs - <0.62 to <0.85)			
n-Hexaldehyde	--	--	--	--	**0.42 (0.41)**	**0.50**	<0.35	<0.31
o-Tolualdehyde	--	--	--	--	ND (Range of MRLs - <0.31 to <0.42)			
Propionaldehyde	35	8.3	--	48,000	ND (Range of MRLs - <0.31 to <0.42)			
Valeraldehyde	--	--	--	176,000	ND (Range of MRLs - <0.31 to <0.42)			
Amine Compounds – AQL 101								
Sample ID					**110U1-AMINE**	**110U2-AMINE**	**110D1-AMINE (110-DUPE02)**	**110D2-AMINE**
Diethylamine	--	--	75,000	15,000	ND (Range of MRLs - <41 to <74)			
Diisopropylamine	--	--	20,000	2,100	ND (Range of MRLs - <41 to <73)			
Dimethylamine	--	--	18,000	920	ND (Range of MRLs - <43 to <77)			
Dipropylamine	--	--	--	--	ND (Range of MRLs - <41 to <75)			
Ethylamine	--	--	18,000	9,000	ND (Range of MRLs - <44 to <79)			
Isobutylamine	--	--	--	--	ND (Range of MRLs - <42 to <76)			
Isopropylamine	--	--	12,000	12,000	ND (Range of MRLs - <41 to <75)			
n-Butylamine	--	--	15,000	15,000	ND (Range of MRLs - <41 to <75)			
n-Propylamine	--	--	--	--	ND (Range of MRLs - <43 to <77)			
sec-Butylamine	--	--	--	--	ND (Range of MRLs - <41 to <74)			
tert-Butylamine	--	--	--	--	ND (Range of MRLs - <41 to <74)			
Triethylamine	31	7.3	100,000	2,070	ND (Range of MRLs - <41 to <74)			
Trimethylamine	--	--	--	--	ND (Range of MRLs - <42 to <76)			
Ammonia – Method*: OSHA ID 188*								
Sample ID					**110U1-NH3**	**110U2-NH3 (110-DUPE03)**	**110D1-NH3**	**110D2-NH3**
Ammonia	2,200	520	35,000	17,500	ND (Range of MRLs - <110 to <120)			
Carboxylic Acid Compounds – Method: CAS AQL 102								
Sample ID					**110U1-CARBOX**	**110U2-CARBOX**	**110D1-CARBOX**	**110D2-CARBOX (110DUPE-04)**
2-Ethylhexanoic Acid	--	--	--	--	ND (Range of MRLs - <2.7 to <3.0)			
2-Methylbutanoic Acid	--	--	--	--	ND (Range of MRLs - <2.6 to <3.0)			
2-Methylpentanoic Acid	--	--	--	--	ND (Range of MRLs - <2.6 to <2.9)			
2-Methylpropanoic Acid (Isobutyric)	--	--	--	--	ND (Range of MRLs - <2.7 to <3.0)			
3-Methylbutanoic Acid (Isovaleric)	--	--	--	--	ND (Range of MRLs - <2.7 to <3.0)			
3-Methylpentanoic Acid	--	--	--	--	ND (Range of MRLs - <2.6 to <3.0)			
4-Methylpentanoic Acid (Isocaproic)	--	--	--	--	ND (Range of MRLs - <2.6 to <2.9)			
Acetic Acid	--	--	25,000	2,500	ND (Range of MRLs - <22 to <24)			
Benzoic Acid	--	--	--	--	ND (Range of MRLs - <2.9 to <3.3)			
Butanoic Acid (Butyric)	--	--	--	--	ND (Range of MRLs - <2.7 to <3.0)			
Cyclohexanecarboxylic Acid	--	--	--	--	ND (Range of MRLs - <2.6 to <2.9)			
Heptanoic Acid (Enanthoic)	--	--	--	--	ND (Range of MRLs - <2.6 to <2.9)			
Hexanoic Acid (Caproic)	--	--	--	--	ND (Range of MRLs - <2.6 to <2.9)			
Nonanoic Acid (Pelargonic)	--	--	--	--	ND (Range of MRLs - <2.6 to <2.9)			
Octanoic Acid (Caprylic)	--	--	--	--	ND (Range of MRLs - <2.6 to <3.0)			
Pentanoic Acid (Valeric)	--	--	--	--	ND (Range of MRLs - <2.6 to <3.0)			
Propionic Acid (Propanoic)	--	--	--	--	ND (Range of MRLs - <2.6 to <3.0)			
Volatile Organic Compounds (VOCs) – Method: EPA TO15 + TICs – Standard Analyte List								
Sample ID					**110U1-SUMMA**	**110U2-SUMMA**	**110D1-SUMMA (110-DUPE10)**	**110D2-SUMMA**
1,1,1-Trichloroethane	22,000	5,200	1,900,000	1,900,000	ND (Range of MRLs - <0.77 to <0.83)			
1,1,2,2-Tetrachloroethane	0.21	0.048	35,000	7,000	ND (Range of MRLs - <0.75 to <0.82)			
1,1,2-Trichloroethane	0.77	0.18	45,000	55,000	ND (Range of MRLs - <0.77 to <0.83)			
1,1-Dichloroethane	7.7	1.8	400,000	400,000	ND (Range of MRLs - <0.74 to <0.80)			
1,1-Dichloroethene	880	210	--	--	ND (Range of MRLs - <0.77 to <0.83)			
1,2,4-Trichlorobenzene	8.8	2.1	--	--	ND (Range of MRLs - <0.75 to <0.82)			
1,2,4-Trimethylbenzene	260	63	--	--	ND (Range of MRLs - <0.75 to <0.82)			
1,2-Dibromo-3-chloropropane	0.002	0.00017	10	--	ND (Range of MRLs - <0.74 to <0.80)			
1,2-Dibromoethane	0.02	0.0047	150,000	--	ND (Range of MRLs - <0.77 to <0.83)			
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	--	--	7,000,000	7,000,000	ND (Range of MRLs - <0.72 to <0.79)			
1,2-Dichlorobenzene	880	210	300,000	150,000	ND (Range of MRLs - <0.77 to <0.83)			
1,2-Dichloroethane	0.47	0.11	200,000	4,000	ND (Range of MRLs - <0.75 to <0.82)			
1,2-Dichloropropane	3.3	0.76	350,000	46,000	ND (Range of MRLs - <0.77 to <0.83)			
1,3,5-Trimethylbenzene	260	63	--	--	ND (Range of MRLs - <0.75 to <0.82)			
1,3-Butadiene	0.41	0.094	2,000	4,400	ND (Range of MRLs - <0.74 to <0.80)			
1,3-Dichlorobenzene	--	--	--	--	ND (Range of MRLs - <0.77 to <0.83)			
1,4-Dichlorobenzene	1.1	0.26	450,000	60,000	ND (Range of MRLs - <0.77 to <0.83)			
1,4-Dioxane	2.5	0.56	360,000	72,000	ND (Range of MRLs - <0.75 to <0.82)			
2-Butanone (MEK)	22,000	5,200	590,000	590,000	ND (Range of MRLs - <1.4 to <1.5)			
2-Hexanone (MBK)	130	31	410,000	20,500	ND (Range of MRLs - <0.77 to <0.83)			
Isopropyl Alcohol	880	210	980,000	490,000	ND (Range of MRLs - <3.0 to <3.2)			
3-Chloro-1-propene	2	0.47	3,000	3,000	ND (Range of MRLs - <0.75 to <0.82)			
4-Ethyltoluene	--	--	--	--	ND (Range of MRLs - <0.75 to <0.82)			
4-Methyl-2-pentanone	13,000	3,100	410,000	82,000	ND (Range of MRLs - <0.75 to <0.82)			
Acetone	140,000	32,000	2,400,000	594,000	ND (Range of MRLs - <7.7 to <8.3)			
Acetonitrile	260	63	70,000	34,000	**1.4**	**0.84**	**0.78 (4.2)**	**2.6**
Acrolein	0.088	0.021	250	250	ND (Range of MRLs - <1.4 to <1.5)			
Acrylonitrile	0.18	0.041	4,300	4,300	ND (Range of MRLs - <0.74 to <0.80)			
alpha-Pinene	--	--	--	--	ND (Range of MRLs - <0.74 to <0.80)			
Benzene	1.6	0.36	3,000	1,600	ND (Range of MRLs - <0.74 to <0.80)			
Benzyl Chloride	0.25	0.057	5,000	5,000	ND (Range of MRLs - <1.6 to <1.7)			
Bromodichloromethane	0.33	0.076	--	--	ND (Range of MRLs - <0.75 to <0.82)			
Bromoform	11	2.6	5,000	5,200	ND (Range of MRLs - <0.75 to <0.82)			

Table D-2.
First Semi-Annual Sampling Event 2019
Ambient Air Sampling Results (Concentrations µg/m^3)
January 10, 2019

Analyte	Screening Levels (ug/m^3)				Perimeter Sampling Locations			
	USEPA Industrial RSL	USEPA Residential RSL	OSHA PEL	ACGIH TLV	Upwind 1 (Old C&D Landfill/Grassy Knoll)	Upwind 2 (Old C&D Landfill/Grassy Knoll)	Downwind 1 (East Fence)	Downwind 2 (South Fence)
Bromomethane	22	5.2	80,000c	4,000	ND (Range of MRLs - <0.71 to <0.77)			
Carbon Disulfide	3100	730	62,000	3,000	ND (Range of MRLs - <1.6 to <1.7)			
Carbon Tetrachloride	2	0.47	62,000	31,000	ND (Range of MRLs - <0.74 to <0.80)			
Chlorobenzene	220	52	350,000	46,000	ND (Range of MRLs - <0.75 to <0.82)			
Chloroethane	44,000	10,000	2,600,000	264,000	ND (Range of MRLs - <0.72 to <0.79)			
Chloroform	0.53	0.12	240,000c	49,000	ND (Range of MRLs - <0.77 to <0.83)			
Chloromethane	390	94	206,000	103,000	ND (Range of MRLs - <0.71 to <0.77)			
cis-1,2-Dichloroethene	--	--	800,000	800,000	ND (Range of MRLs - <0.75 to <0.82)			
cis-1,3-Dichloropropene	3.1	0.7	--	--	ND (Range of MRLs - <0.80 to <0.86)			
Cumene	1,800	420	245,000	246,000	ND (Range of MRLs - <0.75 to <0.82)			
Cyclohexane	26,000	6,300	1,050,000	344,000	ND (Range of MRLs - <1.4 to <1.5)			
Dibromochloromethane	--	--	--	--	ND (Range of MRLs - <0.77 to <0.83)			
Dichlorodifluoromethane (CFC 12)	440	100	4,950,000	4,950,000	**2.6**	**2.6**	**2.6 (2.7)**	**2.6**
d-Limonene	--	--	--	--	ND (Range of MRLs - <0.72 to <0.79)			
Ethanol	--	--	1,900,000	1,880,000	ND (Range of MRLs - <7.2 to (7.9)			
Ethyl Acetate	310	73	1,400,000	1,440,000	<1.6	<1.6	**2.2** (<1.7)	**5.2**
Ethylbenzene	4.9	1.1	435,000	87,000	ND (Range of MRLs - <0.74 to <0.80)			
Hexachlorobutadiene	0.56	0.13	--	200	ND (Range of MRLs - <0.75 to <0.82)			
m,p-Xylenes	440	100	435,000	434,000	ND (Range of MRLs - <1.6 to <1.7)			
Methyl Methacrylate	3,100	730	410,000	205,000	ND (Range of MRLs - <1.6 to <1.7)			
Methyl tert-Butyl Ether	47	11	--	180,000	ND (Range of MRLs - <0.77 to <0.83)			
Methylene Chloride	1,200	100	87,000	174,000	**1.4**	**0.81**	<0.78 (<0.83)	<0.81
Naphthalene	0.36	0.083	50,000	52,000	ND (Range of MRLs - <0.72 to <0.79)			
n-Butyl Acetate	--	--	710,000	--	ND (Range of MRLs - <0.77 to <0.83)			
n-Heptane	1,800	420	2,000,000	1,640,000	ND (Range of MRLs - <0.77 to <0.83)			
n-Hexane	3,100	730	1,800,000	176,000	ND (Range of MRLs - <0.77 to <0.83)			
n-Nonane	88	21	--	--	ND (Range of MRLs - <0.77 to <0.83)			
n-Octane	--	--	2,350,000	1,400,000	ND (Range of MRLs - <0.77 to <0.83)			
n-Propylbenzene	4,400	1,000	--	--	ND (Range of MRLs - <0.77 to <0.83)			
o-Xylene	440	100	435,000	434,000	ND (Range of MRLs - <0.75 to <0.82)			
Propene	13,000	3,100	--	--	<0.74	<0.76	**0.91** (<0.80)	**1.0**
Styrene	4,400	1,000	425,000	85,000	ND (Range of MRLs - <0.75 to <0.82)			
Tetrachloroethene	47	11	678,000	170,000	ND (Range of MRLs - <0.75 to <0.82)			
Tetrahydrofuran (THF)	8,800	2,100	590,000	147,500	ND (Range of MRLs - <0.75 to <0.82)			
Toluene	22,000	5,200	753,000	75,000	ND (Range of MRLs - <0.75 to <0.82)			
trans-1,2-Dichloroethene	--	--	790,000	793,000	ND (Range of MRLs - <0.75 to <0.82)			
trans-1,3-Dichloropropene	--	--	--	--	ND (Range of MRLs - <0.75 to <0.82)			
Trichloroethene	3	0.48	537,000	54,000	ND (Range of MRLs - <0.75 to <0.82)			
Trichlorofluoromethane (CFC 11)	--	--	5,600,000	5,620,000c	**1.4**	**1.3**	**1.4 (1.4)**	**1.3**
Trichlorotrifluoroethane	22,000	5,200	7,600,000	7,670,000	ND (Range of MRLs - <0.75 to <0.82)			
Vinyl Acetate	880	210	--	35,000	ND (Range of MRLs - <7.5 to <8.2)			
Vinyl Chloride	2.8	0.17	2,600	2,600	ND (Range of MRLs - <0.75 to <0.82)			
Volatile Organic Compounds (VOCs) –Method: EPA TO15 + TICs - Tentatively Identified Compounds								
				Sample ID	**110U1-SUMMA**	**110U2-SUMMA**	**110D1-SUMMA (110-DUPE10)**	**110D2-SUMMA**
Sulfur Dioxide (4.07)	--	--	13,000	--	ND	ND	**9.4** (ND)	ND
n-Pentane (7.66)	4,400	1,000	2,950,000	2,950,000	ND	ND	**3.0** (ND)	ND
Hexamethylcyclotrisiloxane (17.07)	--	--	--	--	ND	ND	ND **(8.2)**	ND
Reduced Sulfur Compound – ASTM D5504								
				Sample ID	**110U1-SUMMA**	**110U2-SUMMA**	**110D1-SUMMA (110-DUPE10)**	**110D2-SUMMA**
2,5-Dimethylthiophene	--	--	--	--	ND (Range of MRLs - <33 to <35)			
2-Ethylthiophene	--	--	--	--	ND (Range of MRLs - <33 to <35)			
3-Methylthiophene	--	--	--	--	ND (Range of MRLs - <28 to <31)			
Carbon Disulfide	3,100	730	62,000	3,000	ND (Range of MRLs - <11 to <12)			
Carbonyl Sulfide	440	100	--	--	ND (Range of MRLs - <17 to <19)			
Diethyl Disulfide	--	--	--	--	ND (Range of MRLs - <18 to <19)			
Diethyl Sulfide	--	--	--	--	ND (Range of MRLs - <26 to <28)			
Dimethyl Disulfide	--	--	--	--	ND (Range of MRLs - <14 to <15)			
Dimethyl Sulfide	--	--	--	--	ND (Range of MRLs - <18 to <20)			
Ethyl Mercaptan	--	--	25,000c	1,300	ND (Range of MRLs - <18 to <20)			
Ethyl Methyl Sulfide	--	--	--	--	ND (Range of MRLs - <22 to <24)			
Hydrogen Sulfide	8.8	2.1	28,000c	1,400	ND (Range of MRLs - <9.9 to <11)			
Isobutyl Mercaptan	--	--	--	--	ND (Range of MRLs - <26 to <28)			
Isopropyl Mercaptan	--	--	--	--	ND (Range of MRLs - <22 to <24)			
Methyl Mercaptan	--	--	20,000c	1,000	ND (Range of MRLs - <14 to <15)			
n-Butyl Mercaptan	--	--	35,000	1,800	ND (Range of MRLs - <26 to <28)			
n-Propyl Mercaptan	--	--	--	--	ND (Range of MRLs - <22 to <23)			
tert-Butyl Mercaptan	--	--	--	--	ND (Range of MRLs - <26 to <28)			
Tetrahydrothiophene	--	--	--	--	ND (Range of MRLs - <26 to <28)			
Thiophene	--	--	--	--	ND (Range of MRLs - <24 to <26)			

USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels (RSL) for Industrial Air (RSL). (USEPA: November 2018, TR=1E-06, HQ=1).
USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels for Residential Air. (USEPA: November 2018, TR=1E-06, HQ=1)
OSHA PEL: Occupational Safety & Health Administration (OSHA) Permissible Exposure Limit
ACGIH: American Conference of Governmental Industrial Hygienists- Threshold Limit Value
"--" = Not Available
"<": Compound not detected above Method Reporting Limit (MRL).
Bold indicates that compound was detected above Method Reporting Limits (MRL).
Gray shading indicates concentration exceeds one or more screening values.
J = The result is an estimated concentration that is less than the Method Reporting Limit (MRL) but greater than the Method Detection Limit (MDL).
c: Indicates that the value is an OSHA PEL ceiling limit
"ND": Not Detected
Concentrations in parentheses represent duplicate samples.

Table D-3.
First Semi-Annual Sampling Event 2019
Ambient Air Sampling Results - Detected Compounds Only (Concentrations µg/m^3)
January 10, 2019

Analyte	Screening Levels (µg/m^3)				Perimeter Sampling Locations			
	USEPA Industrial RSL	USEPA Residential RSL	OSHA PEL	ACGIH TLV	Upwind 1 (Old C&D Landfill/ Grassy Knoll)	Upwind 2 (Old C&D Landfill/ Grassy Knoll)	Downwind 1 (East Fence)	Downwind 2 (South Fence)
Aldehydes/Carbonyl Compounds – Method: EPA TO-11a								
Sample ID					**110U1-ALD (110-DUPE01)**	**110U2-ALD**	**110D1-ALD**	**110D2-ALD**
Acetaldehyde	5.6	1.3	360,000	45,000	**0.94 (0.81)**	**0.87**	**0.89**	**0.91**
Formaldehyde	0.94	0.22	920	400	**0.73 (0.77)**	**0.81**	**0.84**	**0.86**
n-Hexaldehyde	--	--	--	--	**0.42 (0.41)**	**0.50**	<0.35	<0.31
Amine Compounds – AQL 101								
No Amine Compounds Detected Above Reporting Limits (Range of Reporting Limits - <41 to <79)								
Ammonia – Method*: OSHA ID 188*								
Ammonia was not Detected Above Reporting Limits (Range of Reporting Limits - <110 to <120)								
Carboxylic Acid Compounds – Method: CAS AQL 102								
No Carboxylic Compounds Detected (Range of Reporting Limits - <2.6 to <24)								
Volatile Organic Compounds (VOCs) – Method: EPA TO15 + TICs – Standard Analyte List								
Sample ID					**110U1-SUMMA**	**110U2-SUMMA**	**110D1-SUMMA (110-DUPE10)**	**110D2-SUMMA**
Acetonitrile	260	63	70,000	34,000	**1.4**	**0.84**	**0.78 (4.2)**	**2.6**
Dichlorodifluoromethane (CFC 12)	440	100	4,950,000	4,950,000	**2.6**	**2.6**	**2.6 (2.7)**	**2.6**
Ethyl Acetate	310	73	1,400,000	1,440,000	<1.6	<1.6	**2.2** (<1.7)	**5.2**
Methylene Chloride	1,200	100	87,000	174,000	**1.4**	**0.81**	<0.78 (<0.83)	<0.81
Propene	13,000	3,100	--	--	<0.74	<0.76	**0.91** (<0.80)	**1.0**
Trichlorofluoromethane (CFC 11)	--	--	5,600,000	5,620,000c	**1.4**	**1.3**	**1.4 (1.4)**	**1.3**
Sulfur Dioxide (4.07)	--	--	13,000	--	--	--	**9.4** (--)	--
n-Pentane (7.66)	4,400	1,000	2,950,000	2,950,000	--	ND	**3.0** (--)	--
Hexamethylcyclotrisiloxane (17.07)	--	--	--	--	--	--	-- **(8.2)**	--
Reduced Sulfur Compound – ASTM D5504								
Sample ID					**110U1-SUMMA**	**110U2-SUMMA**	**110D1-SUMMA (110-DUPE10)**	**110D2-SUMMA**
No Reduced Sulfur Compounds Detected Above Reporting Limits (Range of Reporting Limits - <9.9 to <34)								

USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels (RSL) for Industrial Air (RSL). (USEPA: November 2018, TR=1E-06, HQ=1).
USEPA Industrial RSL: United States Environmental Protection Agency Regional Screening Levels for Residential Air. (USEPA: November 2018, TR=1E-06, HQ=1)
OSHA PEL: Occupational Safety & Health Administration (OSHA) Permissible Exposure Limit
ACGIH: American Conference of Governmental Industrial Hygienists- Threshold Limit Value
"--" = Not Available
"<": Compound not detected above Method Reporting Limit (MRL).
Bold indicates that compound was detected above Method Reporting Limits (MRL).
Gray shading indicates concentration exceeds one or more screening values.
J = The result is an estimated concentration that is less than the Method Reporting Limit (MRL) but greater than the Method Detection Limit (MDL).
c: Indicates that the value is an OSHA PEL ceiling limit
Concentrations in parentheses represent duplicate samples.

Table D-4.
First Semi-Annual Sampling Event 2019
Ambient Air Sampling Results - Quality Assurance/Quality Control Samples (Concentrations µg/m^3)
January 10, 2019

Analyte	Screening Levels (µg/m^3)				Quality Assurance/Quality Control Samples		
	USEPA Industrial RSL	USEPA Residential RSL	OSHA PEL	ACGIH TLV			
Aldehydes/Carbonyl Compounds – Method: EPA TO-11a							
				Sample ID	**110TB-Ald**	**110FB-Ald**	**Method Blank**
No Aldehyde Compounds Detected Above MRLs (Range of MRLs - <100 to <200 ng/Sample)							
Amine Compounds – AQL 101							
				Sample ID	**110TB-Amine**	**110FB-Amine**	**Method Blank**
No Amine Compounds Detected Above MRLs (Range of MRLs - <1.0 to <1.1 µg/Sample)							
Ammonia – Method*: OSHA ID 188*							
				Sample ID	**110TB-NH3**	**110FB-NH3**	**Method Blank**
Ammonia was not Detected Above MRLs (Range of MRLs - <10 µg/Sample)							
Carboxylic Acid Compounds – Method: CAS AQL 102							
				Sample ID	**110TB-CARBOX**	**110FB-CARBOX**	**Method Blank**
No Carboxylic Compounds Detected (Range of MRLs - <0.26 to <2.1 µg/Sample)							
Volatile Organic Compounds (VOCs) – Method: EPA TO15 + TICs – Standard Analyte List							
				Sample ID	**110-SUMMA-TB**	**110-SUMMA-FB**	**Method Blank**
2-Propanol (Isopropyl Alcohol)	880	210	980,000	490,000	<2.1	**35**	<2.1
Acetone	140,000	32,000	2,400,000	594,000	<5.4	**10**	<5.4
alpha-Pinene	--	--	--	--	<0.52	**1.8**	<0.52
Benzene	1.6	0.36	3,000	1,600	<0.52	**0.90**	<0.52
Dichlorodifluoromethane (CFC 12)	440	100	4,950,000	4,950,000	<0.52	**0.67**	<0.52
d-Limonene	--	--	--	--	<0.51	**2.1**	<0.51
Ethanol	--	--	1,900,000	1,880,000	<0.51	**83**	<5.1
Ethyl Acetate	310	73	1,400,000	1,440,000	<1.1	**180**	<1.1
Methylene Chloride	1,200	100	87,000	174,000	<0.54	**0.84**	<0.54
n-Butyl Acetate	--	--	710,000	--	<0.54	**0.99**	<0.54
Propene	13,000	3,100	--	--	<0.52	**12**	<0.52
Toluene	22,000	5,200	753,000	75,000	<0.53	**9.2**	ND
Isobutane (4.66)	--	--	--	--	--	**6.0**	--
n-Pentane (7.66)	810	3,400	3,000,000	3,000,000	--	**8.6**	--
Trimethylsilanol (9.92)	--	--	--	--	**11**	--	--
Hexamethylcyclotrisiloxane (17.07)	--	--	--	--	**7.2**	--	--
unknown (19.93)	--	--	--	--	**2.7**	--	--
2-Ethyl-1-hexanol (20.23)	--	--	--	--	--	**5.1**	--
2-Ethylhexylacetate (21.47)	--	--	--	--	--	**12**	--
unknown Siloxane (21.63)	--	--	--	--	--	**3.6**	--
Reduced Sulfur Compound – ASTM D5504							
				Sample ID	**110-SUMMA-TB**	**110-SUMMA-FB**	**Method Blank**
No Reduced Sulfur Compounds Detected Above MRLs (Range of MRLs - <7 to <23)							

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c: Indicates that the value is an OSHA PEL ceiling limit
(ug/m^3) = micrograms per cubic meter
ng = nanogram
TB = Trip Blank
FB = Field Blank